Leading towards Creativity and Innovation: A Study of Small to Medium Enterprises (SMEs) in Australia

A thesis submitted in fulfilment of the requirements for the degree of Doctor of Philosophy

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August 2015
Declaration

I certify that except where due acknowledgement has been made, the work is that of the author alone; the work has not been submitted previously, in whole or in part, to qualify for any other academic award; the content of the thesis is the result of work which has been carried out since the official commencement date of the approved research program; any editorial work, paid or unpaid, carried out by a third party is acknowledged; and, ethics procedures and guidelines have been followed.

Ashkan Khalili

August 2015
Acknowledgements

First of all I want to thank God for giving me the patience, encouragement and motivation to complete this goal. The way was arduous and full of difficulties but you were always with me.

Special thanks to my wonderful supervisors, Dr Nuttawuth Muenjohn and Professor Adela McMurray, who provided invaluable never-ending support, guidance and encouragement throughout this journey. Their exceptional knowledge and experience have challenged me, and they will be always my inspiration. I thank them for guiding me through this process; I could not have asked for better supervisors. Their calm and supportive presence made it possible for this to come to fulfilment.

I would like to thank my loving mother, Roya Anvari, for teaching me the importance of a kind and generous heart and providing such a kind and loving environment. Also, I would like to thank my father, Reza Khalili, for his unique guidance throughout my life. He is a man of great wisdom and knowledge and I thank him for all of his love and support. I thank both of them for providing me with such a solid foundation to build my life upon and for being there for me, no matter what. I would like to thank my dear brother, Ardalan Khalili, we share a special kind of friendship that many people are not lucky enough to experience. I thank him for all of his kind and loving support. You are all my emotional strengths in pursuing and completing this remarkable journey, and I love you with all of my heart and soul.

Also I would like to express my sincerest appreciation to the academic and administration staff at the School of Management, RMIT University, for their countless types of support during the course of my study. A special thank you goes to all my colleagues for the moments we shared together to make this journey a superb experience.

This thesis has been professionally edited by Dr Margaret Johnson of The Book Doctor, in accordance with the guidelines established by the Institute of Professional Editors and the Deans and Directors of Graduate Studies. I am thankful for her guidance, support and sense of humour.
Dedication

This thesis is dedicated to

my beloved parents and brother.
Publications, Presentations, Grants And Awards

Journal Papers Under Review


Conference Publication Outputs


Conference Presentations

Khalili, A 2014, ‘Leading towards creativity and innovation: A study of small to medium enterprises (SMEs) in Australia’, Completion Seminar, 28 October 2014, School of Management, College of Business, RMIT University, Melbourne.

Khalili, A 2012, ‘Leading towards creativity and innovation: A study of small to medium enterprises (SMEs) in Australia’, Confirmation of Candidature, 28 November 2012, School of Management, College of Business, RMIT University, Melbourne.

**Grants**

2015 Higher Degree by Research Publications Grant (HDRPG) RMIT University

2014 Higher Degree by Research Travel Grant (HDRTG) RMIT University: International Conference Travel Grant

2014 Higher Degree by Research Travel Grant (HDRTG) RMIT University: Domestic Conference Travel Grant

**Award**

The 2013 RMIT University Higher Degree by Research Publication Excellence Award
Table of Contents

Declaration ........................................................................................................................................ ii
Acknowledgements ........................................................................................................................ iii
Dedication .......................................................................................................................................... iv
Publications, Presentations, Grants And Awards ......................................................................... v
Table of Contents ................................................................................................................................. vii
List of Tables .......................................................................................................................................... xi
List of Figures ......................................................................................................................................... xiii
List of Abbreviations ............................................................................................................................. xv
Definitions of Key Terms ................................................................................................................... xvii
Abstract ................................................................................................................................................ xviii

Chapter 1 Introduction ......................................................................................................................... 1
  1.1 Introduction .................................................................................................................................. 1
  1.2 Background .................................................................................................................................. 1
  1.3 Thesis Purpose ............................................................................................................................... 2
  1.4 Rationale ...................................................................................................................................... 4
  1.5 Research Questions ....................................................................................................................... 9
  1.6 Thesis Method Overview ............................................................................................................... 9
    1.6.1 Conceptual Model Development .......................................................................................... 10
    1.6.2 Quantitative Analysis .......................................................................................................... 10
  1.7 Thesis Structure .......................................................................................................................... 10
  1.8 Chapter Summary ....................................................................................................................... 12

Chapter 2 Literature Review ................................................................................................................ 14
  2.1 Objective ..................................................................................................................................... 14
  2.2 Definitions of Leadership ............................................................................................................ 14
  2.3 Overview of Research Approaches on Leadership .................................................................... 15
    2.3.1 Trait Approach .................................................................................................................... 16
    2.3.2 Style Approach .................................................................................................................. 16
    2.3.3 Contingency Approach ....................................................................................................... 17
    2.3.4 New Leadership Approach ................................................................................................. 17
  2.4 Leadership Behaviour, Creativity and Innovation ..................................................................... 19
  2.5 Creativity and Innovative Behaviour .......................................................................................... 29
  2.6 Supportive Climate for Innovation .............................................................................................. 32
  2.7 Personal Initiative ........................................................................................................................ 34
  2.8 Emotional Intelligence ................................................................................................................ 35
  2.9 Relationship between Variables of the Study ............................................................................ 37
    2.9.1 SME Leadership Behaviour and Employees’ Creativity and Innovative Behaviour ............ 38
    2.9.2 SME Leadership Behaviour, Employees’ Personal Initiative, and Employees’ Creativity and Innovative Behaviour ........................................................ 39
    2.9.3 SME Leadership Behaviour, Individuals’ Perceptions of a Supportive Climate for Innovation, and Employees’ Creativity and Innovative Behaviour ........ 40
    2.9.4 SME Leadership Behaviour, Individuals’ Emotional Intelligence, and Employees’ Creativity and Innovative Behaviour .............................................. 42
  2.10 Small to Medium Enterprises in Australia ................................................................ ............... 44
    2.10.1 Introduction to SMEs ........................................................................................................ 44

vii
2.10.2 Definitions of SMEs ................................................................. 45
2.10.3 Contribution of SMEs to the Australian Economy .................. 47
2.10.4 Number of SMEs in Australia ................................................. 51

2.11 The Importance of the Variables for SMEs .................................. 52
2.11.1 The Importance of Leadership towards Creativity and Innovation for SMEs .... 53
2.11.2 The Importance of Creativity and Innovation for SMEs .................. 57
2.11.3 The Importance of Personal Initiative for SMEs ............................ 58
2.11.4 The Importance of Supportive Climate for Innovation for SMEs .......... 59
2.11.5 The Importance of Emotional Intelligence for SMEs ...................... 60

2.12 Chapter Summary ........................................................................ 62

Chapter 3 Development of Research Model ......................................... 63
3.1 Introduction ................................................................................. 63
3.2 Theoretical Framework and Research Questions ............................. 63
3.3 Hypotheses Development .............................................................. 66

3.3.1 Relationships between SME Leadership Behaviour, and Employees’ Creativity and Innovative Behaviour .............................................. 67
3.3.2 Relationships between SME Leadership Behaviour, Employees’ Personal Initiative, and Employees’ Creativity and Innovative Behaviour ........................................ 70
3.3.3 Relationships between SME Leadership Behaviour, Individuals’ Perceptions of a Supportive Climate for Innovation, and Employees’ Creativity and Innovative Behaviour ........................................................................ 73
3.3.4 Relationships between SME Leadership Behaviour, Individuals’ Emotional Intelligence, and Employees’ Creativity and Innovative Behaviour ................................................... 75

3.4 Chapter Summary ........................................................................ 80

Chapter 4 Research Methodology ....................................................... 81
4.1 Introduction ................................................................................. 81
4.2 Research Paradigm ....................................................................... 82

4.2.1 Research Paradigm Choice ......................................................... 83
4.2.2 Methodological Choice ............................................................... 84

4.3 Research Design ........................................................................ 85
4.4 Selection of Knowledge ................................................................ 88
4.5 Conceptual Model Development .................................................. 88
4.6 Quantitative Data Analysis ............................................................ 89

4.6.1 Sample and Sampling Strategy .................................................... 89
4.6.2 Common Method Bias Techniques .............................................. 91
4.6.3 Prior Power Analysis ................................................................. 92
4.6.4 Data Collection Procedure ......................................................... 94
4.6.5 Survey Questionnaire ................................................................. 95

4.6.6 Measurement Scale ................................................................. 95

4.6.6.1 SME Leadership Behaviour Scale .......................................... 95
4.6.6.2 Employees’ Creativity Scale .................................................. 102
4.6.6.3 Employees’ Innovative Behaviour Scale .................................. 103
4.6.6.4 Individuals’ Perceptions of a Supportive Climate for Innovation Scale .......................................................... 103
4.6.6.5 Employees’ Personal Initiative Scale ...................................... 104
4.6.6.6 Individuals’ Emotional Intelligence Scale ................................ 104

4.7 Pre-Test and Pilot Study ............................................................... 105
4.7.1 Pre-Test .................................................................................. 105
Chapter 5 Measurement Scale Analysis and Research Findings ........................................ 113

5.1 Introduction .................................................................................................................. 113
5.2 Descriptive Analysis ................................................................................................... 114
  5.2.1 Respondent Demographics .................................................................................. 114
  5.2.2 Organisational Profiles ........................................................................................ 117
  5.2.3 Assessment of Mean and Standard Deviation (SD) .................................................. 122
     5.2.3.1 SME Leadership Behaviour ........................................................................ 122
     5.2.3.2 Employees’ Creativity ................................................................................ 122
     5.2.3.3 Employees’ Innovative Behaviour ............................................................... 123
     5.2.3.4 Employees’ Personal Initiative ..................................................................... 123
     5.2.3.5 Individuals’ Perceptions of a Supportive Climate for Innovation .................... 124
     5.2.3.6 Individuals’ Emotional Intelligence ............................................................... 124
5.3 Measurement Reliability .............................................................................................. 125
  5.3.1 Internal Consistency .............................................................................................. 126
  5.3.2 Item-Total Correlations ....................................................................................... 127
5.4 Development of Path Model ....................................................................................... 128
  5.4.1 Exploratory Factor Analysis ................................................................................ 128
     5.4.1.1 Factorability of Data ................................................................................... 129
     5.4.1.2 Factor Extraction and Rotation ................................................................... 130
     5.4.1.3 EFA Outcomes .......................................................................................... 131
     5.4.1.4 Common Method Variance Test .................................................................. 136
  5.4.2 Confirmatory Factor Analysis (CFA) .................................................................... 137
     5.4.2.1 Estimation of Model Fit and Assessment Methods ........................................... 138
     5.4.2.2 Estimation of Construct Validity and Unidimensionality ................................. 139
     5.4.2.3 CFA Outcomes .......................................................................................... 140
5.5 Path Model Analysis: Hypothesis Testing ................................................................. 154
  5.5.1 SME Leadership Behaviour and Employees’ Creativity ....................................... 154
  5.5.2 SME Leadership Behaviour and Employees’ Innovative Behaviour ....................... 155
  5.5.3 Mediating Effect of Employees’ Personal Initiative on the Relationship between SME Leadership Behaviour and Employees’ Creativity ............................................................ 156
  5.5.4 Mediating Effect of Employees’ Personal Initiative on the Relationship between SME Leadership Behaviour and Employees’ Innovative Behaviour ........................................................ 158
  5.5.5 Mediating Effect of Individuals’ Perceptions of a Supportive Climate for Innovation on the Relationship between SME Leadership Behaviour and Employees’ Creativity ........................................................ 160
  5.5.6 Mediating Effect of Individuals’ Perceptions of a Supportive Climate for Innovation on the Relationship between SME Leadership Behaviour and Employees’ Innovative Behaviour ........................................................ 162
  5.5.7 Moderating Effect of Individuals’ Emotional Intelligence on the Relationship between SME Leadership Behaviour and Employees’ Creativity ........................................................ 164
List of Tables

Table 2.1 Championing behaviour scale.................................................................................. 22
Table 2.2 Transformational leadership in the Multifactor Leadership Questionnaire................................................................. 23
Table 2.3 Transformational leadership in the Leadership Profile Inventory.................. 24
Table 2.4 Definitions of SMEs in APEC countries ................................................................. 47
Table 2.5 Industry value added by sector and business size, 2011–12............................ 48
Table 2.6 Employment by sector and business size, 2011–12........................................ 51
Table 2.7 Leadership in SMEs............................................................................................... 55
Table 3.1 Research hypotheses................................................................................................. 79
Table 4.1 Number of emails distributed in each state and territory............................ 91
Table 4.2 Estimations of sample size......................................................................................... 93
Table 4.3 Theoretical components of the construct of SME leadership behaviour ...... 98
Table 4.4 Reliability of scales for pilot test............................................................................... 107
Table 4.5 The results of skewness and kurtosis................................................................. 111
Table 5.1 Distribution of respondents according to gender........................................ 114
Table 5.2 Distribution of respondents according to age....................................................... 114
Table 5.3 Distribution of respondents by marital status......................................................... 115
Table 5.4 Distribution of respondents by education............................................................... 115
Table 5.5 Distribution of respondents by position................................................................. 116
Table 5.6 Distribution of respondents by employment.......................................................... 116
Table 5.7 Distribution of respondents by tenure................................................................. 117
Table 5.8 Means and standard deviations for SME leadership behaviour................... 122
Table 5.9 Mean and standard deviation for employees’ creativity...................................... 123
Table 5.10 Mean and standard deviation for employees’ innovative behaviour.......... 123
Table 5.11 Mean and standard deviation for employees’ personal initiative.............. 124
Table 5.12 Mean and standard deviation for individuals’ perceptions of a supportive climate for innovation................................. 124
Table 5.13 Means and standard deviations for individuals’ emotional intelligence .. 125
Table 5.14 Cronbach’s alphas of measurement scales .......................................................... 126
Table 5.15 Item-total correlations of the construct items ....................................................... 127
Table 5.16 KMO and Bartlett’s Test of Sphericity................................................................. 130
Table 5.17 Rotated factor loadings of the 30 items of the SMELB construct............. 132
Table 5.18 Rotated factor loadings of the 24 items of the SMELB construct ........ 133
Table 5.19 Rotated factor loadings of the EC Construct .................................... 134
Table 5.20 Rotated factor loadings of the EIB construct .................................... 134
Table 5.21 Rotated factor loadings of the EPI construct .................................... 135
Table 5.22 Rotated factor loadings of the IPSCFI construct ................................. 135
Table 5.23 Rotated factor loadings of the IEI construct .................................... 136
Table 5.24 Common method variance test ......................................................... 137
Table 5.25 Criteria for a model fit ..................................................................... 139
Table 5.26 SMC and T-values of the SME Leadership Behaviour Items .............. 142
Table 5.27 SMC and T-values of the employees’ creativity items ....................... 144
Table 5.28 SMC and T-values of the employees’ innovative behaviour items .......... 145
Table 5.29 SMC and T-values of the employees’ personal initiative items .......... 146
Table 5.30 SMC and T-values of the individuals’ perceptions of a supportive climate for innovation items ................................................................. 149
Table 5.31 SMC and T-values of the individuals’ emotional intelligence items ........ 151
Table 5.32 Factor loading, SMC and T-values of the measurement model outcomes ................................................................. 153
Table 7.1 Summary of hypothesis testing ......................................................... 191
List of Figures

Figure 2.1 Contribution to industry value added by business size, 2011–12 ............ 48
Figure 2.2 Employment by business size, 2011–12 .............................................. 49
Figure 2.3 SME employment by industry, 2011-12 ................................................. 50
Figure 2.4 Business numbers by size, June 2013 ..................................................... 51
Figure 2.5 SME numbers by state and territory, 2012–13 ........................................... 52
Figure 3.1 Theoretical framework ........................................................................... 64
Figure 3.2 Proposed conceptual model ..................................................................... 66
Figure 3.3 Research model with related hypotheses ................................................... 80
Figure 4.1 Research design ........................................................................................ 87
Figure 5.1 Distribution of SMEs by business size .................................................... 117
Figure 5.2 Distribution of SMEs by state and territory ............................................ 118
Figure 5.3 Distribution of SMEs by business operation ......................................... 119
Figure 5.4 Distribution of SMEs by age of company .............................................. 119
Figure 5.5 Distribution of SMEs by Industry .............................................................. 120
Figure 5.6 Distribution of SMEs by sector ................................................................. 121
Figure 5.7 Distribution of SMEs by business ownership .......................................... 121
Figure 5.8 CFA model of the SME leadership behaviour construct ......................... 141
Figure 5.9 CFA model of the employees’ creativity construct ................................... 143
Figure 5.10 CFA Model of the employees’ creativity construct after deleting EC3, EC4, EC5, EC8 & EC9 ................................................................. 144
Figure 5.11 CFA Model of the employees’ innovative behaviour construct ............... 145
Figure 5.12 CFA Model of the employees’ personal initiative construct ................. 146
Figure 5.13 CFA model of the employees’ personal initiative construct after deleting EPI3, EPI4 & EPI5 ................................................................. 147
Figure 5.14 CFA model of the individuals’ perceptions of a supportive climate for innovation construct ................................................................. 148
Figure 5.15 CFA model of the individuals’ perceptions of a supportive climate for innovation construct after deleting IPSCFI8 & IPSCFI11 ................................. 149
Figure 5.16 CFA model of the individuals’ emotional intelligence construct ............. 150
Figure 5.17 Full measurement model ....................................................................... 152
Figure 5.18 Final path of direct model: SME leadership behaviour and employees’ creativity ...................................................................................................... 155
Figure 5.19 Final path of direct model: SME leadership behaviour and employees’ innovative behaviour ................................................................. 156

Figure 5.20 Final path of the mediating model of employees’ personal initiative in the relationship between SME leadership behaviour and employees’ creativity ................................................................................................. 157

Figure 5.21 Final path of mediating model of employees’ personal initiative in the relationship between SME leadership behaviour and employees’ innovative behaviour ......................................................................................... 159

Figure 5.22 Final path of mediating model of individuals’ perceptions of a supportive climate for innovation in the relationship between SME leadership behaviour and employees’ creativity .................................................................................. 161

Figure 5.23 Final path of mediating model of individuals’ perceptions of a supportive climate for innovation in the relationship between SME leadership behaviour and employees’ innovative behaviour ........................................................................ 163

Figure 5.24 Final path of the moderating model of individuals’ emotional intelligence in the relationship between SME leadership behaviour and employees’ creativity ......................................................................................... 165

Figure 5.25 Scree plot of the moderating effect of individuals’ emotional intelligence on the SME leadership behaviour–employees’ creativity relationship ......................................................................................... 166

Figure 5.26 Final path of the moderating model of individuals’ emotional intelligence in the relationship between SME leadership behaviour and employees’ innovative behaviour ........................................................................ 167

Figure 7.1 Final research model ................................................................................................................................. 187
## List of Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABS</td>
<td>Australian Bureau of Statistics</td>
</tr>
<tr>
<td>ACT</td>
<td>Australian Capital Territory</td>
</tr>
<tr>
<td>AGFI</td>
<td>Adjusted-Goodness-of-Fit Index</td>
</tr>
<tr>
<td>AL</td>
<td>Authentic Leadership</td>
</tr>
<tr>
<td>AMOS</td>
<td>Analysis of Moment Structure</td>
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<tr>
<td>BIS</td>
<td>Business Innovation and Skills</td>
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<tr>
<td>CEO</td>
<td>Chief Executive Officer</td>
</tr>
<tr>
<td>CFA</td>
<td>Confirmatory Factor Analysis</td>
</tr>
<tr>
<td>CFI</td>
<td>Comparative-Fit Index</td>
</tr>
<tr>
<td>CO-L</td>
<td>Change-Oriented Leadership</td>
</tr>
<tr>
<td>DIISR</td>
<td>Department of Innovation, Industry, Science and Research</td>
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<tr>
<td>EC</td>
<td>Employees’ Creativity</td>
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<tr>
<td>EFA</td>
<td>Exploratory Factor Analysis</td>
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<td>EIB</td>
<td>Employees’ Innovative Behaviour</td>
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<td>EPI</td>
<td>Employees’ Personal Initiative</td>
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<tr>
<td>GFI</td>
<td>Goodness-of-Fit Index</td>
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<tr>
<td>IC</td>
<td>Innovation Champion</td>
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<tr>
<td>IFI</td>
<td>Incremental-Fit Index</td>
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<tr>
<td>IPSCFI</td>
<td>Individuals’ Perceptions of a Supportive Climate for Innovation</td>
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<tr>
<td>IT</td>
<td>Information Technology</td>
</tr>
<tr>
<td>KMO</td>
<td>Kaiser-Meyer-Olkin</td>
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<tr>
<td>IEI</td>
<td>Individuals’ Emotional Intelligence</td>
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<tr>
<td>LMX</td>
<td>Leader–member Exchange</td>
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<tr>
<td>NSW</td>
<td>New South Wales</td>
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<tr>
<td>NFI</td>
<td>Normed-Fit Index</td>
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<tr>
<td>NT</td>
<td>Northern Territory</td>
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<tr>
<td>PCA</td>
<td>Principal Component Analysis</td>
</tr>
<tr>
<td>QLD</td>
<td>Queensland</td>
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<tr>
<td>RQ</td>
<td>Research Question</td>
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<tr>
<td>RMSEA</td>
<td>Root Mean-Square Error of Approximation</td>
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<tr>
<td>SBA</td>
<td>Small Business Administration</td>
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<tr>
<td>SMC</td>
<td>Squared Multiple Correlation</td>
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<tr>
<td>Acronym</td>
<td>Full Form</td>
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<tr>
<td>SME</td>
<td>Small to Medium Enterprise</td>
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<td>SMELB</td>
<td>SME Leadership Behaviour</td>
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<tr>
<td>SA</td>
<td>South Australia</td>
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<tr>
<td>SEM</td>
<td>Structural Equation Modeling</td>
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<tr>
<td>SPSS</td>
<td>Statistical Package for the Social Sciences</td>
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<tr>
<td>SRMR</td>
<td>Standardised Root Mean-Square Residual</td>
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<td>TAS</td>
<td>Tasmania</td>
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<tr>
<td>TL</td>
<td>Transformational Leadership</td>
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<tr>
<td>TLI</td>
<td>Tucker-Lewis Index</td>
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<tr>
<td>VIC</td>
<td>Victoria</td>
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<tr>
<td>WA</td>
<td>Western Australia</td>
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Definitions of Key Terms

**SME Leadership Behaviour** refers to those behaviours of the founders, owners, CEOs, managing directors, directors, managers and supervisors that nurture and enhance employees’ creative and innovative behaviours in SMEs in Australia (developed by the researcher).

**Employees’ Creativity** refers to employees’ behaviours that produce novel and useful ideas in SMEs in Australia (Zhou & George 2001).

**Employees’ Innovative Behaviour** refers to employees’ behaviours that implement creative ideas in SMEs in Australia (De Jong & Den Hartog 2008).

**Employees’ Personal Initiative** refers to behaviours that describe employees’ inclination and ability to take initiatives in the pursuit of creativity and innovative behaviour in SMEs in Australia (Frese et al. 1997).

**Individuals’ Perceptions of a Supportive Climate for Innovation** refers to the perception of founders, owners, CEOs, managing directors, directors, managers, supervisors and employees regarding the work environment that supports creativity and innovative behaviour in SMEs in Australia (Scott & Bruce 1994).

**Individuals’ Emotional Intelligence** refers to the founders’, owners’, CEOs’, managing directors’, directors’, managers’, supervisors’ and employees’ competencies to understand and manage their own and others emotions and feelings in SMEs in Australia (Wong & Law 2002).
Abstract

To stay competitive, small to medium enterprises (SMEs) need to focus on employees’ creativity and innovative behaviour. Of all the predictors of these behaviours, leadership behaviour seems to be one of the most influential in nurturing and enhancing subordinates’ creative and innovative behaviours in the workplace. Many researchers have found that creativity and innovation are influenced by contextual and personal variables. The purpose of this thesis is to examine the relationship between SME leadership behaviour, employees’ creativity and innovative behaviour, individuals’ perceptions of a supportive climate for innovation, employees’ personal initiative, and individuals’ emotional intelligence in SMEs in Australia. The thesis develops a research model to test the direct influence of SME leadership behaviour on employees’ creativity and innovative behaviour. A set of mediation analyses examines the intervening role of contextual (individuals’ perceptions of a supportive climate for innovation) and personal (employees’ personal initiative) factors in the relationship between SME leadership behaviour and employees’ creativity and innovative behaviour. The moderating role of individuals’ emotional intelligence, a personal factor, on the relationship between leaders’ behaviour and employees’ creativity and innovative behaviour add to the developed research model.

A new theory-based measure of SME leadership behaviour is developed and validated. The new theory-based measure represents managerial behaviour towards creativity and innovative behaviour, and provides a comprehensive and complex construct that embraces the complexity of the innovation process since it consists of two separate stages: creativity, and then innovative behaviour. The newly developed measurement instrument for the construct of SME leadership behaviour is designed to transform leaders of SMEs from ordinary ones into creative and innovative architects.

The newly developed and validated instrument for measuring SME leadership behaviour, together with the existing survey instrument for other variables, were employed in the quantitative approach to collect data from 514 founders, owners, managers and employees from SMEs in Australia. The psychometric properties of the instrument underwent rigorous testing, including exploratory and confirmatory factor analysis. Structural equation modelling (SEM) using path analysis was employed to examine relationships between the variables.
The results show that leadership behaviour has a positive and significant influence on employees’ creativity and innovative behaviour in SMEs in Australia. The newly developed leadership behaviour construct is found to be an important factor enabling employees’ creativity and innovative behaviour, as perceived by the respondents. Employees’ personal initiative and individuals’ perceptions of a supportive climate for innovation are found to only partially mediate the association between leadership behaviour and both employees’ creativity and followers’ innovative behaviour in SMEs in Australia. Although individuals’ emotional intelligence is discovered to moderate the relationship between leaders’ behaviour and their employees’ creativity, it is not found to have any moderating effect on the association between leadership behaviour and employees’ innovative behaviour in SMEs in Australia. The results suggest that besides practising the components of the leadership behaviour construct developed here (supporting and stimulating creativity and innovation, providing and motivating vision, and providing individual support), people in management positions in SMEs need to focus on developing employees’ personal initiative, enhancing everyone’s perceptions of working in a climate that supports innovation, and promoting individuals’ (leaders’ and non-leaders’) emotional intelligence.

This thesis acknowledges that leadership behaviour, employees’ personal initiative, and individuals’ perceptions of the work climate as supportive of innovation are the most significant resources and capabilities in SMEs, and may assist employees to engage in creative and innovative behaviours in their daily work. In addition, individuals (leaders and non-leaders) with a high level of emotional intelligence can amplify the influence of leaders’ behaviours on their employees’ creativity.
Chapter 1
Introduction

1.1 Introduction

Chapter 1 begins by providing a description of the background (Section 1.2), purpose and discussion of the thesis rationale (Sections 1.3 and 1.4). The research questions are identified (Section 1.5). A summary of the method employed for this thesis together with the key analytical techniques are briefly described in Section 1.6. An outline of the thesis structure is presented in Section 1.7. This chapter ends with a summary (Section 1.8).

1.2 Background

Researchers have identified many antecedents to followers’ creativity and innovative behaviour. Of these, leadership appears to be one of the most influential constructs (Shin & Zhou 2003; Kissi, Dainty & Liu 2012). One reason for the positive and significant role of leadership behaviour is that creativity often needs actions that are other than normal work tasks; staff may feel fear and anxiety at the thought of generating new ideas (Csikszentmihalyi 1996). In such a situation leaders’ behaviour can play a vital role in providing a risk-tolerant environment in which staff feel comfortable to go beyond the current situation and participate in the generation of novel and useful ideas (Simmons & Sower 2012). The importance of leadership behaviour in the implementation of new thoughts (innovative behaviour) is also evident. For instance, when leaders give authority and freedom like delegation to subordinates who have creative ideas, these people are more successful in transforming creative thought into innovation (De Jong & Den Hartog 2007). Smyrnios and Gome (2008) noted that leadership behaviours in an owner or CEO are an important factor in the development of innovation in small to medium enterprises (SMEs).

This thesis aims to investigate the impact of SME leadership behaviour on employees’ creativity and innovative behaviour. Leaders have a powerful impact on subordinates’ work behaviours (Yukl 2010), and creativity and innovative behaviour are no exceptions. However, despite agreement on the significant role of leaders in triggering
followers’ creativity and innovative behaviour, little integration of leadership behaviour, creativity and innovative behaviour is found in the literature within the context of SMEs.

The relationships between leadership, creativity and innovative behaviour alone have resulted in contradictory findings, which indicates that these relationships may depend on the role of variables other than leadership behaviour (Herrmann & Felfe 2013; Paulsen et al. 2013; Rosing, Frese & Bausch 2011). According to Zhou and George (2003), contextual and personal factors may be integral to creativity and innovation. Chell and Karataş-Özkan (2014) noted that personal and psychological research on innovation is very important, because innovation in the workplace involves human behaviour. The significance of contextual factors (i.e. innovative climate) as enablers of creative performance and innovative behaviour has been well documented (Ren & Zhang 2015); therefore, this thesis considers the role of one contextual factor (individuals’ perceptions of a supportive climate for innovation) and two personal factors (employees’ personal initiative and individuals’ emotional intelligence) for their association with SME leadership behaviour, and their employees’ creativity and innovative behaviour. By considering the role of these three constructs, this thesis enriches knowledge of the ways in which SME leaders’ behaviours enhance employees’ creative and innovative behaviours, and provides important and valuable insights for both scholars and practitioners.

1.3 Thesis Purpose

Given the constantly growing pace of the work environment, together with intensified competition, creativity and innovation are considered essential competencies for obtaining a competitive advantage. With both domestic and global competition, and an uncertain economic environment, firms need to overcome innovative competitors by promoting creativity and innovation, to ensure their survival and success (Müceldili, Turan & Erdil 2013). While creativity and innovative behaviours are the cornerstones for firms to build up their innovation capabilities, little is known about the influence of people at management level of SMEs on their employees’ creative and innovative behaviours.
According to Rosenbusch, Brinckmann and Bausch (2011), creativity and innovation are vital if SMEs are to compete against larger, well funded organisations. Despite the importance of these two pivotal elements, little empirical work has been conducted on this topic, particularly with regard to considering a complex rather than a single leadership model as a predictor, or to the distinction between creativity and innovative behaviour as two different steps in the innovation process. In other words, most researchers (e.g., Herrmann & Felfe 2013; Nusair, Ababneh & Bae 2012; Rego et al. 2014; Wang, Tsai & Tsai 2014) have examined the impact of only a single leadership style on creativity and innovative behaviour. Moreover, previous studies have not made a clear distinction between creativity and innovative behaviour (Mumford 2003).

Given these oversights and problems, this thesis examines the relationships between SME leadership behaviour (independent variable), employees’ creativity (first dependent variable), employees’ innovative behaviour (dependent variable), employees’ personal initiative (mediator variable), individuals’ perceptions of a supportive climate for innovation (mediator variable), and individuals’ emotional intelligence (moderator variable) in SMEs in Australia. The investigation was conducted in three phases, based on data collected from leaders and non-leaders working in these settings: 1) the direct impact of SME leadership behaviour on employees’ creativity and innovative behaviour; 2) the mediating role of individuals’ perceptions of a supportive climate for innovation and employees’ personal initiative in the relationships between SME leadership behaviour and employees’ creativity and innovative behaviour; and 3) the moderating role of individuals’ emotional intelligence, a personal factor, on the influence of SME leadership behaviour on employees’ creativity and innovative behaviour. How mediating and moderating factors influence the relationships between leadership towards followers’ creativity and innovative behaviour is perceived as an important topic, although few empirical studies have discussed these associations.

The thesis findings identify those leadership behaviours that help SME leaders nurture and enhance followers’ creative and innovative behaviours. Meanwhile, by drawing attention to individuals’ emotional intelligence, employees’ personal initiative and individuals’ perceptions of a supportive climate for innovation, this thesis sheds light on the implications of encouraging creativity and innovation in SMEs, and provides a
structure for SME leaders who are trying to discover the health of employees’ creativity and innovative behaviour. This particularly helps them plan methods and strategies that will enhance subordinates’ creative and innovative behaviours, necessary if they are keen to achieve a competitive advantage in the unstable and often chaotic business environment.

1.4 Rationale

There are six key reasons for this investigation of the relationships between leadership behaviour, creativity, innovative behaviour, a supportive climate for innovation, personal initiative and emotional intelligence in the small to medium enterprise (SME) context in Australia.

While innovation for SMEs is likely to be a vital determinant of success (Hoffman et al. 1998), leadership behaviour is a key factor in managing such innovation (Davila, Epstein & Shelton 2006). The way leaders respond to new ideas and procedures is an important factor in managing SMEs in a competitive and changeable environment. However, consideration of leadership behaviour in SMEs is relatively underdeveloped, both in literature (see Chapter 2) and practice. From a practical point of view, The Department of Innovation, Industry, Science and Research (DIISR) published a report, *Innovation and Raising Australia’s Productivity Growth*, which announced that Australian SMEs face two obstacles to survival: lack of access to networks and technology, and insufficiently developed managerial capabilities, particularly those related to innovation (DIISR 2009). Researchers have extensively emphasised the pivotal role that people in management positions play to ensure business survival. According to Beaver (2003) and Perry (2001), a major reason for many small business failures is their weak leadership practices. Kiggundu (2002) and Longenecker, Simonetti and Sharkey (1999) claimed that the lack of leadership abilities among founders or owners, and the absence of leadership skills in those in management positions, are two important reasons for many small and medium business failures. Based on these arguments, this thesis considers this issue a major challenge to SME survival, and is an attempt to help SME leaders by providing them with a theory-based, developed and validated measure of managerial behaviours that are linked to creative and innovative behaviours.
In terms of the literature in this field, Yukl’s (2009) work indicated that a comprehensive model of the impact of leadership on the innovation process (both creativity and innovative behaviour) is needed. Rosing, Frese and Bausch (2011) suggested that research on innovation requires taking the particulars of the innovation process into account in order to make reliable predictions about how leadership affects it, and noted that the complex nature of the innovation process leads to complex events. West (2002) explained that these complex events are creativity and innovation, the two distinct parts; but these steps do not proceed in a neat linear fashion (Anderson, De Dreu & Nijstad 2004; King 1992; Van de Ven et al. 1999) and the only way to embrace this complexity is to develop a complex and comprehensive model of leaders’ influences on the innovation process (Mumford & Licuanan 2004; Yukl 2009). According to Walumbwa et al. (2008), there are few validated instruments for measuring leaders’ behaviours and attributes. This thesis lessens this lack by building and validating a complex and comprehensive theory-based leadership measure by synthesising the theoretical components of five leadership theories: transformational leadership, innovation champion, change-oriented leadership, leader–member exchange and authentic leadership (see Section 4.6.6.1).

Innovation theorists identify two main phases in the innovation process: initiation and implementation (Axtell et al. 2000; Zaltman, Duncan & Holbek 1973). The initial phase ends with the production of an idea, and the second with its implementation (King & Anderson 2002). In the literature, creativity appears as an important factor related to innovation (Amabile et al. 1996; Madjar & Walters 2008). For example, Van de Ven (1986, p. 592) stated that the ‘foundation of innovation ideas is creativity’. Similarly, Amabile et al. (1996) suggested that each innovation begins with creative ideas. According to Shalley and Gilson (2004), creativity provides the foundation for innovation. Oldham and Cummings (1996) noted that creative performance provides the raw material needed for innovation. Certainly, innovative outcomes cannot be observed without the generation of creative behaviour (Simmons & Sower 2012). Researchers have described creative performance as the typical initial step for innovative behaviour (Amabile 1988, 1996; George & Zhou 2001; Zhou 2003). However, the distinction between the two concepts in previous empirical studies is blurred, and findings of this thesis extend previous research by examining the different stages of the innovation
process, particularly idea generation (creativity) and idea implementation (innovative behaviour) as two separate outcomes instead of conflating them into one result variable.

In terms of the relationship between leadership behaviour and creative behaviour, studies point out that various forms of leadership are related to creativity (e.g., Amabile et al. 2004; George & Zhou 2007; Shin & Zhou 2003, 2007). For instance, Tierney, Farmer and Graen (1999) found that effective leader–member exchange (LMX) is positively associated with employees’ creativity, a finding supported by related research (e.g., Scott & Bruce 1994). Prior studies have also provided evidence of a positive relationship between supportive leadership and followers’ creativity, and a negative relationship between controlling leadership and creativity (e.g., Amabile et al. 2004; Madjar, Oldham & Pratt 2002; Oldham & Cummings 1996; Tierney & Farmer 2002, 2004). In considering broader leadership approaches, some studies have shown support for the positive impact of transformational leadership on employees’ creativity (e.g., Howell & Avolio 1993; Jung, Chow & Wu 2003; Keller 1992; Shin & Zhou 2003; Sosik, Kahai & Avolio 1998), while others have produced contrary results (e.g., Basu & Green 1997; Jaussi & Dionne 2003; Kahai, Sosik & Avolio 2003). These contradictory findings imply that more investigation is needed into the relationship between leadership and creative behaviour.

The question of how leadership may affect employees’ innovative behaviour, however, has not received the attention it deserves (Basu & Green 1997; Mumford et al. 2002). For instance, transformational leadership emphasises that stimulating innovation is a core leadership function (e.g., Bass 1985; Conger 1999; Tichy & Ulrich 1984), and argues that it is particularly effective (Basu & Green 1997); however, empirical evidence on the role of leadership behaviour in inspiring innovative behaviour in employees is scarce (Basu & Green 1997; Shin & Zhou 2003), although the negative influence of leadership behaviour has been reported in past studies (Pieterse et al. 2010). The lack of sufficient empirical studies on the one hand, and conflicting findings on the other, indicate the necessity for more investigation of the connection between leadership behaviour and innovative behaviour.

Using different types of research design (experimental and field research designs) could be the specific reason for the contradictory findings concerning leadership behaviour.
and creative behaviour, as well as between leadership behaviour and innovative behaviour, in previous empirical studies. In particular, the majority of negative associations between leadership behaviour and creativity as well as between leadership behaviour and innovative behaviour have been found in experimental studies (conducted in a controlled environment) where the participants were students. For instance, Kahai, Sosik and Avolio (2003) utilised an electronic meeting system with undergraduate and graduate students in a laboratory setting to examine the influence of leadership behaviour on creativity. They found a negative relationship. Similarly, Jaussi and Dionne (2003) discovered only a small impact of transformational leadership on creativity in an experimental research design. The results of these studies contrast with what Shin and Zhou (2003) found in field research, where participants were supervisors and employees from different companies in a non-controlled environment. To avoid the possibility of results skewed by artificial situations, the researcher decided to do field research where participants comprised leaders and non-leaders in a non-controlled environment. Since almost all previous empirical studies in the field of leadership, creativity and innovation had been conducted in large-sized organisations, the present research was further limited to SMEs, in order to overcome this oversight.

Last but not least, despite the growing body of research that has evaluated the role of leadership as a significant driver for creative and innovative behaviours (Gong, Huang & Farh 2009; Jansen, Vera & Crossan 2009), previous studies have resulted in contradictory findings. An approach to overcome this inconsistency is to consider the role of contextual and personal factors on the associations between leadership behaviour, creativity, and innovative behaviour. Indeed, this approach provides comprehensive and valuable insights into the antecedents of creativity and innovative behaviour. Eisenbeiss, van Knippenberg and Boerner (2008) suggested that researchers need a more thorough understanding of the mechanisms that can be used by people in management positions to better nurture and enhance creativity and innovation. It has been claimed by many researchers that creative and innovative efforts are influenced by both contextual and personal variables (Herrmann & Felfe 2013; Rosing, Frese & Bausch 2011; Wang & Rode 2010; Zhou & George 2003). However, according to Marcati, Guido and Peluso (2008), evidence of the personal determinants of human capital in SMEs remains a research oversight that needs to be considered; because of this, the role of personal
initiative and a supportive climate for innovation as two mediators, and emotional intelligence as a moderator was considered in this thesis.

Personal initiative has been reported to be positively linked to creativity and innovation (Binnewies, Ohly & Sonnentag 2007; Herrmann & Felfe 2013). According to Schaltegger and Wagner (2011, p. 226), sustainable SMEs rely ‘on the personal initiative and skills of the entrepreneurial person or team to realize large-scale market success and societal innovation’ instead of formalised operations. However, studies testing personal initiative as a mediating construct between leadership behaviour, creativity and innovative behaviour are scarce, and so this thesis examines employees’ personal initiative as having a mediating role between SME leadership behaviours, and employees’ creativity and innovative behaviour. In the meantime, although scholars have asserted that people’s willingness to be creative and innovative in the workplace depends on the climate of the organisation (e.g., Fiedler 1964; House 1971; van Knippenberg & Hogg 2003; Yukl 2002) this thesis considers the role of individuals’ perceptions of a supportive climate for innovation as intervening between SME leadership behaviour, and employees’ creativity and innovative behaviour. According to Miller and Wedell-Wedellsborg (2013), leaders by building an innovative environment in the workplace are able to inspire followers to be creative and innovative.

Piperopoulos (2010) declared that harnessing creativity and innovation is the cornerstone of SMEs’ survival and growth. He noted that the missing construct in entrepreneurship research is emotional intelligence and how it affects the innovation process in SMEs. In addition, Park (2005) claimed that the quality of the emotional environment of a firm can intensify creativity and innovation. While researchers have emphasised that emotions play a significant role in people’s readiness to be both creative and innovative in organisation (Fenwick 2003), the literature omits to show the moderating role of emotional intelligence; therefore, this thesis considers the role of individuals’ (leaders’ and non-leaders’) emotional intelligence as a moderating variable influencing the association between SME leadership behaviour and employees’ creativity and innovative behaviour.
1.5 Research Questions

Having identified research oversights and needs, the present thesis considers the following research questions (RQs):

**RQ1:** To what extent do SME leadership behaviour influence employees’ creativity and innovative behaviour in SMEs in Australia?

**RQ2:** To what extent does employees’ personal initiative mediate the relationships between SME leadership behaviour and employees’ creativity and innovative behaviour in SMEs in Australia?

**RQ3:** To what extent do individuals’ perceptions of a supportive climate for innovation mediate the relationships between SME leadership behaviour and employees’ creativity and innovative behaviour in SMEs in Australia?

**RQ4:** To what extent does individuals’ emotional intelligence moderate the relationships between SME leadership behaviour and employees’ creativity and innovative behaviour in SMEs in Australia?

1.6 Thesis Method Overview

The thesis utilises a quantitative approach to determine how well the presented research model identifies the relationships between the proposed variables in the context of SMEs in Australia. The main aim of the quantitative analysis is to examine the formulated hypotheses by employing a questionnaire survey targeting leaders and non-leaders of SMEs in Australia. A theory-based survey questionnaire for the construct of SME leadership behaviour was developed, based upon an extensive review of relevant literature and prior empirical studies in the fields of leadership, creativity, innovation and SMEs; for other variables (employees’ creativity, employees’ innovative behaviour, employees’ personal initiative, individuals’ perceptions of a supportive climate for innovation, and individuals’ emotional intelligence) the researcher used the existing survey instruments.
1.6.1 Conceptual Model Development

The literature addressing leadership, creativity and innovation within the SME context was critically reviewed to build the foundation of background knowledge and set up a theoretical framework. This led to formulating the research questions. To address the research questions, a conceptual model was developed based on the understanding obtained from the literature review. Then a set of hypotheses based on the review of previous empirical studies’ outcomes that reasonably connected the model constructs was developed. The conceptual model contains six constructs, connected to eight hypothesised associations.

1.6.2 Quantitative Analysis

The major purpose of employing a quantitative approach is to evaluate the formulated hypotheses; and a quantitative analysis of the data acquired from 514 respondents in both management and non-management positions in SMEs in Australia has been undertaken in this study. According to Salancik and Pfeffer (1978), the impact of social information processing is that one individual’s perception can become shared by others, and hence can be used to explain specific job attitudes over time. This is particularly apposite in the study of SMEs, since these types of organisation tend to have a relatively limited number of tasks in their daily work.

The analyses start by employing descriptive statistics to make sure that the obtained data is suitable for multivariate analysis and can be used as one data set. After this, different analysis techniques such as Cronbach’s alpha, item-loaded correlation, exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) are carried out for all model constructs to specify the scale reliability and reveal the suitable factor structures. These analysis techniques confirm the validity of the model constructs. Once this is established, structural equation modelling (SEM) is carried out to reveal and examine statistically significant associations between the model constructs.

1.7 Thesis Structure

This section presents an overview of the thesis’ seven chapters. Chapter 2 provides an extensive critical review of the literature relevant to the field of leadership, creativity
and innovation, comprising a critical review of many publications covering leadership, creativity and innovation concepts, and other factors such as a supportive climate for innovation, personal initiative, and emotional intelligence. The relationship between the variables of the study is discussed. This chapter also presents a review of the literature in the context of SMEs. It provides a general review of the definitions of SMEs and their role in the economy of nations. This is followed by comprehensive information on the definitions of SMEs, employment, industry sector, state and territory, entries and survival rates, industry value added and their contribution to the Australian economy. A comprehensive review of leadership, creativity, innovative behaviour, personal initiative, a supportive climate for innovation and emotional intelligence as important factors for SMEs success is also provided.

Chapter 3 presents the development of a research model based on the knowledge acquired from the literature review and the highlighted research oversights and demands. This is followed by the development of hypotheses related to the causal relationships between the model constructs. The hypotheses suggest the direct impact of SME leadership behaviour on employees’ creativity and innovative behaviour. The intervening role of individuals’ perceptions of a supportive climate for innovation and employees’ personal initiative as contextual and personal factors affecting the relationships between leadership behaviour, and employees’ creativity and innovative behaviour, is hypothesised. The moderating effect of individuals’ emotional intelligence as another personal factor relating to the associations between SME leadership behaviour, and employees’ creativity and innovative behaviour, are also hypothesised.

Chapter 4 provides details of the research methodology, which addresses the key issues relating to the research approach, research design, sample design and relevant data analysis techniques employed in this thesis. Specifically, the chapter describes the procedures related firstly to the theory-based development of a new measure for the construct of SME leadership behaviour, and secondly to the quantitative approaches. The quantitative method is used to test and validate the hypotheses formulated about the developed conceptual framework. The rationale for using the theory-based development of a new measurement instrument for leadership and the use of quantitative methods is provided. The data collection procedures are described. This chapter also evaluates the
data for missing values, outliers, and normality tests, and provides a description of the respondents’ demographics and of the organisations’ profiles. This is followed by the ethical considerations.

Chapter 5 discusses the analytical tests of instrument reliability and validity. It presents tests conducted for purifying the initial measures, content validity, factorial validity utilising exploratory factor analysis (EFA), and convergent and discriminant validities using confirmatory factor analysis (CFA) for both first-order and full measurement models. This chapter also presents the findings of this thesis. As this chapter investigates the structural model used to examine the research hypotheses, an analysis of structural models using structural equation modelling (SEM) is presented to answer the research questions and test the hypotheses.

Chapter 6 discusses the findings derived from the analysis of eight hypotheses formulated for this thesis. This chapter also identifies the significant contributions this thesis makes to the literature of leadership, creativity, innovation and SMEs.

Finally Chapter 7 draws conclusions from the analysis of the hypotheses, presents recommendations, considers the implications of this work for theory and practice; a consideration of the limitations of this thesis and of future research directions is provided.

1.8 Chapter Summary

Creativity and innovation are recognised as important factors for SMEs competing against large-sized firms (Rosenbusch, Brinckmann & Bausch 2011). Effective leadership behaviours have been documented as an important factor in nurturing and enhancing creativity and innovation in SMEs (Smyrnios & Gome 2008). This thesis examines the influence of SME leadership behaviour on employees’ creativity and innovative behaviour in Australia. The roles of contextual (individuals’ perceptions of a supportive climate for innovation) and personal (individuals’ emotional intelligence and employees’ personal initiative) factors as mediator and moderator variables are established.
This chapter has presented an argument for the necessity of this thesis. The background provided by previous studies is presented, and some detected problems indicate research gaps that need to be filled. The research questions provide purpose and direction to this thesis, and an explanation of the need for this work and the importance of the contributions and implications that it might make are offered. An outline of the thesis structure provides a guideline to readers on the direction this work will take.
2.1 Objective

First the different definitions of the leadership construct are reviewed (Section 2.2), followed by an overview of research traditions, labelled as trait, behaviour, contingency, and new leadership approaches (Section 2.3). Section 2.4 presents current research on the relationships between leadership behaviour, creativity and innovation. As leadership behaviour is associated with creative and innovative behaviours, it is vital to present and analyse the relevant literature and empirical studies that have addressed these associations in order to identify any research oversights in this field. Based on the points addressed in Chapter 1, the researcher believes that a possible solution to the failure to address fully the relationships between leadership, creativity and innovation is first to develop a new, comprehensive, and theory-based measure of leadership. The extensive review of literature and previous empirical studies (see Chapter 4) enables the development of a broad and complex theory-based measure for the SME leadership behaviour variable. As a result, the concept of five leadership theories (transformational leadership, change-oriented leadership, innovation champion, leader–member exchange and authentic leadership) contributing to creativity and innovation is reviewed (Section 2.4). Section 2.5 reviews the literature regarding creativity and innovation. The next three sections present a review of the literature concerning personal initiative, a supportive climate for innovation, and emotional intelligence, respectively. Section 2.9 reviews the relevant literature and empirical studies regarding the relationship between the variables selected for this study. Section 2.10 reviews the literature concerning SMEs, and Section 2.11 provides a review of literature and empirical studies regarding the significance of leadership, creativity, innovation, personal initiative, supportive climate for innovation and emotional intelligence for SMEs. Finally, Section 2.12 summarises this chapter.

2.2 Definitions of Leadership

According to Burns (1978, p. 4), ‘Leadership is one of the most observed and least understood phenomena on earth’. Lord et al. (2001, p. 311) noted that there is no
universal definition of leadership because of ‘innumerable situational and contextual factors’. Yukl (2010) noted that the term indicates various connotations to assorted individuals. Definitions vary in their emphasis on leaders’ abilities, personality, traits, influence on relationships, tendency to deal with individuals versus groups, and their preference for self versus collective interests. Most definitions of leadership reflect the assumption that it includes a process whereby one person intentionally exerts influence over other people to direct, structure and facilitate activities and relationships in a group; in addition, they vary in their emphasis on behavioural styles (Den Hartog & Koopman 2001). Alban-Metcalfe and Alimo-Metcalfe (2007, p. 116) described leadership as a relational process that needs to go beyond the ‘out-dated notions of “heroic” models of leadership that encourage adulation of a few gifted individuals at the top of organisations’. Yammarino, Dansereau and Kennedy (2001) perceived leadership as a multilevel process that includes many viewpoints, which makes it a complex construct.

It is clear that all these authors recognise leadership as an influential element that can shape and direct followers’ activities towards organisational visions and goals. As Bryman (1992) stated, ‘goal’, ‘influence’, and ‘group’ are three fundamental components of leadership. Northouse (2012, p. 3) explained leadership as ‘a process whereby an individual influences a group of individuals to achieve a common goal’.

In this thesis, elements such as ‘goal’ and ‘influence’ are related to the behaviour of SMEs’ founders, owners, CEOs, managing directors, directors, managers and supervisors that impact on their employees, with the goal of enhancing their creative and innovative behaviours. Therefore, leadership behaviour is defined here as the behaviours of the founders, owners, CEOs, managing directors, directors, managers and supervisors that nurture and enhance followers’ creativity and innovative behaviour.

2.3 Overview of Research Approaches on Leadership

Leadership has been a significant subject of research for many decades. The attraction of leadership as a topic of investigation has created a huge literature and different theories. Four main approaches that can be distinguished in the development of the research of leadership are the trait approach, style approach, contingency approach, and new leadership approach.
Prior to the 1980s the major studies of leadership took the trait, style and contingency approaches. More recently, the role of vision, charisma and inspiration in leading others has attracted much consideration (De Jong & Den Hartog 2003). Generally, the earliest approach, the trait approach, stresses that some people are born leaders. These people can be distinguished from others through their values and competencies, which can ensure the effectiveness of the business they direct. Against the first approach, theorists favouring the style approach believe that leadership behaviours can be trained, learned and developed at different periods of time. The contingency approach emphasises the importance of situational factors in shaping leaders’ behaviours. The more recently developed approach, new leadership, introduces a new emphasis: providing a vision or goal for followers as a key to success and effectiveness (Bryman 1992).

2.3.1 Trait Approach

This is one of the earliest approaches to studying leadership, emphasising attributes like motives, values, skills and personality. According to this approach, some people are natural leaders with certain traits such as uncanny foresight, irresistible persuasive powers and tireless energy, not possessed by others. Most trait studies were conducted during 1930s and 1940s, but the massive amount of research failed to discover any traits that would guarantee leadership prosperity (Yukl 2010).

After almost three decades, interest in leaders’ traits revived. Stogdill (1974) identified many general personal skills and traits associated with leadership, like vigour and persistence in the pursuit of goals, self-confidence, and tolerance for uncertainty and frustration. Other skills predicting effective leadership included high energy, high tolerance to stress, a strong internal locus of control, emotional maturity, and a low need for affiliation (Yukl 2002).

2.3.2 Style Approach

In the early 1950s researchers who were discouraged by the effectiveness of the trait approach (who leaders are) started to pay closer attention to behaviour (what leaders do) (Yukl 2010). At this stage, the effectiveness of leaders was seen as contingent upon leadership style. The assumption was that leadership is a behavioural pattern that can be
learned: after finding the right style, people could be trained to adopt that behaviour and become better leaders (Bass 1990).

Two types of leader behaviour, task-oriented behaviour and relationship-oriented behaviour, were the main focus of this period (Bryman 1992). Task behaviours refer to the extent to which a leader defines and describes the patterns of an assignment, allocates employees to different roles, controls their performance, and gives critical analysis to employees. Relationship behaviours refer to the degree to which a leader demonstrates interest in employees’ well-being and satisfaction (Yukl, Gordon & Taber 2002).

2.3.3 Contingency Approach

The contingency (or situational) approach emphasises the significance of contextual factors that influence leadership processes (Yukl 2010). Major contextual variables include the characteristics of subordinates, the nature of the work performed by the leader’s unit, the type of firm, and the nature of the external environment (De Jong & Den Hartog 2003).

This approach has two main subcategories. The first is the extent to which leadership processes are the same or unique in various types of firms, levels of management, and social cultures. The second tries to identify any aspects of a situation that moderate the relationship of attributes (e.g., skills, traits, behaviour) to effectiveness (Yukl 2010). The major proposition is that the effectiveness of a given leadership style is dependent on the situation, implying that certain leader attributes are not optimal in all situations (De Jong & Den Hartog 2003).

2.3.4 New Leadership Approach

The contingency approach had so many conflicting theories and perspectives that researchers looked for a new theory of leadership. Providing a vision or goal was now advanced as a crucial function of leadership that had received little attention before the 1980s; that leaders could integrate and align followers’ attempts if they knew the desired end result (Shamir, House & Arthur 1993; Den Hartog & Verburg 1997).
Building and articulating a vision of coming opportunities is central to what Bryman (1992) labelled the ‘new’ leadership approach. A significant distinction is made between transactional and transformational leadership, as defined in the model by Bass and his colleagues (Bass 1985, 1997; Hater & Bass 1988; Yammarino & Bass 1990). Transactional leadership is based on exchanges between leader and followers. Subordinates get certain valued outcomes, such as prestige and pay increases, when they perform in accord with the leader’s wishes (Burns 1978). In contrast, transformational leadership ‘is the process whereby a person engages with others and creates a connection that raises the level of motivation and morality in both the leader and the follower. This type of leader is attentive to the needs and motives of followers and tries to help followers reach their full potential’ (Northouse 2012, p. 76). According to Robbins and Coulter (2005), this type of leader motivates followers to go beyond self-interest for the benefit of the firm. Pieterse et al. (2010) explained transformational leadership as an approach to promoting change in subordinates, causing them to look beyond personal interest in favour of the colleague’s objectives by modifying their morals, ideals and values. Transformational leaders are concerned not only about contingency factors, but about individual issues and developmental necessities, and stimulate subordinates to look at problems from a new perspective. Daft (2008, p. 356) contended that ‘transformational leaders have the ability to lead changes in an organization’s mission, strategy, structure, and culture, as well as to promote innovation’.

While leadership research has taken various views of leader’s behaviours and traits, and the impact of situational characteristics on leader effectiveness (De Jong & Den Hartog 2007), this thesis limits itself to the behavioural perspective and addresses how SME leadership behaviour affects employees’ creative and innovative behaviours in the workplace. This is because while considerable effort has been devoted to identifying general characteristics of SME owners and managers, much of it has been conducted from a trait-based rather than a behavioural perspective (Sadler–Smith et al. 2003). As Brandstätter (2011) noted, the characteristics of owners and managers of small businesses have received much more attention by researchers than have other aspects of SMEs; hence, this thesis does not incorporate literature from the trait approach, but concentrates on the insights of the three other approaches, style, contingency, and new.
leadership, to identify leadership behaviours. This thesis considers leadership as the process of influencing others to obtain some type of desired result. The specific outcomes that this thesis considers are creative and innovative behaviours.

2.4 Leadership Behaviour, Creativity and Innovation

Generally leaders have a powerful impact on subordinates’ work behaviours (Yukl 2010). Creative and innovative behaviours are no exception. These behaviours, while influenced by knowledge, skills and capacities (Amabile 1983; Barron & Harrington 1981), are also argued to be greatly affected by inspirational leadership (Amabile 1988), which makes them of interest to leadership researchers (e.g., Pelz & Andrews 1966; Scott & Bruce 1994). For example, Basadur (2004, p. 103) noted that the most effective leaders assist individuals ‘to coordinate and integrate their differing styles through a process of applied creativity that includes continuously discovering and defining new problems, solving those problems and implementing the new solutions’. Effective leadership is integral to the effectiveness of a firm.

More than fifty years ago Burns and Stalker (1961) published their influential work on management and innovation, still the most notable in combing the concepts of leadership and innovation. Since its publication, scholars have demonstrated that leaders are a significant element in the promotion of creativity and innovation (e.g., Montes, Moreno & Garcia-Morales 2005; Mumford et al. 2002). According to Arnold (2010), creative work is a primary leadership proficiency or ability. Vroom and Jago (2007) defined leaders of innovation as those who exert influence and stimulate others to work collaboratively to accomplish new and useful results. Leaders determine priorities, affect decision-making, and have both the power and the obligation to expand organisational performance. McDonough (1993) and Thamain (1990, 1996) found that leadership and professional attitude strongly influence innovative performance. Reiter-Palmon and Illies (2004) stated that without significant support from leaders it is impossible to achieve creative outcomes. Similarly, Simmons (2011) asserted that supportive creative policies and procedures encourage creativity. In a study of 425 full-time employees and their 96 direct supervisors from four US firms in various industries (furniture design/manufacturing, chemical instruments development/manufacturing, computer system development, information technology (IT) service), Yuan and
Woodman (2010) found a significant connection between the support of innovation and the quality of a supervisor’s relationship with employees, and innovative outcomes. Thamain (2003) identified leadership styles as having a significant influence on creativity and innovation in research and development (R&D) teams in the workplace. Scott and Bruce (1994) emphasised the importance of leader behaviour in creating a context for creativity, based on a study of 238 knowledge workers from 26 project teams in high-technology organisations.

Although leadership has been documented as a pivotal factor in nurturing and enhancing employees’ creative and innovative behaviour, a call by Yukl (2009) indicates that a comprehensive model of the impact of leadership on the innovation process (creativity and innovation) is still needed. Rosing, Frese and Bausch (2011) suggested that it is necessary to take the various elements of the process into account in order to make reliable predictions about the impact of leadership on innovation, and that the complex nature of the innovation process leads to complex events. West (2002) named creativity and innovation as the first and second steps in this complex process: complex because these steps do not proceed in a neat linear fashion (Anderson, De Dreu & Nijstad 2004; King 1992; Van de Ven et al. 1999). The only way to embrace this complexity is to develop a comprehensive model of the impact of leadership on the process (Mumford & Licuanan 2004). This thesis takes these issues and tries to review the most relevant existing leadership models in conjunction with creativity and innovation.

While creativity and innovation commonly lead to changes in firms, leadership models that serve to accommodate change are considered equally as strong an influence (Dackert, Lööv & Mårtensson 2004; Dunegan, Tierney & Duchon 1992; Scott & Bruce 1994; Tierney 1999). Available research on the relationships between leadership behaviour and creative and innovative behaviours has considered transformational leadership (Howell & Avolio 1993), change-oriented leadership (Yukl 1999), innovation champion (Howell & Shea 2001), leader–member exchange (LMX) (Graen & Uhl-Bien 1995) and authentic leadership (Avolio & Gardner 2005).

The first illuminated leadership model in this thesis is the innovation champion. Champions are people who forcefully chase thoughts and make significant contributions
by defeating obstacles and nurturing the thoughts through organisational stages (Day 1994; Howell, Shea & Higgins 2005). Howell and Higgins (1990, p. 320) suggested that vital leadership characteristics and personalities distinguish champions from non-champions and defined champions as ‘informal leaders, inspiring others with their vision of an innovation potential. Champions act as influence agents to promote their ideas’. Based on the theory of diffusion of innovation, a manager with the characteristics of an innovation champion acts as an ‘opinion leader’ who affects the distribution of innovation (Rogers 2003). The presence of a champion is one factor that has been powerfully connected to the success of innovation (Howell & Higgins 1990; Howell & Shea 2001). Dulaimi, Nepal and Park (2005) and Kissi et al. (2010) noted that the behaviours of an innovation champion promote innovation in the workplace. Markham (1998, p. 502) mentioned that ‘the role of the champion is still vital and interesting across different types of innovation projects’. Howell and Shea (2001) asserted that champions of innovation can make a substantive contribution to innovation by actively furthering its progress through key stages. Based on these ideas, innovation champion leadership theory is selected as one of the theories used in Chapter 4 for the purpose of measurement development.

In a study of 32 project managers and 94 project team members in Singapore, Dulaimi, Nepal and Park (2005) discovered that project managers exercise leadership, provide direction, and take responsibility for achieving project targets. Kissi, Dainty and Liu (2012) found that innovation champion behaviour in project managers was mainly responsible for the success of the projects they investigated. Similarly, Kissi, Dainty and Tuuli (2013) in a study of 112 project managers in a UK-based company found a positive relationship between innovation champion behaviour and project performance. Specific behaviours of champion leaders are listed in the ‘champion behaviour scale’ developed by Howell and Shea (2001), shown in Table 2.1; however, despite their efforts to develop a scale that solely addresses leadership behaviour, they seem to have neglected creativity as an early stage and pre-requisite of innovation: in other words, in the scale they developed the distinction between creativity and innovation is blurred.
Transformational leadership is hypothesised to stimulate idea generation (Kahai, Sosik & Avolio 2003; Shin & Zhou 2003). A transformational leadership model can help managers to stimulate subordinates to be more creative in solving problems (Howell & Avolio 1993; Kahai, Sosik & Avolio 2003) and aids them to develop their full potential, (De Jong & Den Hartog 2007). Howell and Avolio (1993) mentioned that transformational leaders encourage creativity and innovation by developing, intellectually motivating, and stimulating subordinates to boost their efforts for a desired cooperative objective. According to Gumusluoglu and Ilsev (2009), this leadership style consists of creativity-enhancing behaviours. Some notable examples of specific behaviours of transformational leadership are shown in the two survey instruments, the Multifactor Leadership Questionnaire (Bass & Avolio 1994) and the Leadership Profile Inventory (Kouzes & Posner 1995). The dimensions and descriptions of these two instruments of transformational leadership are depicted in Tables 2.2 and 2.3.

Table 2.1 Championing behaviour scale

<table>
<thead>
<tr>
<th>Factor</th>
<th>Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demonstrates conviction in the innovation</td>
<td>‘Expresses confidence in what the innovation can do’</td>
</tr>
<tr>
<td></td>
<td>‘Points out reasons why the innovation will succeed’</td>
</tr>
<tr>
<td></td>
<td>‘Enthusiastically promotes the innovation’s advantages’</td>
</tr>
<tr>
<td></td>
<td>‘Expresses strong conviction about the innovation’</td>
</tr>
<tr>
<td></td>
<td>‘Keeps pushing enthusiastically for the innovation’</td>
</tr>
<tr>
<td></td>
<td>‘Shows optimism about the success of the innovation’</td>
</tr>
<tr>
<td>Builds involvement and support</td>
<td>‘Gets the key decision makers involved’</td>
</tr>
<tr>
<td></td>
<td>‘Secures the top level support required’</td>
</tr>
<tr>
<td></td>
<td>‘Gets problems into the hands of those who can solve them’</td>
</tr>
<tr>
<td></td>
<td>‘Gets the right people involved in the innovation’</td>
</tr>
<tr>
<td></td>
<td>‘Makes improvements based on feedback received’</td>
</tr>
<tr>
<td>Persists under adversity</td>
<td>‘Persists in the face of adversity’</td>
</tr>
<tr>
<td></td>
<td>‘Does not give up when others say it cannot be done’</td>
</tr>
<tr>
<td></td>
<td>‘Sticks with it’</td>
</tr>
<tr>
<td></td>
<td>‘Knocks down barriers to the innovation’</td>
</tr>
<tr>
<td></td>
<td>‘Shows tenacity in overcoming obstacles’</td>
</tr>
</tbody>
</table>

Source: Howell and Shea (2001, p. 25)
Table 2.2 Transformational leadership in the Multifactor Leadership Questionnaire

<table>
<thead>
<tr>
<th>Factor</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Idealised Influence</td>
<td>‘These leaders are admired, respected, and trusted. Followers identify with and want to emulate their leaders. Among the things the leader does to earn credit with followers is to consider followers’ needs over his or her own needs. The leader shares risks with followers and is consistent in conduct with underlying ethics, principles, and values.’</td>
</tr>
<tr>
<td>Inspirational Motivation</td>
<td>‘Leaders behave in ways that motivate those around them by providing meaning and challenge to their followers’ work. Individual and team spirit is around. Enthusiasm and optimism are displayed. The leader encourages followers to envision attractive future states, which they can ultimately envision for themselves.’</td>
</tr>
<tr>
<td>Intellectual Stimulation</td>
<td>‘Leaders stimulate their followers’ effort to be innovative and creative by questioning assumptions, reframing problems, and approaching old situations in new ways. There is no ridicule or public criticism of individual members’ mistakes. New ideas and creative solutions to problems are solicited from followers, who are included in the process of addressing problems and finding solutions.’</td>
</tr>
<tr>
<td>Individualised Consideration</td>
<td>‘Leaders pay attention to each individual’s need for achievement and growth by acting as a coach or mentor. Followers are developed to successively higher levels of potential. New learning opportunities are created along with a supportive climate in which to grow. Individual differences in terms of needs and desires are recognized.’</td>
</tr>
</tbody>
</table>

Source: Bass et al. (2003, p. 208)

Despite the interest in transformational leadership, empirical studies have shown mixed outcomes. Jaussi and Dionne (2003) found little influence of transformational leadership on creative behaviour. Kahai, Sosik and Avolio (2003) discovered a negative association between transformational leadership and creativity-relevant processes and results, using an electronic meeting system with students in a laboratory experiment. A number of other studies have also a negative relationship between transformational leadership and creativity (e.g., Jaussi & Dionne 2003; Jung 2000–2001; Sosik, Kahai & Avolio 1998, 1999; Wang & Rode 2010), while others have come to opposing conclusions. Shin and Zhou (2003) conducted field research that found a positive relationship between transformational leadership and follower’s creativity. Gumusluoglu and Ilsev (2009) investigated 163 staff in 43 Turkish entrepreneurial software development firms and found a significant positive relationship between transformational leadership and creativity at the individual level; they also found that transformational leadership has a significant influence on innovation at the organisational level. García-Morales, Jiménez-Barrionuevo and Gutiérrez-Gutiérrez
(2012) in a study of 168 Spanish firms from the chemical and automotive sectors found a positive association between transformational leadership and organisational innovation. Cheung and Wong (2011) in a study of different service sectors (hotel, retail store, restaurant, bank and travel agent) in Hong Kong found a positive relationship between transformational leadership and followers’ creativity; their investigation also showed that this positive relationship was stronger when there was a high degree of encouragement from leaders and task support. Eisenbeiss and Boerner (2013) in a survey of R&D employees working in high-tech medical engineering, electronics, semiconductor, software, chemistry or biology industries, reported that German employees show more creativity under transformational leadership. More recently, Engelen et al. (2014) in a cross-cultural study of 951 companies in different industries (e.g., IT, financial services, engineering, automotive and construction) from eight countries (Argentina, Austria, China, Germany, Singapore, Switzerland, Thailand and USA) reported that transformational-leader behaviour has a positive influence on innovation at the organisational level. As discussed in Chapter 1, the researcher argues that the contrary results that emerged from past studies are the effect of their different designs, contexts and samples. Considering the discussion of transformational leadership theory above, the researcher chose it as one the leadership theories for the purpose of measurement development in Chapter 4.

### Table 2.3 Transformational leadership in the Leadership Profile Inventory

<table>
<thead>
<tr>
<th>Factor</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Challenging the Process</td>
<td>‘Leaders search for challenging opportunities to change, grow, innovate and improve and they experiment, take risks and learn from the accompanying mistakes.’</td>
</tr>
<tr>
<td>Inspiring a Shared Vision</td>
<td>‘Leaders envision an uplifting and ennobling future and they enlist others in a common vision by appealing to their values, interests, hopes and dreams.’</td>
</tr>
<tr>
<td>Enabling Others to Act</td>
<td>‘Leaders foster collaboration by promoting cooperative goals and building trust and they strengthen others by sharing information and power and by increasing their discretion and visibility.’</td>
</tr>
<tr>
<td>Modelling the Way</td>
<td>‘Leaders set the example for others by behaving in ways that are consistent with their stated values and plan small wins that promote consistent progress and build commitment.’</td>
</tr>
<tr>
<td>Encouraging the Heart</td>
<td>‘Leaders recognise individual contributions to the success of every project and celebrate team accomplishments regularly.’</td>
</tr>
</tbody>
</table>

Source: Kouzes and Posner (1995, p. 38)
In their qualitative research, Karakitapog˘l
lu-Aygün and Gumusluoglu (2013) conducted
31 semi-structured interviews with knowledge workers from different sectors (defence,
IT, software, banking, academics, etc.) in Turkey. In the context of change and
transformation as well as in addition to the original dimensions of transformational
leadership in the literature, they found four new categories of transformational
leadership: benevolent paternalism, employee participation and teamwork,
implementation of the vision, and proactive behaviour. Knowledge workers are those
involved with creative and innovative tasks, but whether these behaviours can be
generalised into other occupations that are not creative or innovative as much as
knowledge intensive remains unanswered. This indicates that empirical investigations
are needed to test the reliability and validity of these four leadership behaviours across
different professions.

Graen and his colleagues introduced the leader–member exchange (LMX) theory
(Graen 1976; Graen & Cashman 1975; Graen & Scandura 1987; Graen & Uhl-Bien
1995). LMX concentrates on the quality of dyadic reciprocal actions between
supervisors and subordinates (Graen & Uhl-Bien 1995). According to this theory a
continual social exchange takes place between supervisors and employees (Schermuly,
Meyer & Dämmer 2013). LMX has been described as the single idea of the quality of
leader–member connection along a continuum from not good to good (Chen, Lam &
Zhong 2007); hence, it is about a relational style of leadership (Graen & Uhl-Bien
1995). Research on LMX in organisations has indicated that if the quality of leader–
member exchange is high, staff have more time and information, better levels of
emotional support and high regard from their leaders (Sparrowe & Liden 1997). In
return, subordinates show behavioural changes through enhanced effort, deeper
involvement, and positive attitudes towards their work (DeConinck 2011). According to
Yukl (2010), the quality of the relationship between a leader and subordinate affects
outcomes such as supervisor satisfaction, follower satisfaction, commitment, turnover
intentions and role clarity. Liden, Wayne and Sparrowe (2000, p. 409), noted that
supervisors are the main interaction partners for subordinates, and ‘the supervisor–
subordinate relationship has a major impact on employees’ work experiences’.
Graen and Scandura (1987) suggested the quality of the relationship between a manager and a follower is related to innovativeness. They proposed that a high quality relationship between managers and employees may provide followers with challenging assignments, reinforcement in risky conditions, and provision of assignment-related resources, which raise creativity and innovation in an organisation. According to Cotgrove and Box (1970) and Pelz and Andrews (1966), a high-quality relationship between a leader and follower is fundamental to innovative behaviour. They pointed out high-quality interactions are characterised by trust, reciprocal liking and respect, and in turn followers have greater autonomy and more latitude in decision-making. Additionally, in such exchanges subordinates are not only granted greater independence and freedom, increasing deeper obligation, but also have access to more and better information, both of which encourage higher creativity (Khazanchi & Masterson 2010; Scott & Bruce 1994). According to Singh and Sakar (2012), employees must find encouragement and support if they are to generate new ideas and implement them in the workplace.

Tierney, Farmer and Graen (1999) argued that high-quality relationships had a positive influence on creativity in a study of R&D leaders and employees in a chemical firm. Along similar lines, Janssen and van Yperen (2004) found a positive impact of high-quality relationships on employees’ innovative behaviour. Scott and Bruce (1994) found that the nature and quality of LMX affected the creativity of followers. While they discovered a number of positive aspects of LMX including monitoring, clarifying and consulting, they also noted that manifestations of negative LMX were as frequent as of positive. They concluded that LMX could either amplify or undermine employees’ sense of competence and self-determination.

Based on the above-mentioned discussion, the researcher chose the leader–member exchange leadership theory as one of the leadership theories used in Chapter 4 for the purpose of developing a measurement instrument.

Yukl and his colleagues (Yukl 2004, 2009; Yukl, Gordon & Taber 2002) introduced a leadership model consisting of three dimensions that extend traditional leadership studies (e.g., Bass 1985; Burns 1978). Traditional theories such as transformational leadership and charismatic leadership centre on the classic difference between task and
relation; Yukl and his co-workers identified change-oriented leadership as a third main category of leadership behaviour. According to Lowe, Kroeck, and Sivasubramaniam (1996), there is substantial verification of the view that leadership theories such as transformational leadership and change-oriented leadership have a direct correlation with behaviours found in effective leaders. Three dimensions of change-oriented leadership are task behaviour, relation behaviour, and change behaviour (Yukl, Gordon & Taber 2002). In a similar vein, Gil et al. (2005) defined change-oriented leadership style in terms of task, relationship, and change behaviour. The main objectives of task behaviour include high efficiency in the use of resources and personnel, and high reliability in operations, products, and services. The principal goals of relations behaviour comprise strong obligation to the unit and its mission and a high level of reciprocal trust and cooperation amongst members. The main goals of change behaviour include major innovative improvements (in products, services or processes), and their application to external changes (Yukl, Gordon & Taber 2002).

Change-oriented leadership theory is considered similar to and compatible with transformational leadership theory (Yukl, Gordon & Taber 2002), but its goal is to describe leadership processes at various conceptual levels. Change-oriented leadership explains the impact of people in managerial positions on organisational processes, analyses the contingent elements of effective leadership, and emphasises the significance of leadership processes (Gil et al. 2005). Yukl (1999) claimed that transformational leadership overemphasises dyadic processes, overlooking the impact of the leader on the firm: in other words, unlike the aim of transformational leadership theory which focuses on the motivation and perceptions of followers, the goal of change-oriented leadership theory is on the processes of organisation. According to Gil et al. (2005), change-oriented leaders show behaviours like controlling the environment of a firm, envisioning change, taking risks, and supporting innovative ways of thinking. This is the reason behind selecting the change-oriented leadership theory as one of the leadership theories used in Chapter 4 for the purpose of measurement development.

Walumbwa et al. (2008, p. 94) defined authentic leadership as ‘a pattern of leader behaviour that draws upon and promotes both positive psychological capacities and a positive ethical climate, to foster greater self-awareness, an internalised moral
perspective, balanced processing of information, and relational transparency on the part of leaders working with followers, fostering positive self-development’. Generally this type of leadership is the root notion, the base of any positive type of leadership (Ilies, Morgeson & Nahrgang 2005; May et al. 2003). According to Rego et al. (2012), when authentic leadership is taken as an individual style intrinsic to leaders, it intensifies fragmented leadership theories such as transformational leadership. Authentic leaders practise self-awareness and use it to learn from themselves and to foster their employees (Neider & Schriesheim 2011). In the authentic leadership theory, Walumbwa et al. (2008, p. 95) identified four components representing authentic leaders: self-awareness refers to ‘demonstrating an understanding of how one drives and makes meaning of the world and how that meaning-making process impacts the way one views himself or herself over time’. Relational transparency refers to ‘presenting one’s authentic self (as opposed to a fake or distorted self) to others’. Balanced processing refers to ‘leaders who show that they objectively analyze all relevant data before coming to a decision’. Finally, ‘internalised moral’ perspective refers to ‘an internalized and integrated form of self-regulation’.

Authentic leadership enables leaders to remain realistically optimistic and reliable, and to establish a stable and secure leader–employee attachment style (Hinojosa et al. 2014) that encourages followers to think and believe that their leaders are supportive of them and value their innate skills and abilities (Zhou et al. 2014). When people in management positions use authentic leadership behaviours in an organisation in this manner, followers are inclined to show their creativity and challenge routine ways of working, and are also more eager to persuade their managers and colleagues to implement their creative ideas (Janssen 2004; Tu & Lu 2013). According to Walumbwa et al. (2008), employees perceive authentic leaders as a credible source of feedback because they do not censor followers’ creative thoughts. Avolio et al. (2004) stated that followers of authentic leaders are more willing to discover new solutions for solving problems and taking risks because they think their leaders like to see them carry out tasks and assignments properly.

To promote creativity and innovation, Rego et al. (2014) noted, authentic leaders first stimulate followers’ intrinsic motivation and feelings of psychological safety. Intrinsic
motivation is ‘an inherent tendency to seek out novelty and challenges, to extend and exercise one’s capacities, to explore, and to learn’ (Ryan & Deci 2000, p. 70), and there is sufficient literature to infer that intrinsic motivation fosters creativity (Zhou & Ren 2012). According to Ilies, Morgeson and Nahrgang (2005), authentic leaders make their staff more intrinsically motivated by supporting their self-determination. Psychological safety indicates how persons believe that group or organisational context is protected enough for interpersonal risk-taking (Edmondson 1999). Elsbach and Hargadon (2006, p. 476) contended that ‘research on psychological safety suggests that feeling that one may be oneself without fear of image threats may motivate workers to freely engage in innovative and playful behaviour at work’. Authentic leaders further their followers’ trust, respect and identification (Avolio et al. 2004; Ilies, Morgeson & Nahrgang 2005) enabling employees to suggest new and fresh thoughts, to feel free to take risks, and to propose contradictory beliefs without fear (Edmondson 1999). As a result, subordinates tend to generate more creative ideas when confronting both setbacks and opportunities (Rego et al. 2014). This is the logic behind choosing the authentic leadership theory as one of the leadership theories in Chapter 4 for the purpose of measurement development.

2.5 Creativity and Innovative Behaviour

Prior research has connected employees’ creativity and innovative behaviour to the success of organisations (Nonaka & Takeuchi 1995; Rubera & Kirca 2012). Around the 1950s, Guilford used divergent thinking to spread knowledge of creative ideas (Mumford 2003; Woodman, Sawyer & Griffin 1993). Mumford (2003) has criticised the popularity of Guilford’s method as it is a singular and remarkable procedure branded the early exploration and investigation of creativity as a multifaceted theme. He claimed that different methods producing a more extensive comprehension of creativity have emerged in less than two decades. According to Woodman, Sawyer and Griffin (1993), the concept of creativity shows a relatively undiscovered area in terms of change and innovation in the workplace. Amabile et al. (1996) also argued that the empirical investigation of creative behaviour within an organisational context left a large gap that needs to be considered by researchers. This thesis aims to determine precisely how creativity is recognised within a workplace, and how scholarly literature depicts the distinction between creativity and innovation.
Creativity has been defined in many ways (Sternberg & Lubart 1999), and a diverse set of aspects, such as person, process, service, and product, have been mentioned in relation to it. For the purpose of this thesis, the researcher concentrates on a conceptual explanation of creativity, through the lens of creative behaviour. Feist (1998, p. 290) declared that ‘for the last 30 years or more, creativity researchers have been fairly unanimous in their definition of the concept’ and that, ‘creative thought or behaviour must be both novel/original and useful/adaptive’. According to Amabile (1996, p. 19), ‘we don’t know enough to specify a precise universally applicable definition of the term’, but most theorists have defined creativity as the production of novel and useful thoughts that can be presented in different ways, such as in products, services and procedures.

Frequently theorists describe two main phases of the innovation process: initiation and implementation (Axtell et al. 2000; Zaltman, Duncan & Holbek 1973). The initial phase ends with the production of an idea, and the second with its implementation (King & Anderson 2002). While creativity refers to the production of novel ideas (Mumford & Gustafson 1988), innovation refers to their application (West 1989; West & Farr 1989). In this thesis, idea initiation/generation indicates creativity and idea application/implementation indicates behaviour.

In 1998 researchers started to incorporate the concept of innovation into creativity. The link made between these concepts forced organisations to recognise the significance of fostering employees’ creativity. Mumford et al. (2002, p. 705) stated that ‘creativity, the generation of new ideas, and innovation, the translation of these ideas into action, have come to be seen as a key goal of many organisations and a potentially powerful influence on organisational performance’. Amabile et al. (1996, p. 1155) defined innovation in terms of the execution of a creative idea or product and recommended creativity as ‘a starting point for innovation’. Similarly, Shalley and Gilson (2004, p. 34) stated, ‘creativity differs from innovation in that innovation refers to the implementation of ideas’. According to West (2001), creativity is mainly a distinguishing quality of a person while innovation is generally executed by a group or community; however, West’s description of innovation may be too narrow as both creativity and innovation may occur at individual, team and organisational levels.
In the available literature, creativity appears as an important factor related to innovation (Amabile et al. 1996; Madjar & Walters 2008). For example, Amabile et al. (1996, p. 1155) suggested that ‘all innovation begins with creative ideas’. Similarly, Baer (2012) stated that creativity is the first step for innovation and provides the base for every innovation: the concepts of creativity and innovation are clearly related. Because of this, the terms ‘creativity’ and ‘innovation’ are sometimes used interchangeably and even at times indiscriminately (Ford 1996; Scott & Bruce 1994). However, while innovation is the application or implementation of novel ideas in the work role, creative engagement is more fundamental in its nature as it focuses on the input to innovation (Slätten, Svensson & Sværi 2011).

According to Redmond, Mumford and Teach (1993), the fundamental source of any novel thought is individuals. A person is the ultimate source of innovation in the workplace (Shalley & Gilson 2004). Employees’ creativity theoretically provides the impetus required for innovation (Oldham & Cummings 1996). Gumusluoglu and Ilsev (2009) claimed that employees who are creative tend to see opportunities for new products or identify new ways of utilising existing methods, producing new ideas to solve work-related problems and also often developing sufficient plans for implementation. In line with this, Shalley and Gilson (2004) proposed that creative staff generate new and useful thoughts about products, procedures and practices. It can be expected that employees’ creative ideas are transferable to other staff in the workplace who adapt them.

The distinction between creativity and innovative behaviour is recognised and explained by other authors in this field. According to Scott and Bruce (1994) and West and Farr (1990), innovative behaviour has an obvious applied ingredient that encompasses behaviours directed at the generation of new services, products and work processes. Creativity is the initial phase in which ideas are produced in response to a perceived necessity for innovation-oriented behaviour (West 2002); the difference between creativity and innovation is of stress rather than essence. This thesis considers creativity and innovative behaviour as distinct constructs for the purpose of empirical investigation. Some previous research does not consider the distinction between idea generation and implementation behaviour, but kept innovative behaviour as an one-
dimensional construct (Scott & Bruce 1994; Janssen 2000). This research follows Mumford and Licuanan (2004), who suggested that researchers should keep these two phases of the innovation process separate.

According to De Jong and Den Hartog (2007), to begin an innovation persons can produce thoughts by binding in behaviours, to look at opportunities, recognise gaps, or generate solutions for problems in the workplace. Opportunities to generate thoughts are presented by inconsistencies, or when things do not follow expected patterns: for instance, when problems and difficulties exist in established work procedures, or clients have unique and original needs. In the second phase of innovation, employees show application-oriented behaviour, such as convincing others of the value of a specific idea.

De Jong and Den Hartog (2007) stated that employees’ innovation-oriented behaviour is associated with their creativity. This statement seems to overlook the distinction between creativity and innovation, which implies that the distinction between creativity and innovative behaviour is blurred. However, some models cover the elements independently: for instance, Basadur (2004) discerned differences between problem detection, problem conceptualisation, problem solving, and solution execution. Clearly in this model the first three cycles relate to creativity, while the last cycle is about innovative behaviour. In this regard, Mumford (2003, p. 116) suggested that coming studies should look into ‘late cycle’ abilities such as the implementation of creative thoughts, arguing that the declaration, formation and implementation of thoughts depicts ‘another important component of creative work’, and stressing the consideration of execution of creative ideas as a separate phase.

2.6 Supportive Climate for Innovation

To commence this section, first it is necessary to make a distinction between organisational climate and culture, two components of the work environment that often are used interchangeably. According to Peterson and White (1992), culture is a set of assumptions shared by people in a workplace, which is not easy to identify. Researchers have noted that it is difficult to change organisational culture (Perry et al. 2005) without first addressing organisational climate (McMurray 2003). Climate refers to the ordinary assumptions embedded in many various organisational phenomena (Allaire & Firsirotu
In this section, the researcher reviews the literature relating to a climate supportive of innovation.

The theory of organisational climate was introduced by Kurt Lewin in a psychological context in 1930. Nystrom (1990) noted that an organisational climate consists of emotions, standpoints and behavioural inclinations that describe organisational life. It indicates to people (leaders and employees) what is significant and how it may be achieved; it also relates to the perception of the processes, occurrences and types of behaviours that are emphasised and anticipated (Schneider 1990). Climate refers to firm members’ perceptions of processes, policies, and practices (Reichers & Schneider 1990). Ekvall (1996) defined climate as a firm’s ethos and the accumulated behaviours, postures, and feelings that define its working life and the perceptions and comprehension of its members. West and Ritcher (2008) defined climate as the perception of the workplace environment, whether at individual, team or organisational level. In line with Scott and Bruce (1994), this thesis treats this construct as the degree to which the members of a firm discern the workplace as supportive of innovation, and so encourage the creation of novel and useful ideas as a part of daily life.

As this thesis focuses on leadership and how leaders affect followers’ creativity and innovative behaviour, it is necessary to discuss whether or not managers enable a climate that supports and encourages creative and innovative thought. It is also important to address how leaders support creative and innovative behaviours by creating a supportive environment for these behaviours. Basu and Green (1997) defined support as the physical and psychological help provided by the leader. Literature has confirmed that support helps to boost innovation. A leader should comprehend each follower empathetically, and have an instinctive capacity to understand a subordinate’s perspective, values, and attitudes (Fodor & Roffe-Steinrotter 1998; Stahl & Koser 1978). Tan and Tan (2000) found that a leader wanting to do good for his/her followers enhances innovative behaviour, while Fairholm (1994) and Sonnenburg (1994) discovered that a leader who is friendly and truly tries to assist employees in their job can create an environment that nourishes innovation.

Many authors have found that leaders’ support has positive effect on creativity (Carson & Carson 1993; Cummings & Oldham 1997; Farris 1969; Oldham & Cummings 1996;
Pelz & Andrews 1966). In a study of German middle managers, Krause (2004) found that support for innovative attempts was a predictor of idea generation and application. Mumford (2000) asserted that since innovative people tend to explore first and ask permission later, they might withhold an innovative thought if met with premature censure, particularly when the idea is in a preliminary phase. Basu and Green (1997) found that employees are more likely to implement innovative ideas when they are certain that they will not be penalised for it. Barnowe (1975) examined the performance of employees in an R&D firm and found a positive relationship between leader assistance behaviours and innovative behaviour. De Jong and Den Hartog (2007), in a qualitative study noted that support for innovation is positively related to creativity and innovation. In view of this, this thesis considers how a supportive climate for innovation mediates between leadership behaviour and employees’ creativity and innovative behaviour.

2.7 Personal Initiative

Frese and Fay (2001, p. 134) defined personal initiative as ‘work behaviour characterized by its self-starting nature, its proactive approach, and by being persistent in overcoming difficulties that arise in the pursuit of a goal’. This construct is described by five components: ‘it (1) is consistent with the organisation’s mission, (2) has a long-term focus, (3) is goal-directed and action-oriented, (4), is persistent in the face of barriers and setbacks, and (5) is self-starting and proactive’ (Frese et al. 1996, p. 38). It is self-starting because it occurs without being a clear prerequisite of a role, and includes self-set, rather than allocated, objectives. Personal initiative is long-term oriented because it suggests that persons anticipate problems and difficulties and take advantage of opportunities. Personal initiative is persistent, as it includes tenacity in overcoming problems, difficulties and barriers (Frese & Fay 2001). It refers to behaviours that are mainly directed towards workplace issues, and that are described by three aspects: it is self-starting, proactive, and persistent in facing problems (Frese & Fay 2001). It is important to note that Frese and colleagues primarily considered personal initiative as a behavioural construct rather than a personality trait. In line with this, this thesis also considers its behavioural aspect because this thesis is designed to address various types of behaviour in the workplace. According to Frese, Fay and Garst
(2007), self-starting concerns an individual’s behaviour regulated by objectives developed without external force, role prerequisites, guidance, or clear action: personal initiative is a case of self-set objectives, not allocated goals. An example is a worker in an automotive company who tries to fix a broken machine even though this is not part of the job description (Frese et al. 1996). Personal initiative occasionally occurs when a person takes charge of a thought that has been around for a while but has not yet been acted upon: Frese, Fay and Garst (2007) provided the example of a secretary who buys a bottle of water for a visiting speaker, exhibiting initiatives even in a small matter. Persistence means persisting with difficulties, problems and barriers to get past problems or limits (Frese, Fay & Garst 2007). Examples of persistent behaviours are cooperation with colleagues to solve special customer problems or seeking comments and feedback to verify client pleasure (Rank 2006).

Herrmann and Felfe (2013) claimed that behaviours like those defined in transformational leadership are intended to satisfy employees’ personal initiative. This can be explained by three reasons. First, according to Bass (1985), transformational leaders aim to transform and change; thus, they gratify the needs of employees to optimise future development. Second, their intellectual stimulation behaviour meets the need to predict setbacks and opportunities and deal with them proactively (Frese & Fay 2001). Last, by showing inspirational motivation behaviour leaders shape a persuasive vision of the future and demonstrate confidence that objectives will be attained (Bass 1985). In this way they facilitate diligence and patience (Herrmann & Felfe 2013). Employees who have personal initiative accept their leaders’ behaviours and feel more drawn towards leaders’ commands than those who do not. According to Binnewies and Gromer (2012), creativity and innovation require constant effort and persistence. In view of this, this thesis considers the role of personal initiative in mediating between leadership behaviour, employees’ creativity, and innovative behaviour.

2.8 Emotional Intelligence

Emotional intelligence is a construct implied in the work of Thorndike, who initially conceptualised social intelligence in the second decade of the twentieth century (Khalili 2012). Thorndike suggested a construct of intelligence comprising three elements: abstract intelligence, mechanical intelligence and social intelligence. He explained
abstract intelligence as ‘pertaining to the ability to understand and manage ideas, mechanical intelligence—indicating the ability to understand and mange concrete objects, and social intelligence—referring to the ability to understand and manage men and women, boys and girls—to act wisely in human relations’ (Thorndike 1920, p. 228).

Salovey and Mayer (1990) were the first to present the concept of emotional intelligence, defining its structure, developing its theory, and developing an appropriate measurement instrument. They defined it as ‘the subset of social intelligence that involves the ability to monitor one’s own and others’ feelings and emotions, to discriminate among them and to use this information to guide one’s thinking and actions’ (Salovey & Mayer 1990, p. 189). However Goleman (1995) was the one who popularised this construct, in his book Emotional Intelligence.

There are three distinct models of construct of emotional intelligence that have formed the foundation for other models in this domain. In 1997, Bar-On introduced his construct in a doctoral thesis, including five social and emotional competencies: intrapersonal, interpersonal, stress management, adaptability and general mood (Khalili 2011b, p. 185). Goleman (2001) noted that Bar-On’s emotional intelligence model is based on the personality theory and psychological well-being model: in other words, it does not cover cognitive abilities. The next model, presented by Mayer and Salovey (1997), is based on cognitive theory, which depicts emotionally intelligent people as those who realise, process and direct emotions effectively. This model addresses only perceptive or cognitive behaviours. A third model proposed by Goleman (1995, 1998) is based on performance theory, that integrates cognitive and non-cognitive competencies. Of these three models, Goleman’s (1995) is the only one that covers both cognitive behaviours and characteristics. Abilities like self-awareness, managing emotions, empathy and managing relationships are included in this model.

For this thesis, the researcher uses Wong and Laws’ (2002) emotional intelligence model, based on that of Salovey and Myer (1990). Salovey and Myer conceptualised emotional intelligence as constituted of four separate dimensions:
• **Appraisal and expression of emotion in the self**: this dimension relates to an individual’s ability to comprehend his/her emotions and be able to express them normally (Salovey & Myer 1990). This dimension in Wong and Laws’ (2002) model is named **self-emotion appraisal**.

• **Appraisal and recognition of emotion in others**: this dimension relates to an individual’s ability to perceive and comprehend the emotions of other people (Salovey & Myer 1990). This dimension in Wong and Laws’ (2002) model is named **others’ emotion appraisal**.

• **Regulation of emotion in the self**: this dimension relates to an individual’s ability to regulate his or her emotions, which in return will enable a fast recovery from distress (Salovey & Myer 1990). This dimension in Wong and Laws’ (2002) is named **regulation of emotion**.

• **Use of emotion to facilitate performance**: this dimension relates to an individual’s ability to make use of his or her emotions by directing them towards useful actions and performance (Salovey & Myer 1990). This dimension in Wong and Laws’ (2002) model is named **use of emotion**.

According to Khalili (2011a), the body of organisational and occupational research regarding emotional intelligence has grown extensively, both literally and empirically. An extensive body of studies presents leadership behaviour, namely transformational leadership behaviours, as inherently related to emotional intelligence (e.g., Hur, Berg & Wilderom 2011; Lam & O’Higgins 2012; Polychroniou 2009). This construct has shown positive correlations with both in-role and extra-role work behaviours such as satisfaction, commitment, performance, creativity and innovativeness (Araujo & Taylor 2012; Castro, Gomes & de Sousa 2012; Khalili 2011a, 2012; Lassk & Shepherd 2013; Ryan, Spencer & Urs 2012). In view of this, this thesis considers the moderating role of individuals’ emotional intelligence on the relationships between SME leadership behaviour, and employees’ creativity and innovative behaviour.

### 2.9 Relationship between Variables of the Study

Drivers that may enhance employees’ creative and innovative behaviours can be based in both personal and contextual factors (Zhou and George 2003). For this thesis, the influence of personal drivers (SME leadership behaviour, employees’ personal initiative,
and individuals’ emotional intelligence) and a contextual driver (individuals’ perceptions of a supportive climate for innovation) of employees’ creativity and innovative behaviour were considered. The following sections highlight the relevant literature, together with the results of prior empirical studies showing the role of these factors on followers’ creativity and innovative behaviour.

2.9.1 SME Leadership Behaviour and Employees’ Creativity and Innovative Behaviour

It is argued that a firm needs a quality leadership in order to maintain operations and guide the firm to favourable outcomes (Arham, Muenjohn & Boucher 2011). Good leadership qualities have been identified as the main element driving the prosperity of SMEs (Quan 2015; Teng, Bhatia & Anwar 2011). In other words, proper leadership behaviour in a firm keeps staff motivated and concentrated on daily tasks. As leadership is vital for the success of an organisation, failure in SMEs relates to poor leadership practices (Beaver 2003; Ihua 2009). For instance, Beaver (2003) in an overview of empirical research on the prosperity of SMEs, deduced that most reasons for SME failure can be assigned to internal factors like weak leadership and lack of management competencies in the main players in an enterprise. Research by Gibb and Webb (1980), which examined the records of 200 companies, found lack of concern and knowledge by people in management positions to be the key factor in bankruptcies of SMEs. They concluded that leaders of these organisations had not been innovative enough to excel in trade. Ihua (2009), in a study designed to evaluate the main causes of failure among SMEs in the UK, reported weak and poor management skills as the most important factor. This is along the same line as the report produced by DIISR that SMEs in Australia have suffered from underdeveloped leadership abilities, especially those related to innovation (DIISR 2009). Smyrnios and Gome (2008) similarly noted that leadership behaviours of owners or CEOs are important in engendering innovation in SMEs.

Although a growing body of research has acknowledged leadership as a significant enabler of employees’ creative and innovative behaviours, empirical documentation addressing these relationships in the context of SMEs is very limited. A recent study by Engelen et al. (2014), which investigated the influence of leadership behaviour on the
innovativeness of 951 SMEs in Argentina, Austria, China, Germany, Singapore, Switzerland, Thailand and the USA, postulated that transformational leadership behaviour contributes to innovation in SMEs. They found that such leadership behaviour as articulating a vision has an impact on the orientation of innovation, because this develops best when staff share an obvious vision and adopt the enterprises’ goals as their own, which stimulates them to be creative and innovative and work hard to achieve the firm’s objectives. An earlier study by Gumusluoglu and Ilsev (2009), of 43 small to medium enterprises in Turkey, made similar findings: looking at the impact of leadership behaviour on creativity and innovation, Gumusluoglu and Ilsev concluded that quality of leadership is critical in enhancing employees’ creativity and organisational innovation in SMEs. In particular, those embodying transformational leadership can promote creativity and innovation at both individual and organisational levels. Thus, it seems, the potential individual-level influence of leadership behaviour on employees’ creativity and innovation is most apparent and necessary in the SME environment.

2.9.2 SME Leadership Behaviour, Employees’ Personal Initiative, and Employees’ Creativity and Innovative Behaviour

This thesis brings another personal factor, the vital role of personal initiative, to researchers’ attention. To date few studies have examined the influence of leadership behaviour, or of personal initiative, on creativity and innovative behaviour. The lack of empirical documentation that shows these relationships in the context of SMEs. In this area the researcher had to review empirical studies without considering the size of organisation.

Personal initiative is considered a key element for nurturing and enhancing creativity and innovative behaviour. Creative performance frequently depends on departure from ordinary methods of working (Ford 1996), requiring effort, and likely to lead to negative experiences like feelings of doubt. Implementing new and fresh thoughts often engenders anxiety and disappointment if no development follows (Lubart 2001). Creativity and innovative behaviour require perseverance and diligence, and therefore this thesis proposes that the presence of employees with a high degree of personal
initiative works to leverage SME leadership behaviour on employees’ creative and innovative behaviours.

Previous studies have acknowledged that leadership behaviour is positively related to personal initiative. The positive influence of personal initiative on creativity and innovative behaviour has been well documented. A study by Wang and Howell (2010), which examined the influence of leadership behaviour on the personal initiative of 60 leaders and 203 group members in Canada, claimed that transformational leadership behaviour positively impacts upon employees’ personal initiative. Wang and Howell concluded that appropriate leadership is important for enhancing employees’ personal initiative.

A positive influence of personal initiative on creativity and innovative behaviour has been reported. A study by Binnewies, Ohly and Sonnentag (2007), which tested the impact of personal initiative on the creative behaviour of 52 nurses in Germany, determined that personal initiative positively related to creative behaviour. They concluded that personal initiative jump-started nurses’ creativity. A study by Binnewies and Gromer (2012), which evaluated the influence of personal initiative on the innovative behaviour of 89 teachers in Germany, claimed that personal initiative positively connects with innovative behaviour. Binnewies and Gromer concluded that since innovative behaviour is normally involved with negative emotions and problems, teachers with a high degree of personal initiative are likely to succeed. Apart from these few examples, the literature fails to consider the mediating influence of employees’ personal initiative in the process of leadership behaviour influencing employees’ creativity and innovative behaviour in SMEs.

2.9.3 SME Leadership Behaviour, Individuals’ Perceptions of a Supportive Climate for Innovation, and Employees’ Creativity and Innovative Behaviour

As a contextual driver this thesis brings to researchers’ attention the important role played by a supportive climate for innovation, which is well documented. A number of studies have examined the influence of leadership behaviour on this construct, and also the impact of a supportive climate on creativity and innovative behaviour. However, a lack of empirical documentation that presents these associations in the context of SMEs
is evident, and the researcher reviewed available empirical studies without considering the size of firm.

A supportive climate for innovation can play a key role in enhancing employees’ creative and innovative behaviours. According to Mumford and Gustafson (1988, p. 37), ‘even when individuals have developed the capacity for innovation, their willingness to undertake productive efforts may be conditioned by beliefs concerning the consequences of such actions in a given environment’. It is reported that when the organisational climate emphasises reliable and efficient operations and the absence of errors, or is not particularly concerned with creativity and innovation, subordinates will feel reluctant to take initiative in their daily job even they are given some independence (Yukl 2010); and that before showing creativity and innovation, employees need to make sure that the environment of the organisation is favourable. This thesis suggests that a climate supportive of innovation is a pivotal factor in leveraging leaders’ behaviours on employees’ creative and innovative behaviours.

Empirical studies have determined leadership behaviour is positively related to supportive climate for innovation, and the positive influence of a supportive climate on creativity and innovative behaviour has also been documented. A study by Jung, Chow and Wu (2003) examined the impact of leadership behaviour on the supportiveness of a climate for innovation by collecting data from 32 companies in Taiwan. They claimed that transformational leadership behaviour has a positive and significant impact on employees’ perception of support for innovation. Jung and his colleagues concluded that top managers’ leadership behaviours can enhance employees’ perception of support for innovation, by creating an environment in which followers are encouraged to openly discuss and put to the test creative and innovative thoughts. In addition, a study by Eisenbeiss, van Knippenberg and Boerner (2008), which investigated the influence of a supportive climate on innovation, drawing participants from 33 R&D teams from a research institute and four international R&D companies, claimed that the presence of a supportive and innovative climate in the workplace can facilitate, develop and implement group members’ innovation.

A study by Paulsen et al. (2013) examined the mediating influence of a supportive climate on the relationship between leadership behaviour and the innovative behaviour,
in 104 participants from a large R&D company in Australia. They found that the perception of a supportive environment for creativity affects the impact of transformational leadership on teams’ innovative behaviour. This finding is similar to other empirical studies (e.g., Černe, Jaklič & Škerlavaj 2013; Eisenbeiss, van Knippenberg and Boerner 2008; Jung, Chow & Wu 2003). Notwithstanding the positive relationships discussed above, the literature fails to consider the mediating influence of individuals’ perceptions of a supportive climate for innovation in the process of leadership behaviour impacting on employees’ creativity and innovative behaviour in the context of SMEs.

2.9.4 SME Leadership Behaviour, Individuals’ Emotional Intelligence, and Employees’ Creativity and Innovative Behaviour

As another personal factor this thesis brings the key role of emotional intelligence to scholars and researchers’ attention. To date few studies have examined the influence of emotional intelligence on creativity and innovative behaviour, in strong contrast to the extensive examination of the relationship between leadership behaviour and emotional intelligence. The lack of empirical documentation of these associations in the context of SMEs is significant, and the researcher is aware of only one study that examines leaders’ emotional intelligence and employees’ creativity in SMEs.

As in previous sections, it was again necessary to review relevant literature and previous empirical studies without considering the size of the companies under study.

Emotional intelligence can be considered a key driver of creativity and innovative behaviour. Creativity is innately difficult and involves hard work and disappointment. It requires individuals to produce something that challenges the current situation. Employees generally feel secure when they stick to the common and ordinary path, instead of putting themselves at risk by undertaking original and unusual activity (Staw 1995; Zhou & George 2003); managing the feelings and emotions aroused by creative acts is vital. The importance of emotional intelligence in facilitating innovative behaviour is also very important. To convert creative ideas into innovative outcomes, individuals require good relationships with managers and colleagues in the workplace.
This can be achieved if they have high levels of emotional intelligence, like insightful understanding of others’ feelings and emotions (Suliman & Al-Shaikh 2007).

Empirical studies have highlighted that leadership behaviour is positively connected with emotional intelligence, and the positive impact of emotional intelligence on creativity and innovative behaviour has also been acknowledged. A study by Leban and Zulauf (2004), which evaluated the influence of leadership behaviour on the emotional intelligence of 24 project managers and their related projects in six companies, noted a number of links between transformational leadership style and emotional intelligence competencies. Their findings show that project managers’ transformational leadership behaviours (i.e. inspirational motivation) have a positive influence on project performance and that emotional intelligence competencies (i.e. understanding emotions) contribute to project managers’ transformational leadership behaviours and hence to the succeeding project performance. A study by Suliman and Al-Shaikh (2007), which examined the effect of emotional intelligence on the creativity and innovative behaviour of 500 employees in the United Arab Emirates, determined that employees with high degrees of emotional intelligence tended to display a high degree of readiness to be creative and innovative. They reported that staff with high degrees of emotional intelligence are likely to have a steadier lifestyle (compared with those with low degrees of emotional intelligence), which assists them to apply more creativity and innovative behaviour in the workplace.

A study by Awwad and Ali (2012), which tested the impact of managers’ emotional intelligence on industrial SMEs’ innovativeness in Jordan, found a positive influence of managers’ emotional intelligence on their firms’ innovativeness. This indicates that a high level of emotional intelligence in a leader should result in a high level of innovativeness in SME employees. A recent study by Lassk and Shepherd (2013), which investigated the influence of emotional intelligence on the creativity of 460 field members in the health and beauty industry, determined that salespersons’ emotional intelligence is positively related to their creativity. They concluded that salespersons with high degrees of emotional intelligence can use this ability to develop new and useful thoughts and generate solutions. However, despite the positive links between these variables, the literature omits to demonstrate the moderating influence of
individuals’ (leaders’ and non-leaders’) emotional intelligence on the process of SME leadership behaviour as it influences employees’ creativity and innovative behaviour.

2.10 Small to Medium Enterprises in Australia

2.10.1 Introduction to SMEs

Governments around the world recognise the significance of SMEs and their huge contribution to economic growth, employment and local development (OECD 2004). SMEs are different types of businesses in different countries, but all are important for the stability of the economy, the quality of employment, the social and political structure of the economy, and generally the quality of life (Awwad & Ali 2012; Nooteboom 1988). As in most economies around the globe, Australian SMEs stand as the key to Australia’s past, present and future economy. They comprised more than two million active businesses in June 2013 and employed over 50 per cent of the total workforce; and provided over 60 per cent of industry value added in 2011–2012 (ABS 2013, 2014).

In the Organisation for Economic Co-operation and Development (OECD) which includes 14 countries, of which Australia is one, SMEs account for more than 95 per cent of organisations and around 70 per cent of employment (OECD 2000). This is to some extent a result of the continuous process of industrial restructuring that started in the late 1970s, when large organisations substantially reduced their production and workforces, creating pools of unemployed labourers: a proportion of these were inspired to begin their own businesses (Storey 1982). According to Parker (2000), this process received further impetus from the move to privatise certain operations, and the market deregulations of the late 1980s and 1990s, ending in broad organisational trends that involved downsizing as well as outsourcing.

To remain competitive, SMEs are required to be creative and innovative because they lack the economies of scale available to larger organisations (Fitzsimmons et al. 2005). As has been discussed extensively, leadership plays an exceedingly important role in developing and unifying capabilities like creativity and innovation in SMEs. People at management level in Australia have recognised the significance of leadership on creativity and innovation within the context of SMEs, emphasising how important are
leadership, creativity and innovation, which ultimately help sustain the competitive advantages of the smaller business. Peter Anderson, CEO of the Australian Chamber of Commerce and Industry, argued, ‘SMEs are the heartbeat of innovation and creativity in an economy that has to become more innovative, creative and diverse’ (Colquhoun 2014). Yazz Krishna, founder and managing director of Five Faces, an SME that provides in-store technology for retail and hospitality, noted, ‘A business cannot go far initially without good leadership, as leaders bring people together and provide the direction for the business’ (IBSA 2010). Trevor Glen, CEO of Sarugo, a software engineering SME, said, ‘Leadership is really important; you need internal leadership from within the company to drive the direction and to make sure you’re going in the right direction’ (IBSA 2010).

2.10.2 Definitions of SMEs

There is no single definition of SME that is accepted world-wide. The term covers diverse businesses, from a person producing handicrafts at home to companies developing very complex software and trading internationally. Meredith (1994) noted that SMEs should be defined from both qualitative and quantitative points of view. The qualitative part should identify the manner of operation and procedures of a firm, while the quantitative part should reflect the tangible financial situation of the organisation. In many studies the number of staff was a popular method to classify businesses (Cragg & King 1993; DeLone 1981; Kagan, Lau & Nusgart 1990); other sorting methods included such things as total capital or annual sales revenue (Montazemi 1988). The lack of a formal universal definition of SMEs has led to the acceptance of various approaches by governments and organisations in different countries.

Different characteristics can also be considered in defining SMEs across the world. Criteria defining a small to medium enterprise might consist of employment numbers, turnover and assets (Lee & McGuiggan 2008). In the USA the Small Business Administration defined small operations as those companies with fewer than 500 staff, and the volume of annual sales, which differ for different industrial sectors (SBA 2009). The European Commission defined SME as an operation with fewer than 250 staff and a less than 50 million euro turnover, or a balance sheet of less that 43 million euro (EU 2009). The Bolton Committee Report (1971) in the UK defined SMEs in two ways: the
first is that companies are small if they have a small share of their market, are informally managed by the owner or co-owners of the company, and are not configured as part of a large organisation. The second definition defines SMEs by the number of staff.

There is no consistently used definition of SMEs in Australia. The Asia-Pacific Economic Cooperation, of which Australia is a member, defines SME based on the number of employees, type of industry, and maximum levels of sales, revenues, assets, capital and investment (see Table 2.4). This definition classifies SMEs in Australia by the number of employees. However, the two common ways of categorising an Australian SME are by the number of staff or annual turnover, or a combination of the two. The Australian Bureau of Statistics (ABS) defines a SME as an actively commerce with 0–200 employees (DIISR 2011). More specifically, it defines a micro business as having 0–4 employees; a small business has 0–19 employees; a medium-sized business 20–199 employees; and a large business 200 or more employees. ‘Headcount’ is used for the employment size ranges in preference to a count of full-time equivalent employees (DIISR 2011). On the other hand, the Department for Business Innovation and Skills defined SME as a company with less than 250 staff (BIS 2009). This thesis classifies SMEs in Australia based on the ABS’s definition, as it is the most widely used; however, to assess causal effects between the constructs of this thesis, it is important to choose firms with at least one employee. Therefore, the researcher considers SMEs around Australia that have a minimum of 1 and a maximum of 199 employees.
2.10.3 Contribution of SMEs to the Australian Economy

SMEs play an important role in the Australian economy, accounting for over half of industry employment (57 per cent) and providing over half the industry value added (69 per cent) in 2011–12. ABS data presented below on SME industry value added and employment considers selected industries. This data excludes the general government components of education and training, health care and social assistance, public administration and safety, and financial and insurance services (ABS 2013).

Figure 2.1 presents a comparison of industry value added between small-sized, medium-sized and large businesses in Australia. As is shown, small-sized businesses


Table 2.4 Definitions of SMEs in APEC countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Number of Employees</th>
<th>Sales/Revenues</th>
<th>Assets</th>
<th>Capital/Investment</th>
<th>Sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brunei</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Canada</td>
<td>✓ ✓</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
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<tr>
<td>Chile</td>
<td>✓ ✓</td>
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<tr>
<td>China</td>
<td>✓ ✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Hong Kong, China</td>
<td>✓</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indonesia</td>
<td>✓ ✓</td>
<td></td>
<td></td>
<td>✓</td>
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<tr>
<td>Japan</td>
<td>✓</td>
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<td>✓ ✓</td>
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<tr>
<td>Korea</td>
<td>✓ ✓</td>
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<td>✓</td>
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<td>Malaysia</td>
<td>✓</td>
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<tr>
<td>Mexico</td>
<td>✓</td>
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<td>New Zealand</td>
<td>✓</td>
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<td>Papua New Guinea</td>
<td>✓</td>
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<tr>
<td>Peru</td>
<td>✓ ✓</td>
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<td>Philippines</td>
<td>✓</td>
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<tr>
<td>Russia</td>
<td>✓ ✓</td>
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<tr>
<td>Singapore</td>
<td>✓ ✓</td>
<td>✓</td>
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<tr>
<td>Chinese Taipei</td>
<td>✓ ✓</td>
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<td>✓</td>
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<tr>
<td>Thailand</td>
<td>✓ ✓</td>
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<td>✓</td>
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<tr>
<td>United States</td>
<td>✓ ✓</td>
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<tr>
<td>Vietnam</td>
<td>✓</td>
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</table>

Source: APEC (2010, p. 3)
contributed almost 34 per cent of industry value added in 2011–12, medium-sized businesses contributed 23 per cent, and large businesses 43 per cent. Overall, SMEs contributed 57 per cent of industry value added compared with large-sized organisations (ABS 2013).

**Figure 2.1 Contribution to industry value added by business size, 2011–12**

Source: ABS (2013)

Table 2.5 indicates that nearly 96 per cent of the total industry value added from agriculture, forestry and fishing is imputable to small to medium businesses, compared with 63 per cent in the service sector, 48 per cent in the manufacturing sector and almost 25 per cent in the mining sector (ABS 2013).

**Table 2.5 Industry value added by sector and business size, 2011–12**

<table>
<thead>
<tr>
<th>Industry</th>
<th>Small (0–19 staff) ($m)</th>
<th>Medium (20–199 staff) ($m)</th>
<th>Large (200+ staff) ($m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture, forestry and fishing</td>
<td>20,323</td>
<td>3,895</td>
<td>955</td>
</tr>
<tr>
<td>Mining</td>
<td>15,076</td>
<td>18,225</td>
<td>99,653</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>20,174</td>
<td>29,267</td>
<td>52,705</td>
</tr>
<tr>
<td>Services</td>
<td>292,832</td>
<td>180,059</td>
<td>279,091</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>348,405</strong></td>
<td><strong>231,446</strong></td>
<td><strong>432,404</strong></td>
</tr>
</tbody>
</table>

Source: ABS (2013)

Figure 2.2 shows that small to medium businesses provided 69 per cent of total employment in 2011–12 in Australia, which equates to almost 7.4 million people. As is shown in this figure, large businesses provided 31 per cent of total employment in 2011–12 (ABS 2013).
Figure 2.2 Employment by business size, 2011–12
Source: ABS (2013)

Figure 2.3 shows that 86 per cent of total small to medium business employment is within the service sector, compared with 7 per cent in manufacturing, 6 per cent in agriculture, forestry and fishing and 1 per cent in mining. In the service sector, 11 per cent of total SME employment is in construction, 10 per cent in professional, scientific and technical services and 10 per cent in accommodation and food services, followed by 9 per cent rental, hiring and real estate services (ABS 2013).
Table 2.6 shows that SMEs account for around 69 per cent of employment in the services sector, 61 per cent in the manufacturing sector, 47 per cent in the agriculture, forestry and fishing sector and 30 per cent in the mining sector (ABS 2013).
Table 2.6 Employment by sector and business size, 2011–12

<table>
<thead>
<tr>
<th>Industry</th>
<th>Small (0–19 staff)</th>
<th>Medium (20–199 staff)</th>
<th>Large (200+ staff)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture, forestry and fishing</td>
<td>418 ('000)</td>
<td>65 ('000)</td>
<td>16 ('000)</td>
</tr>
<tr>
<td>Mining</td>
<td>27 ('000)</td>
<td>31 ('000)</td>
<td>138 ('000)</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>274 ('000)</td>
<td>293 ('000)</td>
<td>361 ('000)</td>
</tr>
<tr>
<td>Services</td>
<td>3930 ('000)</td>
<td>2369 ('000)</td>
<td>2805 ('000)</td>
</tr>
<tr>
<td>Total</td>
<td>4649 ('000)</td>
<td>2758 ('000)</td>
<td>3320 ('000)</td>
</tr>
</tbody>
</table>

Source: ABS (2013)

At June 2013, there were 2,079,666 actively trading businesses in Australia. As is shown in Figure 2.4, of these nearly 99.8 per cent were SMEs (2,076,068) and only around 0.2 per cent were large businesses (ABS 2014).

Figure 2.4 Business numbers by size, June 2013

Source: ABS (2014)

2.10.4 Number of SMEs in Australia

The number of SMEs by state and territory, based on the main state of operation at end of the financial year 2012–13 in Australia, is shown in Figure 2.5. This figure reveals
that the largest number of SMEs are located in three states, New South Wales (33%), Victoria (26%) and Queensland (20%) (ABS 2014).

![Pie chart showing SME numbers by state and territory, 2012–13](image)

**Figure 2.5 SME numbers by state and territory, 2012–13**

Source: ABS (2014)

In the 2012–13 financial year, 2 137 674 SMEs were operating at the start, compared with 2 076 068 SMEs at the end (ABS 2014). This has been a major problem for a long time, at least since Watson (2003) reported SME failures in Australia to be as high as 23 per cent. As the discussion in Section 1.4 has made clear, a major cause of many small to medium business failures is related to the lack of leadership skills and abilities of those holding management positions. This thesis takes this issue into account, as it is a major challenge for SMEs’ survival in Australia, and is an attempt to assist founders, owners and managers of SMEs.

### 2.11 The Importance of the Variables for SMEs

The purpose of this section is to bring scholars and researchers’ attention to the importance of leadership, creativity, innovation, personal initiative, a climate supportive of innovation and emotional intelligence for SMEs. The researcher has reviewed the relevant literature and empirical studies concerning these constructs, with the emphasis on SMEs. The reviews provided in the following sections indicate that much more
attention must be paid to empirical investigation, particularly of the roles of personal initiative, a climate supportive of innovation and emotional intelligence in the SME context, which have been acknowledged in the literature as important enablers of creativity and innovation in general. Another important issue that the researcher would like to be considered by scholars and researchers regards the type of participant involved in the various studies, which is often unclear. Clearly stating the context of study, including such things as whether participants are from small-, medium- or large-sized organisations is a way to overcome this problem, and would help expand the knowledge in this domain of research.

2.11.1 The Importance of Leadership towards Creativity and Innovation for SMEs

Over the past thirty years explanations of leadership behaviours and the characteristics of SME leaders has remained consistent. Early studies recognised leaders of small businesses as founders and managers of their own enterprises with the aims of achieving profit and growth (Carland et al. 1984). According to Delmar, Davidsson and Gartner (2003), managers of SMEs look for new, faster ways of adopting and keeping pace with change. Johnson, Newby and Watson (2005) noted that leaders of start-ups with innovative inclinations have high achievement needs, openness to experience and desire for autonomy. Gupta, MacMillan and Surie (2004, p. 254) stated that ‘entrepreneurial leadership emphasises path clearing for opportunity exploitation and value creation’. These types of leader are skilful in achieving targets innovatively (Skodvin & Andresen 2006). They recognise opportunities and appraise them by increasing the flow of information (Hansson & Mønsted 2008). CEOs in SMEs tend to run the organisations in a straightforward way to reach set goals (Kansikas et al. 2012).

According to Chen (2007), leaders of new ventures are characterised by such things as risk-taking, innovativeness and proactiveness. Chandrakumara, De Zousa and Manawaduge (2011) and Sam, Tahir and Bakar (2012) reported a positive and significant relationship between owner-managers’ managerial style (risk-taking, innovativeness and proactiveness) and the performance of their SMEs. Rody and Stearns (2013), in a study of 232 managers of SMEs in China, found that risk-taking and proactiveness are two entrepreneurial styles that have a positive influence on SME
performance. D’Intino et al. (2008) stated that initiatives and risk taking are typical leadership styles in new establishments and help foster innovations within the firms. Witt (1998) noted that encouragement, motivation and setting an example of ‘how to do it’ are characteristics of leadership displayed by entrepreneurs in start-ups.

In a study of 217 patent inventors in the medical industry (surgery devices), Markman, Baron and Balkin (2005) found that leaders of new ventures had significantly high levels of self-efficacy, revealed good control over adversity and were effective in attaining outcomes. Carter, Gartner and Gatewood (2003) mentioned that reasons for business start-ups may include self-realisation, independence, wealth creation, financial prosperity, and the challenge of doing trade. After conducting interviews with the founders of twenty-two high-technology, small-sized firms, and using secondary data, Corman, Perles and Vancini (1988) found that leaders with education, skill, the ability to achieve work with higher salaries, and a strong sense of their own value seemed to be less interested about the risks involved in starting out. In a study of 307 CEOs of small firms in the architectural woodworking industry, Baum, Locke and Smith (2004) found that traits such as proactivity, tenacity and passion for work, the possession of general competencies such as organisational skill and opportunity skill plus specific competencies such as industrial and technical skills, who were able to employ competitive strategies like differentiation and innovation and had motivation such as vision, self-efficacy and growth goals, were direct predictors of venture growth.

In terms of qualitative approach, Mooney and Sixsmith (2013) conducted 21 semi-structured in-depth interviews within 19 SMEs to explore leadership characteristics and their relationship to creativity and innovation in the Australian IT sector. They discovered that leadership characteristics in innovative organisations include focus; the ability to lead and facilitate business and provide and articulate a resonant vision; the capacity to create personal/business alignment and manage resources; and to undertake opportunity evaluation and approval and provide an appropriate work climate. Whether the findings of this study can be generalised to other industries is as yet unanswered, because the authors put emphasis only on technology firms and service providers, which are by definition heavily dependent upon creativity and innovation. In another qualitative study, Wang et al. (2011) undertook 57 semi-structured interviews with
leaders and employees of SMEs in China, in order to identify leadership styles and characteristics. They discovered seven leadership styles and fourteen leadership characteristics, shown in Table 2.7. However, the scope of their study is different from this thesis, which aims to develop a measure of SME leadership behaviour rather than identifying the characteristics of people in management positions in SMEs. This indicates the importance of this thesis, as the behavioural aspect of leadership in SMEs is almost untouched in other literature.

Table 2.7 Leadership in SMEs

<table>
<thead>
<tr>
<th>Leadership Styles</th>
<th>Leadership Characteristics</th>
</tr>
</thead>
</table>
| Delegative (laissez-fair) | • Ambitious  
| | • Achievement-oriented  
| | • Comfortable with power  
| | • Emotionally stable |
| Coercive | • Temperamentally optimistic  
| | • Above average in intelligence |
| Authoritative | • Moderately strong analytically |
| Democratic | • Intuitively strong  
| | • Personable |
| Pacesetting | • Good at auto-criticism |
| Coaching | • Good at developing relationships with people in their companies and in their industries  
| | • Very knowledgeable about their business and organisations  
| | • Have a set of good working relationships with a very large number of people  
| | • Hiring and staffing |

Source: Wang et al. (2011)

Brandstätter (2011) summarised the results of five meta-analyses (Rauch & Frese 2007; Stewart & Roth 2001, 2007; Zhao & Seibert 2006; Zhao, Seibert & Lumpkin 2010) that investigated leaders’ personality and characteristics in small businesses in the past two decades. Of these, Rauch and Frese (2007) found eight characteristics related to business creation and success: the need for achievement, stress tolerance, the locus of control, risk taking, a proactive personality, innovativeness, the need for autonomy, and self-efficacy. Zhao, Seibert and Lumpkin (2010) addressed four managerial characteristics in terms of the intention to found a business and entrepreneurial performance: openness to experience, conscientiousness, emotional stability and extraversion.
Andersson and Tell (2009) carried out a review of articles published in the previous 25 years to identify managerial characteristics, managerial motivation and managerial behaviour in small growing firms. In a systematic review of the literature plus empirical study, they identified several important factors advocated by researchers that related to managerial characteristics affecting the growth of small firms: a propensity for risk-taking and preference for innovation (Stewart et al. 1999), personal value (Kotey, Bernice & Meredith 1997), and education and experience (Gray & Mabey 2005; Maes, Sels & Roodhooft 2005; Richbell, Watts & Wardle 2006). A consideration of managerial motivation revealed identified managerial intentions as an important key to expanding business activities and enhancing firm’s growth (Wiklund & Shephard 2003). Managerial behaviour, which can be useful in firms’ growth, included creative and innovative behaviour (Feindt & Jeffcoate 2002) and able administration (Barringer & Greening 1998; Slevin & Covin 1990): examples of effective managerial behaviour.

Based on the literature and the empirical study findings that have been discussed in this section, the concept of leadership in the context of SMEs is dominated by factors such as characteristics, personality, motivation and competencies. To restate, leaders’ traits, personality, abilities and motivation (e.g., Baum, Locke & Smith 2001; Brandstätter 2011; Mooney & Sixsmith 2013) are the four elements that have received the most attention from scholars in this context. In order to shed light on other aspects of leadership, this thesis will study leadership behaviour with the aim of uncovering SME leadership behaviours in particular. This line of investigation will be valuable in connecting leadership behaviours with the encouragement of creativity and innovation when the researcher tries to find out the leadership behaviours that foster and enhance creativity and innovation, since innovation management is one of the most important challenges that SMEs encountered (Matzlera et al. 2008). Furthermore, according to Hartman, Tower and Sebora (1994), the role of owners and managers in SMEs is important to creativity and innovation. McAdam, McConvery and Armstrong (2004) too have stressed the pivotal role of managers in fostering creativity and innovation in SMEs as these reinforce and promote the desire to find new and efficient ways of advancing the business.
2.11.2 The Importance of Creativity and Innovation for SMEs

Creativity and innovation are considered significant ways for firms to adapt to changes in the marketplace and the competition. According to Baldwin et al. (1994), measures of efficiency and growth are highly related to the value that an organisation puts on creativity and innovation. Souder and Sherman (1994) noted new products developed as a consequence of rethinking design and customisation assist in gaining and keeping market share, and enhance the ultimate profitability of the organisation. Individuals are the main source of creativity and innovation (Shalley & Gilson 2004), and employees who produce and implement new and useful thoughts, provide the organisation with valuable resources to expand and be competitive.

Since employees’ creativity and innovative behaviour are two dependent variables in this thesis, here the focus of the researcher is to consider empirical studies of the relationships between SME leadership behaviour (an independent variable), creativity and innovation. This is important as appropriate leadership qualities have been documented as the pivotal factor that drives the success of SMEs (Quan 2015). Regarding this Ihua (2009), in an appraisal of the major reasons for the failure of SMEs in the UK, reported that weak and poor leadership qualities are the most significant factor leading to bankruptcy. In a study of 43 small to medium enterprises in Turkey, Gumusluoglu and Ilsev (2009) found that strong quality leadership is critical to support employees’ creativity and organisational innovation: specifically, leaders who demonstrate transformational leadership can promote followers’ creative performance and organisational innovation. A more recent study by Engelen et al. (2014), which tested the impact of leadership behaviour on the innovativeness of 951 SMEs in eight countries including Argentina, Germany, and USA, asserted that transformational leadership contributes to innovation in SMEs. They discovered that behaviour like articulating a vision has an impact by orienting followers to adopt an innovative ethos. The rationale behind this is that an inclination to innovation can be developed best when a workforce shares an clear vision and adopts the company’s goals as their own, which stimulates them to be creative and innovative and work hard. The potential individual-level influence of leadership behaviour on employees’ creativity and innovative behaviour is clear; and it is a fundamental requirement for SMEs.
2.11.3 The Importance of Personal Initiative for SMEs

Personal initiative is among the influential factors that can help leaders of SMEs ensure business success. According to Solomon et al. (2013), given high competition, a limited number of resources, and a fast changing business environment, SMEs must be innovative. One way to foster innovation is for leaders of SMEs to pay attention to the personal initiative of employees in the workplace. As discussed in Section 2.7, personal initiative consists of work behaviours such as being proactive, self-starting and persistent in solving problems in pursuit of a goal (Frese & Fay 2001). Clearly this is a matter for consideration when the aim of a firm is to be creative and innovative. This is particularly so in the context of SMEs, since these types of organisation have to be creative and innovative to survive in today’s chaotic and overwhelming business environment.

Studies have documented the contribution of personal initiative to organisational effectiveness. This thesis focuses on the mediating role of employees’ personal initiative on the associations between SME leadership behaviour and employees’ creativity and innovative behaviour as two behaviours at the individual level. Indeed, fostering and enhancing these two extra-role behaviours would benefit people in management positions in SMEs by assisting them to remain competitive and assure their sustainability.

In a study of 248 African small business leaders, Krauss et al. (2005) found a positive association between owners’ personal initiative and business performance. Lieberman and Montgomery (1998) found that leaders of first-mover start-ups who are personally innovative are always on the search for new opportunities, and as a result guarantee their survival and success. Glaub (2009) noted that people with personal initiative constantly motivate themselves to seek information to overcome fears and learn from errors, using them as a source of feedback for the organisation.

In regard to this, employees’ personal initiative is reported as an important factor in enhancing creative performance and innovative behaviour (e.g., Binnewies, Ohly & Sonnentag 2007). When employees are expected to be creative and innovative, they are required to find ways to overcome problems, which is a part of initiative. However,
despite the vital role of employees’ creativity and innovation, the literature omits to show the mediating influence of employees’ personal initiative in the process of leadership behaviour as it affects employees’ creativity and innovative behaviour in SMEs.

From the review of pertinent literature and empirical studies discussed in this section, it is evident that little attention has been given to the concept of personal initiative in SMEs. In order to shed additional light on the role of personal initiative as a key enabler of followers’ creativity and innovative behaviour in SMEs, and to provide a better understanding of the mechanism by which leadership behaviour is related to employees’ creativity and innovative behaviour, it is useful to examine the mediating role of employees’ personal initiative in SMEs.

2.11.4 The Importance of Supportive Climate for Innovation for SMEs

A supportive and encouraging climate where creative thoughts can lead to new services or products that can be implemented plays a substantial role in helping employees use creativity and innovative behaviour in their daily tasks (Tidd, Bessant & Pavitt 2004). According to Oldham and Cummings (1996), subordinates tend to perform better in an environment that is supportive and not overly controlling. Scott and Bruce (1994) emphasised a supportive climate as an enabler of innovative behaviour. These three sets of researcher agree that whenever staff ‘feel good’ about the climate of the workplace, they perform their daily duties better (Tan, Smyrnios & Xiong 2014), and leaders can expect creativity and innovative behaviour from such workforce when needed. The development of a sufficient and supportive climate for enhancing employees’ creativity and innovative behaviour is a necessity, not an option.

In a study of 92 SMEs in Malaysia, Subramaniam and Moslehi (2013) reported a positive influence on employees’ performance of a climate supportive of innovation. A number of studies propose that a supportive climate has an influence on the creative and innovative behaviour of employees in SMEs. For example, in a study of 493 employees of SMEs, Kivimaki et al. (2000) demonstrated that encouraging initiative was a predictor of followers’ innovation. In a study of 12 R&D engineers in 42 US and Canadian SMEs, Bommer and Jalajas (2002) acknowledged a supportive climate as the
most significant factor relating to employees’ creativity. Providing a supportive climate to foster employees’ originality in SMEs leads to the establishment of an innovative climate in which followers are not frightened to share their ideas and implement them.

From the review of literature and empirical studies discussed in this section, it is obvious that little consideration has been given to the concept of a climate supportive of innovation in SMEs. To provide more insight into how this drives employees’ creativity and innovative behaviour in SMEs, and to provide a better understanding of the mechanism by which leadership behaviour is connected with employees’ creativity and innovative behaviour, it is indicated that the mediating role of individuals’ perceptions of working in a climate that supports innovation is worth investigation.

2.11.5 The Importance of Emotional Intelligence for SMEs

Emotional intelligence has been acknowledged as an important factor impacting on the performance of SMEs (Li & Sheng 2011; O’Boyle et al. 2011). Studies have demonstrated that managing a small business is an emotional process (e.g., Cardon et al. 2012); however, a number of researchers and scholars have noted that the pivotal role of emotional intelligence in SME’s research is overlooked (e.g., Cross & Travaglione 2003; Piperopoulos 2010). For instance, Piperopoulos (2010) argued that emotional intelligence is the missing construct in the study of SMEs.

As discussed in Section 2.8, emotional intelligence refers to the ability of a person to express emotions on the one hand, and understand others’ emotions on other (Salovey & Mayer 1990). Studies have recognised the relationship between emotional intelligence and performance at individual and organisational levels, but this thesis focuses on the importance of individuals’ emotional intelligence as a moderator of the relationships between their leadership behaviour and employees’ creativity and innovative behaviour, two behaviours at the individual level. Mair (2005) claimed that the emotional intelligence of leaders is related to proactive and innovative behaviours in SMEs, while Piperopoulos (2010) suggested that SME leaders with high levels of emotional intelligence come up with more creative and innovative solutions and influence. Managers who are emotionally intelligent use this competency to build effective communication with followers, ultimately supporting their creative
performance and innovative behaviour. Akgün et al. (2007) recognised emotional intelligence as an important antecedent in facilitating the innovative capacity of organisations, arguing that emotional capabilities assist firms to control, appraise and utilise their employees’ emotions and feelings to contribute to the progress of the firm. According to Rhee and White (2007), lessening the feelings of risk taking in pursuing new opportunities in small-sized enterprises can be only achieved by leaders appropriately using their emotional intelligence.

A study by Suliman and Al-Shaikh (2007), which examined the effect of emotional intelligence on the creativity and innovative behaviour of 500 employees in the United Arab Emirates, found that employees with higher degrees of emotional intelligence tend to display higher degrees of readiness to be creative and innovative in the organisation. They reported that staff with high degrees of emotional intelligence is likely to have a steadier lifestyle (compared with those with low degrees of emotional intelligence), which assists them to show more creativity and innovative behaviour in the workplace. A study by Naudé et al. (2014), which examined the influence of emotional intelligence on the entrepreneurial style of 227 CEOs of small-sized enterprises from the IT sector in Iran, showed that their emotional intelligence drives their entrepreneurial style. Specifically, they reported that CEOs’ emotional intelligence competencies, such as self-emotional appraisal, others’ emotional appraisal, utilisation of emotions, and regulation of emotions are positively connected with entrepreneurial qualities like proactiveness, risk-taking and innovativeness.

Based on the review of literature and empirical studies discussed in this section, it is clear that little attention has been given to the concept of emotional intelligence in SMEs. Surprisingly, at present any awareness of the influence of emotional intelligence on innovation in SMEs is found only in entrepreneurial research, which is not the focus of this thesis. In order to shed additional light on the role of emotional intelligence as a key driver of employees’ creativity and innovative behaviour, and to provide a better understanding of the mechanisms through which leadership behaviour is related to employees’ creativity and innovative behaviour, this thesis will undertake to test the moderating role of individuals’ emotional intelligence on SMEs.
2.12 Chapter Summary

This chapter has provided an extensive and critical review of the literature engaging with the topic of this thesis. The definitions of leadership construct have been reviewed, and different research traditions discussed. The pertinent literature regarding leadership, creativity and innovation has been reviewed to indicate the importance of SME leadership behaviour in nurturing and enhancing employees’ creativity and innovative behaviour. Because of the significance of a contextual factor (supportive climate for innovation) and personal factors (personal initiative and emotional intelligence) in motivating creativity and innovation (see Chapter 1), this literature together with empirical studies that examined the associations of these three constructs with leadership behaviour, creativity, and innovative behaviour have been reviewed to shed lights on how the variables of this study are connected with each other (see Section 2.9).

This chapter has also provided an overview of the definitions of small and medium businesses. The importance of SMEs in the Australian economy has been highlighted by addressing SMEs’ industry value added and employment levels. Finally, as mentioned in Section 2.10.4, the high failure rate of Australia SMEs is noted. One reason for this is the lack of proper leadership behaviours and skills in those in management positions (see Chapter 1 for more discussion), and to learn more, the literature on leadership in the context of SMEs has been reviewed. The knowledge obtained from both the literature and from empirical studies indicates the importance of this topic, as the behaviour aspect of leadership in SMEs is almost untouched. This thesis is intended to help managers of SMEs by providing guidelines to appropriate leadership behaviours when operating a small or medium business in today’s changeable business environment, and the review of the relevant literature and empirical studies presented here has demonstrated the importance of creativity, innovation, personal initiative, a climate supportive of innovation, and emotional intelligence for SMEs.
3.1 Introduction

This chapter presents the development of the research model and research questions, which are the basis of the conceptual model developed in this thesis to address the identified research oversight and the problems arising from the gap. Section 3.2 sets up the theoretical framework and defines the research questions, based on the critical review of the literature conducted in Chapter 2. A broad conceptual model that can be utilised to answer the research questions is presented, and further explained in Section 3.3, which explains how the development of the hypotheses indicated both direct and indirect bindings linking the model constructs. Section 3.4 summarises the chapter.

3.2 Theoretical Framework and Research Questions

The literature review in Chapter 2 provided fundamental background knowledge on how the different variables of this thesis are conceptualised, and how they link to creativity and innovative behaviour in the workplace. In past studies leadership was documented as a pivotal construct in both shaping and enhancing creativity and innovative behaviour. The need to consider creativity (the pre-requisite of every innovation) and innovative behaviour as separate sub-constructs of the innovation process, together with the importance of considering the roles of a contextual factor (a climate supportive of innovation) and personal factors (personal initiative and emotional intelligence) in the relationships between leadership behaviour, creativity and innovative behaviour, led to the development of a theoretical framework for the present thesis (Figure 3.1).
The importance of various factors identified in the literature as significant followers’ creativity and innovation enablers cannot be denied, but the relationships between such constructs, and more importantly their influence on employees’ creativity and innovative behaviour especially in the context of SMEs, have not been investigated substantially from an empirical standpoint. To address this research gap, four research questions (RQs) are formulated:

- **RQ1**: To what extent does SME leadership behaviour influence employees’ creativity and innovative behaviour in SMEs in Australia?
- **RQ2**: To what extent do employees’ personal initiative mediate the relationships between SME leadership behaviour, and employees’ creativity and innovative behaviour in SMEs in Australia?
- **RQ3**: To what extent do individuals’ perceptions of a supportive climate for innovation mediate the relationships between SME leadership behaviour and employees’ creativity and innovative behaviour in SMEs in Australia?
- **RQ4**: To what extent does individuals’ emotional intelligence moderate the relationships between SME leadership behaviour and employees’ creativity and innovative behaviour in SMEs in Australia?
To answer these questions, a conceptual model was built based on the theoretical framework (Figure 3.1). The model includes six constructs (Figure 3.2); each is briefly described below:

- **SME Leadership Behaviour** refers to the behaviours of the founders, owners, CEOs, managing directors, directors, managers and supervisors, which nurture and enhance employees’ creative and innovative behaviours in SMEs in Australia (developed by the researcher);
- **Employees’ Creativity** refers to employees’ behaviours that produce novel and useful thoughts in SMEs in Australia (Zhou & George 2001);
- **Employees’ Innovative Behaviour** refers to employees’ behaviours that implement creative ideas in SMEs in Australia (De Jong & Den Hartog 2008);
- **Employees’ Personal Initiative** refers to behaviours that describe employees’ inclination and ability to take initiative in the pursuit of creativity and innovative behaviour in SMEs in Australia (Frese et al. 1997);
- **Individuals’ Perceptions of a Supportive Climate for Innovation** refers to the perceptions of founders, owners, CEOs, managing directors, directors, managers, supervisors and employees regarding the work environment that supports creativity and innovative behaviour in SMEs in Australia (Scott & Bruce 1994);
- **Individuals’ Emotional Intelligence** refers to the founders’, owners’, CEOs’, managing directors’, directors’, managers’, supervisors’ and employees’ competencies to understand and manage their own and others’ emotions and feelings in SMEs in Australia (Wong & Law 2002).

As an enabler, the construct of SME leadership behaviour (independent variable) was expected to relate to employees’ creativity (dependent variable), and innovative behaviour (dependent variable). To enrich the knowledge of the process by which SME leadership behaviour enhances employees’ creativity and innovative behaviour, the mediating roles of a contextual variable (individuals’ perceptions of a supportive climate for innovation) and a personal variable (employees’ personal initiative) were assumed. The role of another personal variable (individuals’ emotional intelligence) as a moderator was considered in the relationships between SME leadership behaviour, and
employees’ creativity and innovative behaviour. Figure 3.2 demonstrates the broad conceptual model proposed in this thesis.

![Proposed conceptual model](image)

**Figure 3.2 Proposed conceptual model**

Source: Author

Direct Effect →, Mediating Effect ⚫⚫⚫, Moderating Effect ⬆️

### 3.3 Hypotheses Development

The suggested conceptual model displayed above portrays the possible relationships connecting the six constructs. To verify these relationships, a literature search was conducted, looking for theoretical evidence upon which to expand the associations linking the constructs. These associations are depicted as a set of research hypotheses referring to each research question. Their development is discussed in Sections 3.3.1 to 3.3.4.
3.3.1 Relationships between SME Leadership Behaviour, and Employees’ Creativity and Innovative Behaviour

The conceptual model (Figure 3.2) shows potential associations between SME leadership behaviour, and employees’ creativity and innovative behaviour in SMEs in Australia. These have been established based on the findings from an extensive theoretical background and a limited number of empirical studies. The need to explain and verify the validity of these associations within SMEs in Australia is addressed with the first research question (RQ1):

- To what extent does SME leadership behaviour influence employees’ creativity and innovative behaviour in SMEs in Australia?

The answer to this question is expected to clarify the relationships between leadership behaviour, creativity and innovative behaviour; it is expected that these relationships will depict a substantial influence of SME leadership behaviour in nurturing and enhancing employees’ creativity and innovative behaviour. This information could suggest a particular way in which these constructs might be observed to nurture and enhance employees’ creativity and innovative behaviour in the workplaces.

As explained in Chapter 2, the majority of creativity and innovation studies has consistently supported the essential role of leaders in enhancing employees’ creative and innovative behaviours (Nusair, Ababneh & Bae 2012; Wang, Tsai & Tsai 2014). In particular, leadership theories that favoured creativity and innovation were linked to followers’ creativity and innovative behaviour. In regard to the relationships between leadership behaviour and creativity, Avolio, Bass and Jung (1999) found that leaders who direct their organisation using transformational leadership behaviours are inspired to formulate positive responses to issues and setbacks, to follow and satisfy their intellectual inquisitiveness, to use their creative power, and to enjoy new thoughts and solutions. These managerial behaviours help employees in the workplace concentrate on their jobs instead of on external concerns and fears, and consequently motivates them to seek new and better methods of performing tasks (Amabile 1996). Similarly, Gumusluoglu and Ilsev (2009), in a study of 163 R&D managers and personnel in 43.
small to medium software development companies, found a positive association between transformation leadership and followers’ creative behaviour.

Cheung and Wong (2011), in a study of 182 supervisor–follower dyads from a restaurant, hotel, retail store, travel agent and bank, discovered a positive relationship between transformational leadership and subordinates’ creativity. Tierney, Farmer, and Graen (1999), in a study of 191 R&D employees of a large chemical company, found that the quality of leader–member exchange and employees’ creativity are related. Černe, Jaklič and Škerlavaj (2013), who studied a sample of 23 leaders and 289 members in a processing and manufacturing firm, found a positive association between authentic leadership and followers’ creativity. Rego et al. (2014), in a study of 219 staff working in 37 retail companies in different sectors like furniture, footwear, clothing, sports, food, appliances, toys, equipment and office materials, found that authentic leadership positively influences employees’ creativity. Gupta and Singh (2014), in a study of 11 R&D laboratories of a large civilian research firm in India, found that leaders’ behaviours are positively related to followers’ creative performance. Chughtai (2014), in a study of 170 doctors working in a large hospital in Pakistan, found that leader–member exchange is positively connected with employees’ creativity, while in a study of 420 leader–follower dyads working in an energy firm in China, Qu, Janssen and Shi (2015) found that transformational leadership is positively related to employees’ creativity. These outcomes led to the assumption that a high degree of leadership behaviour for creativity leads to a high level of creativity in employees. Presently there is insufficient empirical investigation of SMEs in Australia; thus, the first hypothesis:

**H1**: SME leadership behaviour positively and significantly influences employees’ creativity in SMEs in Australia.

As well as influencing employees’ creativity, leadership behaviour has been found to influence followers’ innovative behaviour in empirical studies. Nusair, Ababneh and Bae (2012), in a study of 358 employees in Jordan, found a positive association between transformational leadership and subordinates’ innovative behaviour. In a study of Australian hospitals, Renvers et al. (2008) found a positive association between transformational leadership and followers’ innovative behaviour. Similarly, in a study
of 164 pharmaceutical companies in Europe and America, García-Morales, Matías-Reche and Hurtado-Torres (2008) reported a positive influence of transformational leaders’ behaviours on innovation at work. Other researchers discovered a positive correlation between the transformational leadership behaviours of CEOs and innovation in the workplace: in a study of 408 Spanish firms, García-Morales, Lloréns-Montes and Verdú-Jover (2008) reported a positive relationship between transformational leadership behaviours and innovation, and in a study of 163 research and development managers in 43 software development organisations in Turkey, Gumusluoglu and İlsev (2009) found a positive correlation between transformational leadership behaviour and innovation at both individual and firm levels.

Gilley, Dixon and Gilley (2008) reported a positive association between leadership behaviour (like coaching followers, properly communicating with followers, motivating followers) and innovation in various private and public companies. In the context of the Middle East, Al-Azimi (2006) discovered a positive but moderate relationship between Saudi managers and their followers’ innovative behaviour, while in study of Syrian education institutions, Al-Nasani (2008) found a positive association between transformational leadership behaviour and innovation. Howell and Higgins (1990), who studied a sample of 350 CEOs of firms listed in the Financial Post 500, found a positive relationship between innovation champion leadership behaviours and creativity. Similarly, in a study of 142 staff working in different sectors such as food, equipment and clothing in Turkey, Müçeldili, Turan and Erdil (2013) discovered that authentic leadership has a positive influence on employees’ innovative behaviour. In a study of 172 scientists, engineers and technicians employed in a large, centralised R&D facility of a major US industrial corporation, Scott and Bruce (1994) found that the quality of leader–member exchange between staff and their supervisors is positively related to followers’ innovative behaviour.

Weng et al. (2013), in a study of 439 frontline nurses from three hospitals in Taiwan, found that transformational leadership positively and significantly impacts on followers’ innovative behaviour. In a study of 388 employees working in manufacturing companies in China, Zhou et al. (2014) discovered that authentic leadership has a positive and significant influence on employees’ innovative behaviour. Sanders et al.
(2010), in a study of 272 employees working in four German and Dutch technical companies, found a positive relationship between leader–member exchange and innovative behaviour. In a study of 135 employees working in a high-tech organisation in China, Wang et al. (2015) reported a positive relationship between leader–member exchange and employees’ innovative behaviour. The SME context in Australia has not received enough attention from an empirical point of view, so in light of these overseas findings this thesis suggests that a high degree of leadership behaviour for innovation results in a high level of innovative behaviour in employees; thus, the second hypothesis:

**H2**: SME leadership behaviour positively and significantly influences employees’ innovative behaviour in SMEs in Australia.

### 3.3.2 Relationships between SME Leadership Behaviour, Employees’ Personal Initiative, and Employees’ Creativity and Innovative Behaviour

Examining the direct influence of SME leadership behaviour on employees’ personal initiative, followed by testing the impacts of employees’ personal initiative on employees’ creativity and innovative behaviour, can help the researcher answer the second research question (RQ2).

- To what extent does employees’ personal initiative mediate the relationships between SME leadership behaviour, and employees’ creativity and innovative behaviour in SMEs in Australia?

To answer the second research question, the mediating influence of employees’ personal initiative between SME leadership behaviour and employees’ creativity and innovative behaviour were tested. To do this, the impact of SME leadership behaviour on employees’ personal initiative, and employees’ personal initiative on employees’ creativity and innovative behaviour, were investigated. Since employees with high level of personal initiative are expected to be persistent in solving problems in pursuit of an organisational goal (Frese & Fay 2001), they may be more creative and innovative. These types of person, with self-starting and proactive behaviours, are more inclined to overcome problems and perceive opportunities (Basadur 2004; Kim, Hon & Crant
2009); in addition, to achieve creative and innovative outcomes, these individuals must be self-starters, proactive and persistent, to leave the path of least resistance (Binnewies, Ohly & Sonnentag 2007; Ward 1994;).

According to Ehrhart and Klein (2001), workers who have high personal initiative are more pleased, and more stimulated, by leaders’ behaviour than those with a low degree of personal initiative. Employees are attracted to leaders who feel are similar to themselves (Keller 1999). Findings of empirical studies on the association between employees’ personality and their perceptions and acceptance of leadership behaviour corroborate this relationship (Felte & Schyns 2006, 2010).

There is a strong suggestion that people in management positions who run their firm through transformational leadership behaviours are high in personal initiative. For instance, Crant and Bateman (2000) discovered that leaders’ proactive personality linked with their transformational leadership behaviour. It is also expected that there will be a positive association between leadership behaviour and followers’ personal initiative. According to Wofford, Whittington and Goodwin (2001), leaders’ behaviour is more influential when subordinates are similar in personality to their leaders: in other words, employees are especially stimulated by managers who meet their individual needs. In a study of 60 leaders and 203 group members working in different industries in Canada, including forestry, retail, transportation, shipbuilding, media and equipment, Wang and Howell (2010) found that transformational leadership is positively related to employees’ personal initiative. Hartog and Belschak (2012), who studied a sample of 69 organisations from various industries in Netherlands, such as finance, retail, consultancy and government, reported that transformational leadership is positively and significantly related to followers’ personal initiative.

Despite the significant role that personal initiative plays in creativity and innovation, the number of empirical studies of this topic is very limited. In a study of 52 nurses in Germany, Binnewies, Ohly and Sonnentag (2007), found a positive relationship between personal initiative and creativity. Likewise, Binnewies and Gromer (2012), who studied a sample of 89 teachers in Germany, discovered that personal initiative positively predicts innovative behaviour. Herrmann and Felte (2012), in a study of 168 undergraduate students in Germany, reported that personal initiative positively enhances
creativity. In a study with a sample of 241 undergraduate students in Germany, Herrmann and Felfe (2013) found that the influence of leadership behaviour on employees’ creativity is stronger when subordinates have high personal initiative and vice versa.

Personal initiative can play an important role in the ways in which leadership affects employees’ creativity and innovative behaviour. As mentioned in Chapter 2, people in organisations who are personally enterprising are self-starters, proactive and persistent in overcoming problems in order to achieve shared goals (Frese & Fay 2001). According to Basadur (2004), the generation and implementation of new and fresh thoughts are normally initiated by problem-finding processes and activities. Employees are more willing to be creative and innovative if their leaders met their needs. As Herrmann and Felfe (2013) claimed, transformational leaders are expected to recognise the needs of employees who are personally initiative. For instance, intellectual stimulation is a behaviour of transformational leaders that can help them fulfil the requirements of followers, which in turn makes employees more prone to anticipate difficulties and opportunities and respond proactively (Frese & Fay 2001).

The discussion above led the researcher to formulate the third and fourth hypotheses: that employees’ personal initiative mediates the relationships between SME leadership behaviour, and employees’ creativity and innovative behaviour. The purpose of these hypotheses is to lead to a better understanding of how SME leadership behaviour relates to employees’ creativity and innovative behaviour through the role of employees’ personal initiative in SMEs in Australia; hence, the third and fourth hypotheses:

**H3**: Employees’ personal initiative mediates the relationship between SME leadership behaviour and employees’ creativity in SMEs in Australia.

**H4**: Employees’ personal initiative mediates the relationship between SME leadership behaviour and employees’ innovative behaviour in SMEs in Australia.
3.3.3 Relationships between SME Leadership Behaviour, Individuals’ Perceptions of a Supportive Climate for Innovation, and Employees’ Creativity and Innovative Behaviour

Evaluating the direct impact of SME leadership behaviour on individuals’ perceptions of a supportive climate for innovation, followed by examining the impact of individuals’ perceptions of a supportive climate for innovation on employees’ creativity and innovative behaviour, can assist in answering the third research questions (RQ3).

- To what extent do individuals’ perceptions of a supportive climate for innovation mediate the relationships between SME leadership behaviour, and employees’ creativity and innovative behaviour in SMEs in Australia?

To answer this, the mediating impact of individuals’ perceptions of a supportive climate for innovation between SME leadership behaviour and employees’ creativity and innovative behaviour were evaluated. The influence of SME leadership behaviour on individuals’ perceptions of a supportive climate for innovation, and individuals’ perceptions of a climate supportive of innovation on employees’ creativity and innovative behaviour, were investigated. Besides affecting employees’ creativity and innovative behaviour, leadership behaviour has been discovered to affect the supportive climate for innovation in prior studies. As an example, Smith-Jentsch, Salas and Brannick (2001), who studied a sample of 80 licensed pilots undertaking a flight-training program, found that supportive leadership had a positive and significant influence on the climate for innovation in teams. Similarly, in a study of four large R&D firms in Australia, Pirola-Merlo et al. (2002) discovered that leadership behaviour was positively related to the group climate for innovation. Gil et al. (2005), in a study of 78 healthcare teams, identified change-oriented leadership behaviour as positively linked to the team climate for innovation. In a study of 14 teams in the manufacturing unit of a transitional organisation in Sweden, Dackert, Lööv and Mårtensson (2004) found a positive association between a leadership high in change/development-orientation and staff/relation-orientation, and a climate conducive to innovation in a team. Eisenbeiss, van Knippenberg and Boerner (2008), who studied a sample of 33 R&D groups from a research institute and four international R&D organisations in packaging, automotive, scientific instrument and semiconductor industries, reported a
positive impact of transformational leadership on the innovative climate of teams, which in turn enhances team members’ innovation. More recently, Paulsen et al. (2013), in a study of 104 participants in a large R&D company in Australia, identified a positive relationship between transformational leadership and the perception of support for innovation at the team level. Additionally, they found a positive link between perception of support for innovation and innovation among team members.

In a study of 32 organisations in the electronics and telecommunications industry in Taiwan, Jung, Chow and Wu (2003) discovered a positive and significant relationship between transformational leadership and a climate for innovation at the organisational level, which in turn enhanced organisational innovation. Gumusluoglu and Ilsev (2009), who studied a sample of 163 R&D managers and personnel at 43 micro and small software development firms in Turkey, found that transformational leaders only fostered followers’ creativity directly: the expected mediating effect of an organisation’s support for innovation on the association between transformational leadership and employees’ creativity was not supported in their study.

Černe, Jaklič and Škerlavaj (2013), in a study of 23 group leaders and 289 group members in a manufacturing and processing company, found that the perception of a climate supportive of innovation partially mediated the link between transformational leadership and subordinates’ creative behaviour. Weng et al. (2013), in a study of 439 nurses from three hospitals in Taiwan, reported that a supportive climate for innovation fully mediates the association between transformational-leader behaviour and nurses’ innovative behaviour. Černe, Jaklič and Škerlavaj (2013) and Weng et al. (2013) tested the intervening role of a supportive climate for innovation between leadership and followers’ creative behaviour and between leadership and employees’ innovative behaviour, respectively. Gumusluoglu and Ilsev (2009) found that an innovative climate fully mediates the relationship between transformational leadership and innovation at the organisational level.

When leaders influence employees’ creativity and innovative behaviour, a supportive climate for innovation plays a significant role. The environment of workplaces is often affected by people in management positions (Sarros, Cooper & Santora 2008) and in turn influences employees’ creativity and innovative behaviour. Reuvers et al. (2008)
noted that once leaders decide to stimulate subordinates to get involved in creative and innovative activities and procedures, they must support followers by motivating their enthusiasm, guiding them to make the effort to increase creativity and innovative efficiency, and providing appropriate tools, time frame and space. A climate for innovation supported by leaders will result in creative and innovative behaviours by employees (Weng et al. 2012).

The discussion above led to the fifth and sixth hypotheses: that individuals’ perceptions of a supportive climate for innovation mediate the relationships between SME leadership behaviour, and employees’ creativity and innovative behaviour. The particular aim of these hypotheses is to provide a deeper understanding of how SME leadership relates to employees’ creativity and innovative behaviour, through the individuals’ perceptions of a supportive climate for innovation in SMEs in Australia; hence, the fifth and sixth hypotheses:

**H5**: Individuals’ perceptions of a supportive climate for innovation mediate the relationship between SME leadership behaviour and employees’ creativity in SMEs in Australia.

**H6**: Individuals’ perceptions of a supportive climate for innovation mediate the relationship between SME leadership behaviour and employees’ innovative behaviour in SMEs in Australia.

### 3.3.4 Relationships between SME Leadership Behaviour, Individuals’ Emotional Intelligence, and Employees’ Creativity and Innovative Behaviour

The conceptual model (Figure 3.2) presents the potential impact of individuals’ emotional intelligence on the associations between SME leadership behaviour, and employees’ creativity and innovative behaviour in SMEs in Australia. To justify such propositions, the moderating influence of individuals’ emotional intelligence on the direct impacts of SME leadership behaviour on employees’ creativity and innovative behaviour was investigated with respect to the fourth research question (RQ4). To date no other study has examined this set of relationships:
To what extent does individuals’ emotional intelligence moderate the relationships between SME leadership behaviour, and employees’ creativity and innovative behaviour in SMEs in Australia?

To answer the fourth research question, the moderating impact of individuals’ emotional intelligence on the relationship between SME leadership behaviour and employees’ creativity, as well as the association between leadership behaviour and employees’ innovative behaviour, were hypothesised. When leadership influences subordinates’ creativity and innovative behaviour, emotional intelligence takes a vital role. Avolio, Howell and Sosik (1999) claimed that a good understanding of emotions and moods by leaders helps subordinates think at broader levels, triggering their creative and innovative thoughts. Goleman (1995) stated that leaders who are able to manage the emotions and moods of themselves and others may have a tendency to show positive emotions when interacting with employees. He stressed that positive emotions support and enhance the ability to think pliably and with complexity, making it easier for followers to find solutions when faced with obstacles.

A growing body of research has depicted leadership style as essentially related to emotional intelligence. In a study of 267 managers working in different units in Greece (human resource, R&D, logistics, finance, accounting, marketing, sales, production), Polychroniou (2009) found a positive relationship between supervisors’ transformational leadership and their emotional intelligence at the team level. In an empirical study of 49 managers of a large company in Canada, Barling, Slater and Kelloway (2000), discovered a positive association between transformational leadership style and emotional intelligence. Similarly, Leban and Zulauf (2004), who investigated a sample of 24 project managers in six companies from different industries, including IT services, healthcare, project management services, training and consulting services, and manufacturing and sales services in the USA, found a positive relationship between project managers’ transformational leadership style and their emotional intelligence. In a study of 176 Australian female senior managers in various industries, including healthcare, telecommunications, education, human resource and finance, Downey, Papageorgiou, and Stough (2006) found that those showing transformational leadership behaviours were also likely to show high levels of emotional intelligence. Hur, Berg
and Wilderom (2011), who studied a sample of 859 employees in a public-sector company in South Korea, reported a positive association between transformational leadership and emotional intelligence at the group level. More recently, in a study of 323 managers and employees in two large companies in China, Lam and O’Higgins (2012) discovered that managers’ transformational leadership style was positively associated with followers’ emotional intelligence.

The direct influence of emotional intelligence on creativity and innovative behaviour has been examined. A very small number of studies have investigated the direct impact of emotional intelligence on creativity and innovative behaviour at the individual level. Those that examined the relationships between emotional intelligence, and creativity and innovative behaviour, found positive and strong associations. For example, in a study of 500 employees from 19 organisations in the United Arab Emirates, Suliman and Al-Shaikh (2007) found a positive and significant relationship between employees’ emotional intelligence and their creativity and innovative behaviour. They determined that subordinates with higher levels of emotional intelligence show higher levels of readiness to be creative and innovative. Similarly, in a study of 60 employees from the National Iranian Oil Organisation, Hadizade, Raminmehr and Hosseini (2009) reported a positive and strong association between employees’ emotional intelligence and their innovative behaviour.

Pachulia and Henderson (2009) discovered a positive relationship between owner-managers’ emotional intelligence and their innovative strategy-making processes in small high-tech companies in Sweden. In a study of 317 managers from 418 industrial SMEs in Jordan, Awwad and Ali (2012) found that managers’ emotional intelligence has a positive influence on their firms’ innovativeness. This implies that a high level of emotional intelligence in managers results in a high level of innovativeness in their organisations. In a sample of 138 managers from 66 organisations operating in the European Union, Rego et al. (2007) discovered that emotionally intelligent leaders behave in ways that motivate creativity in their team-members. Castro, Gomes and de Sousa (2012), who studied a sample of seven leaders and 66 subordinates from the largest healthcare firms operating in the Iberian Peninsula, found that leaders’ emotional intelligence positively influences followers’ creativity. More recently, in a study of 460
sales representatives in the health and beauty industry, Lassk and Shepherd (2013) reported that the representatives’ emotional intelligence positively influences their creative performance.

These studies clearly indicate that individuals’ (leaders’ and non-leaders’) emotional intelligence has a positive and strong impact on employees’ creativity and innovative behaviour; hence, this thesis examines the moderating role of individuals’ emotional intelligence on the relationships between SME leadership behaviour and employees’ creativity and innovative behaviour. It is proposed that the impact of leadership behaviour on employees’ creativity and innovative behaviour are stronger when individuals (leaders and non-leaders) have high levels of emotional intelligence, because they are more able to control their own and others’ emotions and feelings, helping to reduce employees’ fears, anxiety and stress in facing problems or undertaking tasks in an unusual manner in SMEs; thus, the seventh and eighth hypotheses:

**H7**: Individuals’ emotional intelligence moderates the relationship between SME leadership behaviour and employees’ creativity in SMEs in Australia such that the relationship is more positive with high than with low emotional intelligence.

**H8**: Individuals’ emotional intelligence moderates the relationship between SME leadership behaviour and employees’ innovative behaviour in SMEs in Australia such that the relationship is more positive with high rather than with low emotional intelligence.

Altogether, eight hypotheses have been formulated depicting the associations between the constructs of the conceptual model (Figure 3.2), to answer the research questions. Table 3.1 summarises the developed hypotheses for this thesis together with the associated references. The full research model with the corresponding hypotheses dictating the associations between the constructs is presented in Figure 3.3.
### Hypothesis 1 (H1)
- SME leadership behaviour positively and significantly influences employees’ creativity in SMEs in Australia.

Amahile (1996); Avolio, Bass and Jung (1999); Černe, Jaklič and Škerlavaj (2013); Cheung and Wong (2011); Chughtai (2014); Gumusluoglu and Islev (2009); Gupta and Singh (2014); Nusair, Ababneh and Bae (2012); Tierney, Farmer and Green (1999); Qiu, Janssen and Shi (2015); Wang, Tsai and Tsai (2014)

### Hypothesis 2 (H2)
- SME leadership behaviour positively and significantly influences employees’ innovative behaviour in SMEs in Australia.

Al-Azimi (2006); Al-Nasani (2008); García-Morales, Lloréns-Montes and Verdú-Jover (2008); García-Morales, Matías-Reche and Hurtado-Torres (2008); Gilley, Dixon and Gilley (2008); Gumusluoglu and Islev (2009); Howell and Higgins (1990); Miuceldi, Turan and Erdil (2013); Nusair, Ababneh and Bae (2012); Renvers et al. (2008); Sanders et al. (2010); Scott and Bruce (1994); Wang et al. (2015); Weng et al. (2013); Zhou et al. (2014)

### Hypothesis 3 (H3)
- Employees’ personal initiative mediates the relationship between SME leadership behaviour and employees’ creativity in SMEs in Australia.

Basadur (2004); Birnies and Gromer (2012); Birnies, Ohly and Sonnentag (2007); Crant and Bateman (2000); Ehrhart and Klein (2001); Felfe and Schyns (2006, 2010); Frese and Fay (2001); Hartog and Belschak (2012); Herrmann and Felfe (2012, 2013); Keller (1999); Kim, Hon and Crant (2009); Wang and Howell (2010); Ward (1994); Wofford, Whittington and Goodwin (2001)

### Hypothesis 4 (H4)
- Employees’ personal initiative mediates the relationship between SME leadership behaviour and employees’ innovative behaviour in SMEs in Australia.

Basadur (2004); Birnies and Gromer (2012); Birnies, Ohly and Sonnentag (2007); Crant and Bateman (2000); Ehrhart and Klein (2001); Felfe and Schyns (2006, 2010); Frese and Fay (2001); Hartog and Belschak (2012); Herrmann and Felfe (2012, 2013); Keller (1999); Kim, Hon and Crant (2009); Wang and Howell (2010); Ward (1994); Wofford, Whittington and Goodwin (2001)

### Hypothesis 5 (H5)
- Individuals’ perceptions of a supportive climate for innovation mediate the relationship between SME leadership behaviour and employees’ creativity in SMEs in Australia.

Černe, Jaklič and Škerlavaj (2013); Dackert, Löv and Mårtensson (2004); Eisenbeiss, van Knippenberg and Boerner (2008); Gil et al. (2005); Gumusluoglu and Islev (2009); Jung, Chow and Wu (2003); Paulsen et al. (2013); Pirola-Merlo et al. (2002); Reuvers et al. (2008); Sarros, Cooper and Santora (2008); Smith-Jentsch, Salas and Brannick (2001); Weng et al. (2012, 2013)

### Hypothesis 6 (H6)
- Individuals’ perceptions of a supportive climate for innovation mediate the relationship between SME leadership behaviour and employees’ innovative behaviour in SMEs in Australia.

Černe, Jaklič and Škerlavaj (2013); Dackert, Löv and Mårtensson (2004); Eisenbeiss, van Knippenberg and Boerner (2008); Gil et al. (2005); Gumusluoglu and Islev (2009); Jung, Chow and Wu (2003); Paulsen et al. (2013); Pirola-Merlo et al. (2002); Reuvers et al. (2008); Sarros, Cooper and Santora (2008); Smith-Jentsch, Salas and Brannick (2001); Weng et al. (2012, 2013)

### Hypothesis 7 (H7)
- Individuals’ emotional intelligence moderates the relationship between SME leadership behaviour and employees’ creativity in SMEs in Australia such that the relationship is more positive with high than with low emotional intelligence.

Barling, Slater and Kelloway (2000); Downey, Papageorgiou and Stough (2006); Hur, Berg and Wilderom (2011); Lam and O’Higgins (2012); Leban and Zulauf (2004); Polychroniou (2009); Awwad and Ali (2012); Castro, Gomes and de Sousa (2012); Hadzizade, Ramimnhr and Hosseini (2009); Lassk and Shepherd (2013); Pachulia and Henderson (2009); Rego et al. (2007); Suliman and Al-Shaikh (2007); Avolio, Howell and Sosik (1999); Goleman (1995)

### Hypothesis 8 (H8)
- Individuals’ emotional intelligence moderates the relationship between SME leadership behaviour and employees’ innovative behaviour in SMEs in Australia such that the relationship is more positive with high rather than with low emotional intelligence.

Barling, Slater and Kelloway (2000); Downey, Papageorgiou and Stough (2006); Hur, Berg and Wilderom (2011); Lam and O’Higgins (2012); Leban and Zulauf (2004); Polychroniou (2009); Awwad and Ali (2012); Castro, Gomes and de Sousa (2012); Hadzizade, Ramimnhr and Hosseini (2009); Lassk and Shepherd (2013); Pachulia and Henderson (2009); Rego et al. (2007); Suliman and Al-Shaikh (2007); Avolio, Howell and Sosik (1999); Goleman (1995)

Source: Author
3.4 Chapter Summary

This chapter has addressed the development of the theoretical framework, followed by the formulation of four research questions, in order to amend identified areas of oversight in the research. In response to the research questions, a conceptual model was developed, based on a critical review of the relevant literature presented in Chapter 2. The conceptual model includes six constructs: 1) SME leadership behaviour; 2) employees’ creativity; 3) employees’ innovative behaviour; 4) individuals’ perceptions of a supportive climate for innovation; 5) employees’ personal initiative; and 6) individuals’ emotional intelligence. The review of past empirical studies has led to the formulation of eight hypotheses that are linked to the relationships between these six constructs.
Chapter 4
Research Methodology

4.1 Introduction

The details of the methodology, which point out the research approach and design as well as the pertinent analytical techniques to be undertaken in this thesis, are shown in this chapter. Section 4.2 reviews the various research philosophies and shows the paradigm applied in this case. Section 4.3 shows the research design, which presents the critical stages of the thesis. Section 4.4 explains the different stages of knowledge selection, followed by Section 4.5, which describes the stages of the development of the conceptual model. Section 4.6 explains the quantitative method of analysis and the details of the quantitative model assessment that comprise the sampling strategy, common method bias techniques, prior power analysis, and the data collection method. This section also presents the development of a theory-based measure for the construct of SME leadership behaviour and the instrument used for the other constructs. Section 4.7 presents the results of the pre-test and pilot study.

The approaches and tools of the data analysis are presented in Section 4.8. To conduct multivariate analysis, notably structural equation modelling (SEM)/Analysis of Moment Structure (AMOS), a knowledge of the underlying properties of data as well as of how to evaluate that data to meet the necessary statistical prerequisites is a vital initial step (Hair et al. 2010; Straub, Boudreau & Gefen 2004). This step includes examining the influence of missing values, detecting and handling outliers, and testing the data for critical departures from normality and common method bias (Straub, Boudreau & Gefen 2004). This chapter addresses the techniques that the researcher uses.

Section 4.9 presents the steps followed to clean the data and convert it from an online-based questionnaire into a statistical package for the social sciences (SPSS). It also discusses the steps carried out to identify missing data, and to detect outliers. It discusses the tests conducted to identify the any serious departures from normality and the rationale for the decision to retain or remove those identified. Section 4.10 briefly explains the ethics approval given this thesis. finally, Section 4.11 provides a summary of the chapter.
4.2 Research Paradigm

All research is instructed and managed by fundamental opinions and suppositions (Guba & Lincoln 2005; Merterns 2007; Orlikowski & Baroudi 1991). According to Kassahun (2012), these sets of opinions are associated with the nature of reality (ontology); the discerned association with the object being studied, which is considered real (epistemology); and the process and means of understanding something real (methodology). These sets of underlying principles, which are termed a research paradigm, direct, inform and govern how a researcher views phenomena and takes corresponding action (Guba & Lincoln 2005; Merterns 2007).

Ontology is a branch of metaphysics that ponders the nature of reality. It focuses on the question of what is taken as actuality and how to understand whether something is real (Guba & Lincoln 2005; Merterns 2007; Orlikowski & Baroudi 1991). An ontological assumption about actuality occurs when a researcher states the type of proof that is sufficient to claim something as reality; therefore, a researcher can take the stance that a phenomenon under evaluation has both objective and subjective actuality that exist just by human action (Kassahun 2012).

The second aspect of the research paradigm too be considered is epistemology. This is the philosophy of how an understanding of reality may be obtained. The focal point is on the association between the researcher and the researched, about which empirical information is gathered (Guba & Lincoln 2005; Orlikowski & Baroudi 1991). A researcher’s epistemological opinion models his or her reciprocal action with what is being researched. A researcher’s understanding is epistemologically constructed by hypothetical-deductive or non-hypothetical-deductive reasoning (Kassahun 2012).

Methodology is the third aspect of the research paradigm. Methodology explains how a researcher moves towards managing his or her empirical research in seeking to understand the phenomena of interest (Guba & Lincoln 2005; Orlikowski & Baroudi 1991); it refers more to the approach than to any particular procedures and approaches employed by a researcher to collect and analyse data. Generally, there are three forms of method: the quantitative, the qualitative, and the mixed-method approach (Kassahun 2012).
Although a research paradigm can have more than the above sets of assumptions, according to Guba and Lincoln (2005), ontology, epistemology and methodology are the main ingredients of a research paradigm; and this latter is determined by the position of the researcher in relation to these three main components.

There are three main paradigms: positivism, interpretivism and critical realism. Of these, positivism is the only one that demands the researcher to act as an independent observer; in other two, the researcher recognises his or her presence as an essential part of the evaluation. The aim of the positivist paradigm is to make well founded and accurate generalisations about a theory, according to the empirical outcomes. Under this paradigm a researcher presents research questions that have a connection with theory testing, theory development, or theory confirmation or rejection. Research questions are formulated using deductive reasoning, which begins with testable hypotheses drawn from theory that must be accepted or rejected by collecting empirical data (Guba & Lincoln 2005; Myers 2008; Orlikowski & Baroudi 1991).

Under the interpretivist paradigm, the major goal is to obtain understanding and explain the phenomenon. Research questions under this paradigm frequently contain ‘how’ and ‘why’, which can be answered by collecting qualitative data (Guba & Lincoln 2005; Orlikowski & Baroudi 1991; Walsham 1993). Under the critical realist paradigm, the primary aim is to develop a better knowledge of the fundamental structures of a specific phenomenon. To do this a researcher poses questions that can be answered by using the methods of the other two paradigms (Carlsson 2005; Myers 2008; Creswell 2009).

4.2.1 Research Paradigm Choice

An ontological and epistemological choice between positivism, interpretivism and critical realism is not to be based on which approach is considered superior in the literature debate. According to Orlikowski and Baroudi (1991), a researcher must understand the implications of his or her research and use methods that reflect that knowledge, because all research philosophies can offer insights to the phenomenon of interest.
With this in mind, this thesis was informed by positivist ontological and epistemological suppositions for several reasons. Firstly, the aim of this thesis is to develop a research framework including examinable hypotheses to test the direct influence of SME leadership behaviour on employees’ creativity and innovative behaviour, together with the mediating and moderating role of a contextual variable (individuals’ perceptions of a supportive climate for innovation) and personal variables (employees’ personal initiative and individuals’ emotional intelligence), in the context of SMEs in Australia. Therefore this thesis follows a deductive method of reasoning to validate the hypotheses; this is a fundamental characteristic of the positivist paradigm.

Secondly, the constructs under investigation have been obtained from surveying SMEs. This thesis used a questionnaire to quantify the constructs, and used statistical techniques to evaluate the hypotheses concerning the research variables. Confirmation of the reliability and validity of the model at measurement and structural levels was undertaken by using SEM methods and tools. The researcher’s function is to explain the outcomes of an analysis against prior assumptions, with minor interference to the collected data. These features of the study are in line with both the ontological and epistemological elements of the positivist paradigm.

Thirdly, according to Creswell (2009), the positivist paradigm is applicable when the researcher and the reality are not connected; and the findings should be replicable without regard to who conducts the study. A way of designing such a paradigm was pursued to develop the survey instrument, and the confirmation procedure was designed to establish measurement reliability and validity. Last but not least, the researcher had prior experience with quantitative methods, which align with the positivist paradigm.

4.2.2 Methodological Choice

The objectives of a study together with the selected ontological and epistemological stances should present the best and most suitable research methodology to use (Guba & Lincoln 2005; Hall & Howard 2008). As discussed in Section 4.2.1, this thesis is based on a positivist paradigm. It aims to test hypotheses derived from a model based on identified research oversights and problems, presented in Chapter 1.
The main purpose of this thesis is path model validation, concerning the hypothetical-deductive approach (Guba & Lincoln 2005). According to Creswell (2009), as long as the aim of research is hypothesis testing using statistical procedures and generalising to a larger population from the sample, based on numerical data, quantitative research is the preferred approach.

4.3 Research Design

Research design is an essential and important part of research because it is a blueprint for achieving the intended goal. It assists a researcher to answer the research questions, while controlling variance by providing a rationale that connects the data to be gathered to the research questions (Creswell 2009). Research design basically is a series of logical decision-making choices, which must be appropriately selected by a researcher with regard to the aim of the research, the research setting, the scope of the researcher’s intervention, the time horizon, and the sample for analysis (Cavana, Delahaye & Sekeran 2001). Decisions are made concerning the types of sample and data collection method to be used, how the constructs are to be measured, and how the notions and variables will be examined (Cavana, Delahaye & Sekeran 2001).

Figure 4.1 outlines the activities that were designed to achieve the aims of this thesis. At the beginning the researcher reviewed the existing literature to collect background knowledge and to determine research oversights and problems, which led to the development of the research questions. To answer these questions, a conceptual model was gradually developed based on the knowledge obtained from the relevant literature. This helped the researcher formulate the hypotheses. Because of the research oversight addressed in Chapter 1, a theory-based measure was developed for the construct of SME leadership behaviour. The remaining five constructs (employees’ personal initiative, individuals’ perceptions of a supportive climate for innovation, individuals’ emotional intelligence, employees’ creativity, and employees’ innovative behaviour) were measured through the existing survey instrument. In this thesis, data was collected by gathering input from founders, owners, CEOs, managing directors, directors, managers, supervisors and employees of SMEs in Australia. Ethics approval was granted before collecting the data. Pre-testing and a pilot study were conducted to measure the reliability and validity of the questionnaire; then it was distributed for the
main phase of the study. After achieving the required number of responses, data analysis was begun by data entry, followed by data cleaning. The next step was to run different tests to validate the measurement scales and factor structures.

According to Punch (2003), the methods chosen by researchers must help them answer their research questions. Neuman (2006) noted that a quantitative approach is recommended when a study is designed to evaluate causal associations between underlying constructs. In fact, the established statistical evidence from quantitative research methods provides the direction of associations which eventually are used to confirm hypotheses (Amaratunga et al. 2002). To provide acceptable to the research questions and to develop a theoretically derived and empirically tested final path model to investigate the hypotheses, the quantitative method seemed the most appropriate method for this thesis. After testing the formulated hypotheses through a quantitative approach the researcher provided interpretation and report, followed by a conclusion that was checked against the relevant literature.
Figure 4.1 Research design
Source: Author
4.4 Selection of Knowledge

The main purpose of this stage was to bring together knowledge connected to the management of creativity and innovative behaviour in organisations. This activity involved a critical review of the literature, including books, journal articles, conference papers and reports. This stage concentrated on evaluating different research fields relevant to the topic, such as concepts of creativity and innovation; research approaches to creativity and innovation; factors affecting followers’ creativity and innovation in workplaces; leadership; leadership in SMEs; and contextual and personal factors, such as the presence of a supportive climate for innovation, personal initiative and emotional intelligence.

The results provided an extensive knowledge of these fields and helped the researcher develop a theoretical framework. Furthermore, the detection of oversights and problems in the research revealed the need to develop a conceptual model to address the shortage of research on the topic of this thesis.

4.5 Conceptual Model Development

To show the research gaps and problems, a conceptual model was developed from the theoretical framework. This model consists of three major elements: 1) leadership behaviour; 2) contextual and personal factors; and 3) outcomes. Six constructs are included: SME leadership behaviour as an independent variable, one contextual factor (individuals’ perceptions of a supportive climate for innovation) and two personal factors (employees’ personal initiative and individuals’ emotional intelligence) as mediator and moderator variables, and two outcomes: employees’ creativity, and their innovative behaviour. Eight hypotheses were formulated (see Chapter 3). A theory-based measure for the construct of SME leadership behaviour was developed and used for data collection, using an existing questionnaire, for other constructs of this thesis. All the proposed hypotheses were tested by quantitative methods, which helped the researcher verify them.
4.6 Quantitative Data Analysis

Researchers have claimed that the behaviour of people can be measured objectively (Hussey & Hussey 1997), and this thesis aims to examine the extent to which SME leadership behaviour is connected to employees’ creativity and innovative behaviour. It also aims to evaluate the mediating role of individuals’ perceptions of a supportive climate for innovation and employees’ personal initiative, together with the moderating role of individuals’ emotional intelligence. The purpose is to examine the relationships between defined constructs, using a survey questionnaire, an effective and suitable tool for quantitative research because it enables the gathering of a large amount of data to determine the factors that may or may not influence employees’ creativity and innovative behaviour. The quantitative approach was chosen to answer the following research questions, which were presented in Chapter 1:

- To what extent does SME leadership behaviour influence employees’ creativity and innovative behaviour in SMEs in Australia?
- To what extent does employees’ personal initiative mediate the relationships between SME leadership behaviour and employees’ creativity and innovative behaviour in SMEs in Australia?
- To what extent do individuals’ perceptions of a supportive climate for innovation mediate the relationships between SME leadership behaviour and employees’ creativity and innovative behaviour in SMEs in Australia?
- To what extent does individuals’ emotional intelligence moderate the relationships between SME leadership behaviour and employees’ creativity and innovative behaviour in SMEs in Australia?

The following sections describe the population and sampling strategy, controlling for common method bias, the pre-power analysis, the data collection procedure, the instrument used and the pertinent data analysis techniques.

4.6.1 Sample and Sampling Strategy

To improve external validity, probability sampling was used. According to Tashakkori and Teddlie (2010), external validity relates to the generalisability of findings from a
quantitative study of population, research settings, time horizon and so on. Patton (2002) noted that the aim of probability sampling is to choose a large number of cases that are representative of the population under study, which leads to breadth of information. SMEs in different industries in Australia were targeted for this thesis. The sampling strategy for this thesis involved simple random sampling, which is the most widely used probability sampling technique.

A list of 1250 SMEs across Australia was gathered from the following resources:

- SME Association of Australia (https://www.smea.org.au)

This thesis classified SMEs in Australia based on the ABS definition, which it is the most widely used. The Australian Bureau of Statistics (ABS) defines an SME as an active commerce with 0–200 employees (DIISR 2011). However, to assess the causal effects between the constructs of this thesis, it is important to choose firms with at least one employee, so the researcher considered SMEs with a minimum of 1 and maximum of 199 employees. Overall, 1250 SMEs were selected and contacted by email to introduce the aim of the research and send the survey link. Email was the tool for introducing the research and distributing the survey link. As well as putting the survey link in the body of each email, the researcher briefly explained the nature and purpose of the study and how participants’ contribution might play an important role in the finding of the study. Each SME was asked to forward the link to all managers and non-managers in the company. Due to the probability of a low response rate (Hunt & Chonko 1987), a total of 1250 emails (anticipating a 30 per cent response rate) were sent out to the selected SMEs. A weekly email reminder was also sent.

Based on the number of SMEs in different states and territories in Australia (see Figure 2.5), 413, 325, 250, 125, 88, 25, 12, and 12 emails were sent out to SMEs in NSW, VIC, QLD, WA, SA, TAS, ACT and NT, respectively (see Table 4.1). A total of 530 online responses received, including 514 useable responses, yielding a response rate of 42 per cent. This number (514 useable responses) is beyond the required sample size,
which was estimated to be 490 responses to represent the whole population (see Section 4.6.3).

Table 4.1 Number of emails distributed in each state and territory

<table>
<thead>
<tr>
<th>% of SMEs in Different States (ABS 2014)</th>
<th>No. of emails for each State</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSW=33%</td>
<td>NSW=413</td>
</tr>
<tr>
<td>VIC=26%</td>
<td>VIC=325</td>
</tr>
<tr>
<td>QLD=20%</td>
<td>QLD=250</td>
</tr>
<tr>
<td>WA=10%</td>
<td>WA=125</td>
</tr>
<tr>
<td>SA=7%</td>
<td>SA=88</td>
</tr>
<tr>
<td>TAS=2%</td>
<td>TAS=25</td>
</tr>
<tr>
<td>ACT=1%</td>
<td>ACT=12</td>
</tr>
<tr>
<td>NT=1%</td>
<td>NT=12</td>
</tr>
<tr>
<td><strong>TOTAL=100%</strong></td>
<td><strong>TOTAL=1250</strong></td>
</tr>
</tbody>
</table>

Source: Author

4.6.2 Common Method Bias Techniques

Scholars have claimed that common method bias is a problem that researchers must control (Dillman 2000; Ostroff, Kinicki & Clark 2002; Podsakoff, MacKenzie & Podsakoff 2012). According to Dillman (2000), researchers have to control common bias if they plan to maximise and minimise response rates and biases in their research. The problem is that bias may either increase or decrease associations, and consequently may threaten the validity of associations between measures (Nunnally & Bernstein 1994).

In order to control for common method bias, this thesis chose techniques suggested by Podsakoff, MacKenzie and Podsakoff (2012). Firstly, minimisation of task difficulty was considered while the questionnaire was being designed, and clear, concise language was used to address this issue. This is important, since the questionnaire items must be capable of being understood. To reduce possible confusion on the part of participants, all scale points were labelled. Secondly, a covering letter explained the aim of the
research and described how the information could help SMEs and would be used. This technique was vital because it helped the researcher maximise participants’ motivation and the chance of responding precisely. Thirdly, to avoid socially desirable bias in participants’ responses, they were informed that there were no right or wrong answers, and were promised that their answers would remain anonymous. The researcher asked participants to answer the questionnaire items as honestly as possible.

4.6.3 Prior Power Analysis

To decide the needed sample size for a study, a pre-power analysis must be performed (Cohen 1992). Statistical power plays a vital role in the generalisability of research findings, and sample size is the most important factor in deciding adequate power. According to Mone, Mueller and Mauland (1996), obtaining sufficient power helps a researcher reduce errors when the significant differences that appear in hypothesised associations are overlooked in error. Green (1991) emphasised four issues (effect size, alpha level, sample size and number of predictors) related to statistical power.

Cohen (1988) noted that the minimum number of cases required for one predictor is 53. According to Cohen (1992), results are more accurate when studies involve medium effect size with a small number of independent variables (IV<7). Any addition independent variables moderately expand the sample size required for a study (Abu Bakar 2013). In this thesis, SME leadership behaviour is the only independent variable.

As suggested by Tabachnick and Fidell (2007), a simple formula can determine the sample size of a study: \( N = 50 + 8 \text{ IV} \).

However, there are a number of limitations in using this. Small samples size can break down this formula (Tabachnick 1989); so that if the sample consists of fewer than a hundred cases, the relative size of errors when calculating correlation in small samples will constantly lead to an unacceptably low power (Abu Bakar 2013). According to Cohen (1988), the number of subjects need to be varied for analyses with different effect size.

Later, Green modified the formula and developed a two-step rule of thumb from Cohen’s (1988) power analysis method (Green 1991). In this formula, the first step is to
determine lambda (L). For each additional predictor from 2 to 10, L increases by 1.5, 1.4, 1.3, 1.2, 1.1, 1.0, 0.9, 0.8 and 0.7. For each additional predictor after 10, L increases by 0.6. The number of independent variables is shown by $m_1 < 11$ and $m_2 = m - m_1$ (Abu Bakar 2013):

$$L = 6.4 + 1.65 (m_1) - 0.05 (m_1)^2 + 0.6 (m_2)$$

This thesis contains one independent variable, two mediators, and one moderator:

- **SME Leadership Behaviour**: an independent variable, which has three dimensions.
- **Individuals’ Perceptions of a Supportive Climate for Innovation**: a mediator variable with no dimension.
- **Employees’ Personal Initiative**: a mediator variable with no dimension.
- **Individuals’ Emotional Intelligence**: a moderator variable with four dimensions.

Hence: $L = 6.4 + 1.65 (10) - 0.05 (10)^2 + 0.6 (-1) = 17.3$

Effect size is the estimation of what differences might be anticipated in the size of the proposed relationship, links or amount of described variance on the outcome construct(s) (Abu Bakar 2013). It is represented by $f^2$ for analysis (Cohen 1988). For small, medium and large effect size, $f^2$ is 0.02, 0.15 and 0.35. According to Duffy (2007), calculating the effect size is the most problematic step of sample size preparation (Table 4.2). Therefore:

$$N = L / f^2$$

<table>
<thead>
<tr>
<th>Effect Size</th>
<th>$N = L / f^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small Effect Size</td>
<td>$N = 17.3 / 0.02 = 865$</td>
</tr>
<tr>
<td>Medium Effect Size</td>
<td>$N = 17.3 / 0.15 = 115$</td>
</tr>
<tr>
<td>Large Effect Size</td>
<td>$N = 17.3 / 0.35 = 49$</td>
</tr>
</tbody>
</table>

Source: Author

The association between SME leadership behaviour and employees’ creativity was expected to have a medium effect size. The relationship between SME leadership
behaviour and employees’ innovative behaviour was expected to have a small effect. The mediating role of individuals’ perceptions of a supportive climate for innovation was expected to have a medium size. The mediating role of employees’ personal initiative and the moderating role individuals’ emotional intelligence were expected to have a small size. Therefore, the researcher used the average of small and medium effect size to determine an appropriate effect size for this thesis; the final anticipated sample size was the average of 865 and 115, or 490 cases. In other words, this thesis required a sample size of 490 to represent the whole population.

Another concern about the required sample size is the use of SEM as the main analytical technique. Scholars have strongly recommended avoiding a small sample when utilising SEM as the statistical procedure (Fornell & Larcker 1981). According to Hair et al. (1998), the sample should be at least 100 to achieve reliable findings, while Yuksel, Yuksel and Bilim (2010) suggested a sample size of 200 in order to achieve reliable results. Since this thesis uses a maximum likelihood assessment in SEM, a sample size of 490 seemed to fit well with these recommendations. In the event, 514 usable responses were received, well over the minimum necessary.

4.6.4 Data Collection Procedure

A self-administrated survey was used to gather information. The researcher emailed the questionnaires to SMEs in November 2013, and respondents were asked to respond within one week. An email reminder was sent to encourage respondents to complete the survey. According to Sheehan and McMillan (1999), email reminders are important in achieving a higher response rate.

The survey took five months to complete by participants. To overcome the low response rate, different techniques were adopted. The importance of the research was explained in the covering letter. Respondent anonymity was guaranteed and participants were guaranteed confidentiality of their responses. This was important, as respondents who feel comfortable when answering questions are likely to provide honest opinions (Singer, Hippler & Schwarz 1992).
4.6.5 Survey Questionnaire

The survey questionnaire was developed with regard to the conceptual model presented in Chapter 3. The questionnaire contains 106 items and has eight sections (see Appendix C). The first section is designed to collect information about the SME size, state, operation, age of company, industry, sector, and business ownership (7 items). The second to seventh sections collect data regarding SME leadership behaviour (30 items), employees’ creativity (13 items), employees’ innovative behaviour (10 items), employees’ personal initiative (7 items), individuals’ perceptions of a supportive climate for innovation (16 items), and individuals’ emotional intelligence (16 items). The last section is designed to gather demographics data of the respondents: gender, marital status, age, position, employment status, tenure, and education level (7 items).

This section of the thesis provides additional detail about the questionnaire for the six main scales used in this thesis following the pre-test and pilot study: SME leadership behaviour, employees’ creativity, employees’ innovative behaviour, employees’ personal initiative, individuals’ perceptions of a supportive climate for innovation, and individuals’ emotional intelligence.

4.6.6 Measurement Scale

4.6.6.1 SME Leadership Behaviour Scale

Can leadership for creativity and innovative behaviour be developed? This question led the researcher to think about the creation of a new comprehensive measure to present leadership towards creativity and innovative behaviour. Khalili, Muenjohn and McMurray (2015) proposed the development of such a construct as a way to overcome contradictory findings between existing leadership theories, creativity and innovative behaviour. This action gains importance since, as Yukl (2009) suggested, a complex and comprehensive leadership construct is required to measure the influence of leadership on creative and innovative behaviours. Although leadership behaviour is principally treated as a global phenomenon (Bass 1997), a comprehensive evaluation by House and Aditya (1997) disclosed that almost 98 per cent of leadership behaviour theories derive from the USA. This thesis therefore aims to develop and validate a comprehensive theory-based measure for the leadership behaviour variable in a
different cultural context, to ascertain the generalisability and usefulness of the leadership behaviours it identifies. To do this, the theoretical dimensions of five leadership theories (transformational leadership, leader–member exchange, innovation champion, change-oriented leadership and authentic leadership) are synthesised to develop and validate a theory-based measure presenting the construct of SME leadership behaviour, after a comprehensive review of the existing literature (Chapter 2) and relevant prior empirical studies (Chapter 3) in the fields of leadership, creativity, innovation and SMEs.

To develop a theory-based measure for the construct of SME leadership behaviour, the researcher assessed the underlying concepts, particularly those that engage an understanding of leaders’ behaviours towards creativity and innovation. According to Panuwatwanich (2008), previous definitions of leadership behaviour have been abstract and broad, and therefore this is too broad and does not provide an enough measure to precisely capture the meaning of the construct. SME leadership behaviour was briefly defined by the researcher earlier as the behaviours of founders, owners, CEOs, managing directors, directors, managers and supervisors of an SME that foster and enhance followers’ creativity and innovative behaviour. Some theories of effective leadership relating to creativity and innovation were discussed in Chapter 2, and have been corroborated by a number of empirical studies mentioned in Section 3.3.1. Five leadership theories were chosen as a basis for the development of a theory-based measure of SME leadership behaviour: 1) three styles to transformational leadership (Bass & Avolio 1994; Kouzes & Posner 1995; Podsakoff et al. 1990); 2) authentic leadership (Avolio et al. 2004; Avolio & Gardner 2005; Walumbwa et al. 2008); 3) leader–member exchange (Graen & Uhl-Bien 1995); 4) change-oriented leadership (Yukl et al. 2002); and 5) innovation champion (Howell, Shea & Higgins 2005).

To begin the development of a theory-based measure, the theoretical dimensions of these five theories were synthesised (Table 4.3). The justification for this is that some components that support these leadership theories are complementary and contain similar concepts. Synthesis was put into practice from the beginning of this study, in investigating key definitions, elements, and indicators of all seven leadership models (see Table 4.3). Synthesising the theoretical components of the seven models produced
four components (Supporting and Stimulating Creativity and Innovation, Providing and Motivating Vision, Providing Individual Support, and Encouraging Decision-Making) which encapsulate SME leadership behaviours towards creativity and innovation. To find these components the researcher considered transformational leadership theory as the foundation for synthesising the theoretical components of the leadership theories. This theory has received wide popularity and attention from researchers (Lowe, Kroek & Sivasubramaniam 1996), because of its qualitatively different approach to motivating subordinates, compared with other leadership theories (Gardner & Avolio 1998; Howell & Avolio 1993). Proponents of this approach (e.g., Bass 1985) have claimed that transformational leaders show creative behaviours and serve as role models for innovative behaviour.
Table 4.3 Theoretical components of the construct of SME leadership behaviour

<table>
<thead>
<tr>
<th>Theoretical Components</th>
<th>TL(^1)</th>
<th>TL(^2)</th>
<th>TL(^3)</th>
<th>CO-L(^4)</th>
<th>IC(^5)</th>
<th>LMX(^6)</th>
<th>AL(^7)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Transformational Leadership(^1)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Providing an appropriate model</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>b) Intellectual stimulation</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>c) Identify and articulate a vision</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>d) High performance expectations</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>e) Providing individualised support</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>f) Fostering the acceptance of group goals</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td><strong>Transformational Leadership(^2)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Idealised influence</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>b) Intellectual stimulation</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>c) Inspirational motivation</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>d) Individual consideration</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td><strong>Transformational Leadership(^3)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Challenge the process</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>b) Encourage the heart</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>c) Model the way</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>d) Inspire a shared vision</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>e) Enable others to act</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td><strong>Change-Oriented Leadership(^4)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Envisioning change</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>b) Encouraging innovative thinking</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>c) Taking risks for change</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>d) External monitoring</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td><strong>Innovation Champion(^5)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Expresses enthusiasm and confidence</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>b) Persists under adversity</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>c) Gets the right people involved</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td><strong>Leader–member Exchange(^6)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Leader–member exchange</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td><strong>Authentic Leadership(^7)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Leader self-awareness</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>b) Relational transparency</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>c) Internalised moral perspective</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>d) Balanced processing</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
</tbody>
</table>

Source: Author


Of the seven, Bass and Avolio’s transformational leadership model has been extensively utilised by researchers to examine the association between leadership behaviour and creativity and innovative behaviour. It was chosen as the basis for a theory-based measure to represent the construct of SME leadership behaviour. Bass and Avolio’s (1994) transformational leadership measurement instrument, known as the Multifactor Leadership Questionnaire, has demonstrated a more positive and significant influence.
on creativity and innovation than the instruments of other leadership models (e.g., Eisenbeiss & Boerner 2013; Boerner, Eisenbeiss & Griesser 2007; Gumusluoglu & Ilsev 2009; Herrmann & Felfe 2013; Michaelis, Stegmaier & Sonntag 2010; Pieterse et al. 2010; Rank et al. 2009; Reuvers et al. 2008; Shin & Zhou 2003; Wang, Tsai & Tsai 2014).

Theoretically congruent factors were reasonably subsumed under pertinent divisions to portray the components of the construct of SME leadership behaviour in a conceptual manner. The following are the developed components of this construct, with their definitions:

- Supporting and Stimulating Creativity and Innovation: the behaviours of founders, owners, CEOs, managing directors, directors, managers, and supervisors which stimulate and support employees’ creativity and innovative behaviour
- Providing and Motivating Vision: the behaviours of founders, owners, CEOs, managing directors, directors, managers, and supervisors which produce, communicate and encourage a shared vision
- Providing Individual Support: the quality of the relationships between founders, owners, CEOs, managing directors, directors, managers, and supervisors and their employees, together with the extent to which the founders, owners, CEOs, managing directors, directors, managers, and supervisors provide support to their employees
- Encouraging Decision-Making: the behaviours of founders, owners, CEOs, managing directors, directors, managers, and supervisors which encourage followers to participate in decision-making.

Each component includes pertinent measurement items adapted from the questionnaire items published in Bass and Avolio (1994), Franklin (1975), Graen and Uhl-Bien (1995), Howell, Shea and Higgins (2005), Kouzes and Posner (1995), Koys and DeCotiis (1991), Northouse (2012), Podsakoff et al. (1990), Skipper and Bell (2006), Yukl, Gordon and Taber (2002), and Walumbwa et al. (2008). First, the researcher developed a SME leadership behaviour measure with 30 items. The results of exploratory factor analysis (EFA) determined that six items were not sufficiently
loaded; these constituted the component of encouraging decision-making, based on the results of the measurement development phase. They were dropped from further analysis (see Table 5.17 for further discussion). Based on the results of measurement development and validation (through EFA) of the construct of SME leadership behaviour, the researcher categorised the remaining 24 items into three components and chose a name for each.

The result of measurement development together with the relevant factor analysis tests for the construct of SME leadership behaviour (see Chapter 5 for the six items removed for data analysis) helped the researcher identify three components: Supporting and Stimulating Creativity and Innovation, Providing and Motivating Vision, and Providing Individual Support. The component of Supporting and Stimulating Creativity and Innovation was measured by eight items (e.g., ‘In this company, leaders seek out and promote creative and innovative thoughts in order to solve problems’ or ‘In this company, leaders encourage employees to develop their own ideas’). The dimension Providing and Motivating Vision was assessed by eight items (e.g., ‘In this company, leaders make the vision clearly understood by giving examples, telling stories, and using figures of speech and metaphors’ or ‘In this company, leaders use the vision to give the life and work of the company a sense of meaning and purpose’). The component of Providing Individual Support was evaluated by eight items (e.g., ‘In this company, leaders are easily approachable to talk to about work-related problems’ or ‘In this company, leaders provide advice and coaching’). The items of the SME leadership behaviour measure (24 items) were tested on a 5-point Likert scale, ranging from (1) ‘strongly disagree’ to (5) ‘strongly agree’ (see Appendix C). All the items loaded on three factors, which accounted for 66.2 per cent of the variance. The items were averaged to form a scale with a reliability of 0.964. More information regarding the reliability and validity of the construct of SME leadership behaviour is presented in Chapter 5.

A theory-based development and validation of various concepts, such as conflict management (e.g., De Dreu et al. 2001), organisational citizenship behaviour (e.g., Van Dyne & Ang 1994), culture (e.g., Straub et al. 2002) and so forth has always attracted the attention of researchers, and leadership is no exception (e.g., Laguerre 2010;
Langlois et al. 2014; Panuwatwanich 2008; Van Dierendonck & Nuijten 2011; Walumbwa et al. 2008). A number of studies focus on the development and validation of a theory-based measure for the leadership construct.

For instance, research conducted by Walumbwa et al. (2008) aimed to develop and validate a theory-based measure of authentic leadership. This is a remarkable effort, but the scope of their study is different from what the researcher aims to develop and validate in this study: their aim was to present a new measure by combining the theoretical components of authentic leadership, while the purpose of this study is to develop and validate a comprehensive measurement instrument by synthesising the theoretical dimensions of different leadership theories in order to present a construct of SME leadership behaviour.

Laguerre (2010) took a theory-based approach to develop and validate a measurement instrument for the leadership construct. He chose three theories: transformational leadership (Bass 1985, 1996; Burns 1978), authentic leadership (Avolio 2005), and Fiedler’s contingency model (1964). He concluded that leadership can be expanded by combining the theoretical components of these theories, and suggested developing a framework based on the mentioned leadership theories and model as a direction for future research.

Employing a theory-based approach, Van Dierendonck and Nuijten (2011) developed and validated an instrument of the servant–leadership construct with eight dimensions (‘standing back’, ‘forgiveness’, ‘courage’, ‘accountability’, ‘humility’, ‘empowerment’, ‘authenticity’ and ‘stewardship’) and 30 items. They selected seven various survey instruments: servant leadership, a one-dimensional scale (Ehrhart 2004), servant leadership scale (Liden et al. 2008), transformational leadership (Rafferty & Griffin 2004), leader–member exchange (Scandura & Graen 1984), ethical leadership (Brown, Trevino & Harrison 2005), punishment behaviour (Podsakoff et al. 1984), and charismatic leadership (Damen, van Knippenberg & van Knippenberg 2008). The developed measurement instrument was validated by 1571 people of various occupational backgrounds in the UK and Netherlands.
Panuwatwanich (2008) used a theory-based method to develop and validate a 12-item measurement instrument for leadership behaviour towards organisational outcomes, such as ‘innovation diffusion outcomes’, ‘advanced technology utilisation’, ‘innovative design practices’ and ‘innovative design solutions’. To develop his instrument, Panuwatwanich used several theories including leader–member exchange, change-oriented leadership, transformational leadership and innovation champion. The instrument was validated within architectural and engineering design organisations.

More recently, Langlois et al. (2014) were inspired by Starratt’s (1991) tridimensional ethical leadership model of ‘justice’, ‘critique’ and ‘care’. From this, Langlois et al. (2014) developed an instrument for the construct of ethical leadership, with three dimensions (‘ethic of care’, ‘ethic of justice’, and ‘ethic of critique’) and 30 items. It was validated by 668 North American educational leaders.

In light of such moves, the researcher strongly believes that leadership towards creative and innovative behaviours can be developed. The newly developed theory-based measure presenting the construct of SME leadership behaviour in this thesis, together with the scholarly studies discussed above, are valuable and unique contributions to the field of leadership, from both theoretical and practical perspectives.

4.6.6.2 Employees’ Creativity Scale

In this thesis employees’ creativity was measured using an instrument developed by Zhou and George (2001), who reported it as achieving excellent reliability ($\alpha = 0.960$). Several other studies that employed this instrument had satisfying results (e.g., Eisenbeiss & Boerner 2013; Müceldili, Turan & Erdil 2013; Jyoti & Dev 2015). There is no sub-construct for this construct.

This construct was examined by thirteen items (e.g., ‘Here, an employee exhibits creativity on the job when given the opportunity to’ or ‘Here, an employee develops adequate plans and schedules for the implementation of new ideas’). The items of creativity construct (13 items) were measured on a 5-point Likert scale, ranging from (1) ‘not at all characteristic’ to (5) ‘very characteristic’ (see Appendix C). All of the items loaded on one factor, which accounted for 60.8 per cent of the variance. The items
were averaged to form a scale with a reliability of 0.945. A deep analysis of the reliability and validity of the employees’ creativity construct is provided in Chapter 5.

4.6.6.3 Employees’ Innovative Behaviour Scale

In this thesis employees’ innovative behaviour was measured using an instrument developed by De Jong and Den Hartog (2008), who reported it as achieving sufficient reliability ($\alpha > 0.70$). Several other studies that used it also resulted in satisfying reliability (e.g., De Spiegelaere et al. 2014; Mura et al. 2013). There is no sub-construct for this construct.

This construct was examined by ten items (e.g., ‘An employee here contributes to the implementation of new ideas’ or ‘An employee here attempts to convince people to support an innovative idea’). The items were measured on a 5-point Likert scale, ranging from (1) ‘never’ to (5) ‘always’ (see Appendix C). All the items loaded on one factor, which accounted for 66.7 per cent of the variance. They were averaged to form a scale with a reliability of 0.944. More information regarding the reliability and validity of the construct of employees’ innovative behaviour is provided in Chapter 5.

4.6.6.4 Individuals’ Perceptions of a Supportive Climate for Innovation Scale

For this thesis individuals’ perceptions of a supportive climate for innovation were measured using an instrument developed by Scott and Bruce (1994), who reported it as achieving excellent reliability ($\alpha = 0.92$). Many other studies that have used it also found it had satisfying reliability (e.g., Jung, Chow & Wu 2003; Wang & Rode 2010). There is no sub-construct for this construct.

This construct was examined by sixteen items (e.g., ‘Our ability to function creatively is respected by the leadership’ or ‘Assistance in developing new ideas is readily available’). The items were measured on a 5-point Likert scale, ranging from (1) ‘strongly disagree’ to (5) ‘strongly agree’ (see Appendix C). All the items loaded on one factor, which accounted for 67.3 per cent of the variance. The items were averaged to form a scale with a reliability of 0.967. A deep analysis of reliability and validity of the individuals’ perceptions of a supportive climate for innovation construct is provided in Chapter 5.
4.6.6.5 Employees’ Personal Initiative Scale

In this thesis employees’ personal initiative was measured using an instrument developed by Frese et al. (1997), who reported it as achieving very good reliability ($\alpha = 0.84$). Several other studies that used it found it to give satisfactory reliability (e.g., Binnewies, Ohly & Sonnentag 2007; Herrmann & Felfe 2012, 2013). There is no sub-construct for this variable.

This construct was assessed by seven items (e.g., ‘Employees here whenever something goes wrong, they search for a solution immediately’ or ‘Employees here whenever there is a chance to get actively involved, they take it’). The items were measured on a 5-point Likert scale, ranging from (1) ‘strongly disagree’ to (5) ‘strongly agree’ (see Appendix C). All the items loaded on one factor, which accounted for 58.5 per cent of the variance. They were averaged to form a scale with a reliability of 0.879. More information regarding the reliability and validity of the employees’ personal initiative construct is presented in Chapter 5.

4.6.6.6 Individuals’ Emotional Intelligence Scale

For this thesis, individuals’ emotional intelligence construct was measured on Wong’s Emotional Intelligence Scale (WEIS), developed by Wong and Law (2002) and consisting of four subscales: self-emotion appraisal, others’ emotion appraisal, use of emotion, and regulation of emotion. Wong and Law (2002) reported their instrument achieved excellent reliability ($\alpha = 0.90$). Several other studies that employed it also reported satisfactory reliability (e.g., Awwad & Ali 2012; Cavazotte, Moreno & Hickmann 2012).

‘Self-emotion appraisal’ was assessed by four items (e.g., ‘I have a good sense of why I have certain feelings most of the time’ or ‘I have good understanding of my own emotions’). The assessment of ‘others’ emotion appraisal’ included four items (e.g., ‘I have good understanding of the emotions of people around me’ or ‘I am sensitive to the feelings and emotions of others’). ‘Use of emotion’ was measured by four items (e.g., ‘I always set goals for myself and then try my best to achieve them’ or ‘I would always encourage myself to try my best’). The evaluation of ‘regulation of emotion’ included
four items (e.g., ‘I am able to control my temper and handle difficulties rationally’ or ‘I am quite capable of controlling my own emotions’). These items were rated on a 5-point Likert scale, ranging from (1) ‘strongly disagree’ to (5) ‘strongly agree’ (see Appendix C). All the items loaded on four factors, which accounted for 83 per cent of the variance. They were averaged to form a scale with a reliability of 0.957. An analysis of the reliability and validity of the individuals’ emotional intelligence construct is provided in Chapter 5.

4.7 Pre-Test and Pilot Study

4.7.1 Pre-Test

To enhance the content validity of the instruments, a pre-test was employed prior to the pilot study. According to Sekaran (2003), the aim of a pre-test is to ensure that participants understand the questionnaire items and there are no difficulties with wording. A pre-test was conducted during the second week of October 2013. Ten respondents participated: eight managers and employees from the retail trade and accommodation and food services industry sectors in SMEs in Australia, and two academic experts who were well versed in leadership and innovation.

The pre-test looked at the degree of relevance of each construct item and received comments and feedback from the respondents to indicate the acceptability of items from both practical and academic perspectives. One scale and a few items in the survey were modified. Five participants were asked about the measurement of the emotional intelligence scale. Originally this construct was based on a seven-point Likert scale, although for other constructs the researcher had chosen a five-point scale. To avoid confusion, the researcher decided to change the emotional intelligence measurement from seven to five points. Other researchers have mentioned such a modification in their studies (e.g., Cavazotte, Moreno & Hickmann 2012; Libbrecht et al. 2012; Song et al. 2010). Two questions from the leadership behaviour construct were reworded, as they were found to be confusing. The questionnaire was finalised in consultation with the first and second supervisors of the researcher. Data collected in the pre-test phase was not used in the subsequent analysis.
4.7.2 Pilot Study

A pilot study was conducted to establish the reliability of the instrument, during the third and fourth weeks of October 2013. A list of 220 SMEs around Australia was gathered from Dun and Bradstreet’s *Australian Business Who’s Who* database (http://dnb.com.au), on the basis of having at least one and a maximum of 199 employees (1 ≤ employees ≤ 199). This criterion was made since the researcher’s aim was to evaluate the causal effects between the variables (SME leadership behaviour, employees’ creativity, employees’ innovative behaviour, individuals’ perceptions of a supportive climate for innovation, employees’ personal initiative, and individuals’ emotional intelligence) of this thesis. The researcher emailed the questionnaire link followed by the weekly email reminder to these SMEs; 44 respondents participated, comprising of managers (26 out of 44 respondents = 59.1%), and employees (18 out of 44 respondents = 40.9%). Based on the number of SMEs in different states and territories (see Figure 2.5), 73, 58, 44, 22, 15, 4, 2, and 2 emails were sent to SMEs in NSW, VIC, QLD, WA, SA, TAS, ACT and NT, respectively.

According to Churchill’s (1979) recommendation, refinement of the scale is needed to compute the reliability coefficient. Spector (1992) noted that Chronbach’s alpha for all questions under each construct must be above 0.70, showing that the questions measure the same construct. The reliability test ranged from 0.882 to 0.976 (see Table 4.4). In accordance with Nunnally and Bernstein (1994), all dimensions were retained as they showed high reliability. The final instrument for the main study included 106 items. The data gathered for the pilot test was not utilised in the main study phase: in other words, the researcher did not use the collected 44 responses of this phase in the main study where 514 usable responses were received.
Table 4.4 Reliability of scales for pilot test

<table>
<thead>
<tr>
<th>Scales</th>
<th>Cronbach’s Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>SME Leadership Behaviour</td>
<td>0.976</td>
</tr>
<tr>
<td>Employees’ Creativity</td>
<td>0.947</td>
</tr>
<tr>
<td>Employees’ Innovative Behaviour</td>
<td>0.935</td>
</tr>
<tr>
<td>Employees’ Personal Initiative</td>
<td>0.894</td>
</tr>
<tr>
<td>Individuals’ Perceptions of a Supportive Climate for Innovation</td>
<td>0.952</td>
</tr>
<tr>
<td>Individuals’ Emotional Intelligence</td>
<td>0.882</td>
</tr>
</tbody>
</table>

Source: Author

4.8 Data Analysis Approaches and Tools

This thesis applied structural equation modelling (SEM) to examine the proposed associations between the constructs in the model presented in Chapter 3. SEM is the most acceptable technique for evaluating both construct validity and the association between variables (Hair et al. 2010; Kline 2010). To prepare the data for analysis, it had to be subjected to a different set of tests to determine such things as missing values, outliers and normality. The validity and reliability of the measurement instrument had also to be tested, which was undertaken using EFA and CFA (Hair et al. 2010; Lewis, Templeton & Byrd 2005; Straub, Boudreau & Gefen 2004). SPSS was used to make the collected data ready for EFA, while analysis of moment structures (AMOS) was used for the instrumental and structural evaluations. Analysis of the survey for the main study consisted of four major steps:

- Step 1 – Data entry and data screening (Chapter 4): this step involved data cleaning, purification and identification of missing data, and evaluation.
- Step 2 – Initial reliability and purification measure (Chapter 5): to avoid unnecessary factors during factor analysis, and to identify those items that did not have a shared core, the coefficient alpha and item-to-total correlations were estimated (Churchill 1979).
- Step 3 – Validity and reliability of the survey instrument (Chapter 5): validity assesses whether an instrument measures what it is intended to measure (Lewis, Templeton & Byrd 2005). Reliability is an estimate of whether each item of a variable is consistent across various situations or in repeated events (Field 2009).
Content validity was tested with EFA, while construct validity was assessed with CFA. Internal-consistency reliability evaluations were also undertaken.

- Step 4 – Structural model evaluation (Chapter 5): the validity of the structural model was evaluated in four ways: goodness of fit (GOF) indices; comparison of the fit statistics of the structural model with the fit statistics of its similar measurement model; magnitude of variance; and path analysis based on the size, direction and significance of the regression coefficient (Hair et al. 2010).

4.9 Data Entry and Data Screening

The data for this thesis was gathered from SMEs in Australia using an online-based questionnaire. The survey link was distributed via email to 1250 SMEs in different industries across the country. The selected SMEs were contacted by email to introduce the research to them. After a five-month period (from November 2013 to March 2014), a total of 530 online surveys had been received including 514 useable ones: that is, answered completely. The reason why only few surveys (16 out of 530) were unusable is that, through setting a completion push strategy for each item on Qualtrics, respondents could not pass a section (eight in total) without answering all the items in it.

The data was exported from Qualtrics into SPSS by downloading the CSV data and SPSS syntax files. To enter the data into SPSS (version 22), every effort was made to avoid data entry error by using SPSS’s feature of clarifying acceptable values and labels for each construct.

4.9.1 Missing Data Analysis

Missing data is one of the most common problems in data analysis (Tabachnick & Fidell 2007). It refers to a situation in which values on variables are not valid for analysis (Hair et al. 2010). In accordance with Tabachnick and Fidell (2007), if the proportion of missing values is very small, the means values must be substituted. Then imputation needs to be conducted by applying the SPSS routine with a ‘Replace with mean’ choice, which computes the mean value for the variable and then gives the missing case a value (Pallant 2011). According to Hair et al. (2010), imputation is the process of calculating a missing value with regard to the valid values of other variables.
or cases in the study sample. In this thesis, all values were valid, indicating no cases were detected and dropped.

To ensure that respondents read each item of questionnaire thoughtfully, and to lessen or remove response set bias, the data was checked for cleaning purposes. Nunnally and Bernstein (1994) suggested putting reverse items in the questionnaire; the rationale is that a respondent who does not identify the reversal in the questions is engaged in some sort of response bias, and should be dropped from the sample. This helps researchers increase the accuracy of the data to be analysed (Abu Bakar 2013). Apart from the descriptive data, all data was marked on a five-point Likert scale, including the reverse items; no cases needed to be dropped from the sample. It seems all respondents took their time to read and understand the questions.

4.9.2 Outliers

All 514 cases were examined for the detection of outliers. Outliers are cases with values that are considerably different from those in other cases (Byrne 2010; Hair et al. 2010). They are not representative of the population and therefore can deform statistical tests. They can be detected from different perspectives: univariate, bivariate or multivariate. This thesis used an SPSS-based multivariate analysis that examines for multivariate outliers that have extreme scores on two or more variables (Kline 2010).

A common approach to detect multivariate outliers is the estimation of the squared Mahalanobis distance ($D^2$) for each case (Hair et al. 2010). $D^2$ estimates the extent of the difference of every case from the mean centre of all cases across a set of variables. The higher values of $D^2$ to the other cases means that a $D^2$ value stands significantly outside all the $D^2$ values. Based on Kline’s (2005) suggestions, in significance tests for $D$ obtained using SPSS, a conservative significance level ($p < 0.001$) is used to detect multivariate outliers. The dataset in this case (514 cases by 86 metric variables) was assessed for the presence of multivariate outliers. None were found, and all variables were retained for further analysis.
4.9.3 Normality Test

Normality refers to the form of distribution as well as the attributes of its statistics for a single metric variable that estimates the normal distribution (Hair et al. 2010). According to Mellahi and Budhwar (2010), the belief is that statistical reasoning may be less strong when there is a significant departure from normality. Hence, a normality test was conducted to identify serious departures from normality, an important step before running further multivariate analyses involving SEM or AMOS (Byrne 2010; Hair et al. 2010).

The distribution was estimated by testing for skewness and kurtosis. A statistical method was chosen instead of a graphical ones such as a histogram, for its objectivity and accuracy (Hair et al. 2010). Skewness refers to the orientation of the distribution. It identifies whether the distribution is centred or shifts to the left or right. Kurtosis refers to the ‘flatness’ or ‘peakedness’ of the distribution (Byrne 2010). According to Byrne, a non-normal distribution inflates the chi-square value and underrates other goodness-of-fit (GOF) indices that AMOS produces. This is important, because the SEM software used in this thesis is AMOS (version 22), a covariance-based software. Hair et al (2010) suggested critical values of -2.58 to +2.58 (0.01 significance level) and -1.96 to +1.96 (0.05 significance level) for skewness and kurtosis respectively. Kline (2010) noted that a value of -10 to +10 for kurtosis must be considered.

Every construct was tested for skewness and kurtosis: SME leadership behaviour (skewness = -1.066, std. error = 0.109), (kurtosis = 0.939, std. error = 0.218); employees’ creativity (skewness = -1.584, std. error = 0.109), (kurtosis = 2.812, std. error = 0.218); employees’ innovative behaviour (skewness = -1.016, std. error = 0.109), (kurtosis = 0.854, std. error = 0.218); individuals’ perceptions of a supportive climate for innovation (skewness = -1.619, std. error = 0.109), (kurtosis = 3.568, std. error = 0.218); employees’ personal initiative (skewness = -1.064, std. error = 0.109), (kurtosis = 1.182, std. error = 0.218); and individuals’ emotional intelligence (skewness = -1.122, std. error = 0.109), (kurtosis = 1.508, std. error = 0.218). The skewness and kurtosis of all 86 metric variables are presented in Table 4.5. Of these, only one variable shows a deviation from normality, using the rigorous -2.58 and +2.58 crucial ratio of kurtosis. As suggested by Kline (2010), who has a more lenient measure of kurtosis,
this variable could be kept for further analysis. In any case, according to Hair et al. (2010), in a sample of over 200 cases, serious departures from normality may not have a serious effect on results: in other words, a large sample size has the potential to lessen the damaging impact of a departure from normality (Byrne 2010).

Table 4.5 The results of skewness and kurtosis

<table>
<thead>
<tr>
<th>Variable</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>Variable</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>Variable</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMELB1</td>
<td>-0.86</td>
<td>0.58</td>
<td>EC8</td>
<td>-0.80</td>
<td>0.70</td>
<td>IPSCFI9</td>
<td>-0.89</td>
<td>0.93</td>
</tr>
<tr>
<td>SMELB2</td>
<td>-0.77</td>
<td>0.53</td>
<td>EC9</td>
<td>-0.76</td>
<td>0.66</td>
<td>IPSCFI10</td>
<td>-0.96</td>
<td>1.59</td>
</tr>
<tr>
<td>SMELB3</td>
<td>-0.82</td>
<td>0.61</td>
<td>EC10</td>
<td>-0.81</td>
<td>1.40</td>
<td>IPSCFI11</td>
<td>-0.90</td>
<td>2.15</td>
</tr>
<tr>
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<td>0.32</td>
<td>EC11</td>
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<td>0.98</td>
<td>IPSCFI12</td>
<td>-0.82</td>
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</tr>
<tr>
<td>SMELB5</td>
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<td>0.15</td>
<td>EC12</td>
<td>-0.74</td>
<td>0.96</td>
<td>IPSCFI13</td>
<td>-0.82</td>
<td>0.64</td>
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<tr>
<td>SMELB6</td>
<td>-0.73</td>
<td>0.39</td>
<td>EC13</td>
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<td>0.76</td>
<td>IPSCFI14</td>
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<td>SMELB7</td>
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<td>EIB1</td>
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<td>-0.08</td>
<td>IPSCFI15</td>
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<td>0.57</td>
</tr>
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<td>SMELB8</td>
<td>-1.04</td>
<td>1.25</td>
<td>EIB2</td>
<td>-0.57</td>
<td>0.26</td>
<td>IPSCFI16</td>
<td>0.06</td>
<td>0.97</td>
</tr>
<tr>
<td>SMELB9</td>
<td>-0.54</td>
<td>-0.28</td>
<td>EIB3</td>
<td>-0.21</td>
<td>-0.17</td>
<td>IEI1</td>
<td>-0.91</td>
<td>0.37</td>
</tr>
<tr>
<td>SMELB10</td>
<td>-0.46</td>
<td>-0.34</td>
<td>EIB4</td>
<td>-0.35</td>
<td>-0.05</td>
<td>IEI2</td>
<td>-0.76</td>
<td>0.16</td>
</tr>
<tr>
<td>SMELB11</td>
<td>-0.51</td>
<td>-0.33</td>
<td>EIB5</td>
<td>-0.36</td>
<td>-0.01</td>
<td>IEI3</td>
<td>-0.84</td>
<td>0.21</td>
</tr>
<tr>
<td>SMELB12</td>
<td>-0.56</td>
<td>-0.18</td>
<td>EIB6</td>
<td>-0.44</td>
<td>-0.01</td>
<td>IEI4</td>
<td>-1.03</td>
<td>0.73</td>
</tr>
<tr>
<td>SMELB13</td>
<td>-0.44</td>
<td>-0.32</td>
<td>EIB7</td>
<td>-0.70</td>
<td>0.69</td>
<td>IEI5</td>
<td>-0.26</td>
<td>-0.23</td>
</tr>
<tr>
<td>SMELB14</td>
<td>-0.62</td>
<td>-0.13</td>
<td>EIB8</td>
<td>-0.55</td>
<td>0.27</td>
<td>IEI6</td>
<td>-0.24</td>
<td>-0.23</td>
</tr>
<tr>
<td>SMELB15</td>
<td>-0.47</td>
<td>-0.36</td>
<td>EIB9</td>
<td>-0.49</td>
<td>-0.06</td>
<td>IEI7</td>
<td>-0.25</td>
<td>-0.31</td>
</tr>
<tr>
<td>SMELB16</td>
<td>-0.50</td>
<td>-0.28</td>
<td>EIB10</td>
<td>-0.53</td>
<td>0.47</td>
<td>IEI8</td>
<td>-0.17</td>
<td>-0.40</td>
</tr>
<tr>
<td>SMELB17</td>
<td>-0.52</td>
<td>-0.06</td>
<td>EPI1</td>
<td>-0.48</td>
<td>-0.01</td>
<td>IEI9</td>
<td>-0.65</td>
<td>0.22</td>
</tr>
<tr>
<td>SMELB18</td>
<td>-0.65</td>
<td>0.03</td>
<td>EPI2</td>
<td>-0.50</td>
<td>0.39</td>
<td>IEI10</td>
<td>-0.61</td>
<td>0.10</td>
</tr>
<tr>
<td>SMELB19</td>
<td>-0.55</td>
<td>-0.11</td>
<td>EPI3</td>
<td>-0.34</td>
<td>-0.05</td>
<td>IEI11</td>
<td>-0.63</td>
<td>0.04</td>
</tr>
<tr>
<td>SMELB20</td>
<td>-0.53</td>
<td>-0.34</td>
<td>EPI4</td>
<td>-0.38</td>
<td>-0.12</td>
<td>IEI12</td>
<td>-0.61</td>
<td>-0.07</td>
</tr>
<tr>
<td>SMELB21</td>
<td>-0.39</td>
<td>-0.25</td>
<td>EPI5</td>
<td>-0.38</td>
<td>-0.10</td>
<td>IEI13</td>
<td>-0.73</td>
<td>0.73</td>
</tr>
<tr>
<td>SMELB22</td>
<td>-0.53</td>
<td>-0.10</td>
<td>EPI6</td>
<td>-0.42</td>
<td>0.24</td>
<td>IEI14</td>
<td>-0.72</td>
<td>0.61</td>
</tr>
<tr>
<td>SMELB23</td>
<td>-0.50</td>
<td>-0.11</td>
<td>EPI7</td>
<td>-0.35</td>
<td>0.19</td>
<td>IEI15</td>
<td>-0.23</td>
<td>-0.46</td>
</tr>
<tr>
<td>SMELB24</td>
<td>-0.35</td>
<td>-0.76</td>
<td>IPSCFI1</td>
<td>-1.07</td>
<td>2.15</td>
<td>IEI16</td>
<td>-0.57</td>
<td>0.42</td>
</tr>
<tr>
<td>EC1</td>
<td>-0.73</td>
<td>0.79</td>
<td>IPSCFI2</td>
<td>-1.08</td>
<td>2.10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EC2</td>
<td>-0.67</td>
<td>0.64</td>
<td>IPSCFI3</td>
<td>-0.85</td>
<td>0.62</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EC3</td>
<td>-0.23</td>
<td>-0.26</td>
<td>IPSCFI4</td>
<td>-1.12</td>
<td>3.20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EC4</td>
<td>-0.78</td>
<td>0.64</td>
<td>IPSCFI5</td>
<td>-0.96</td>
<td>1.39</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EC5</td>
<td>-0.70</td>
<td>0.94</td>
<td>IPSCFI6</td>
<td>-0.80</td>
<td>1.66</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EC6</td>
<td>-0.69</td>
<td>0.55</td>
<td>IPSCFI7</td>
<td>-0.85</td>
<td>2.51</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EC7</td>
<td>-0.87</td>
<td>1.36</td>
<td>IPSCFI8</td>
<td>-0.86</td>
<td>0.68</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Author
SMELB = SME leadership behaviour; EC = employees’ creativity; EIB = employees’ innovative behaviour; EPI = employees’ personal initiative; IPSCFI = individuals’ perceptions of a supportive climate for innovation; IEI = individuals’ emotional intelligence.

4.10 Ethics

Prior to commencement of the data collection phase, ethics approval was granted by RMIT Research Ethics Committee (ethics approval number: 1000494) following national ethics standards. Detailed information about the background of the thesis, the design and methodology, as well as the survey questionnaire, was sent for assessment.
by the RMIT Human Research Ethics Committee. The main concern was to ensure that the respondents’ identity remained confidential in this thesis. The ethics approval appears in Appendix A. The plain language statement presented to respondents before collecting the data is in Appendix B.

4.11 Chapter Summary

This chapter has outlined the methods used in this research as well the approach, design, and pertinent analytical procedures. The researcher followed a positivist paradigm and employed a quantitative approach. The research design was guided by the quantitative approach in both knowledge compilation and the development of the conceptual model. The sampling strategy, common methods for controlling bias, the pre-power analysis and the data collection procedure were discussed. The development of a measurement scale, together with the results of the pre-test and pilot study, was addressed. Different statistical procedures including data screening and multivariate analyses such as EFA, CFA and SEM using SPSS and AMOS, were outlined.

This chapter has described how the data was appraised for missing values, outliers, and departures from normality. The method followed to discover missing data values and outliers indicated that no variable needed to be dropped from analysis. Ethical considerations were also briefly explained.
Chapter 5
Measurement Scale Analysis and Research Findings

5.1 Introduction

To ensure that data is objective and represents the fundamental phenomena precisely, researchers need to examine the reliability and validity of measurements (Straub 1989) to confirm the statistical conclusion is reliable and valid, stable and unbiased (Gefen, Straub & Boudreau 2000). Reliability estimates whether a measurement instrument is consistent on different occasions or in repeated situations, while validity refers to how accurate an instrument is for the intended measurement purpose (Field 2009).

This chapter discusses the methods used to make sure of the reliability and validity of the measurement instrument. It presents the details and outcomes of the analysis of measurement scales used to evaluate the constructs presented in the conceptual model. Reliability was tested for each of the six measurement scales. Factor analysis was performed on each scale to reveal and confirm the factors that stand for each construct. Section 5.2 presents a detailed demographic depiction of the respondents, and provides a profile of the organisations that participated in this thesis: data that was collected and presented to provide a general view of the participants in the study. This section also reports on and discusses the results of Mean and Standard Deviation (SD).

Section 5.3 presents the details and outcomes of the analysis of scale reliability by the examination of internal consistency and item-total correlations. Section 5.4 presents the procedures and outcomes of EFA, employed to reveal the suitable factor structures of the constructs of the research model, and to estimate the common method variance. It also displays the details and outcomes of CFA, conducted to confirm the structure of each construct and guarantee its reliability, validity and unidimensionality. Section 5.5 provides the main results of the hypotheses, and Section 5.6 presents a summary of this chapter.
5.2 Descriptive Analysis

5.2.1 Respondent Demographics

This section presents the profile of respondents with regard to gender, age, marital status, position, employment status, tenure and education level, information that they provided in the last section of the survey questionnaire (see Appendix C).

As mentioned, the sample for this thesis included SMEs from different industries in Australia. Table 5.1 shows a descriptive frequency table of respondents based on gender. 56 per cent (290 out of 514) of respondents were male, and 44 per cent (224 out of 514) were female.

Table 5.1 Distribution of respondents according to gender

<table>
<thead>
<tr>
<th>Gender</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>290</td>
<td>56</td>
</tr>
<tr>
<td>Female</td>
<td>224</td>
<td>44</td>
</tr>
<tr>
<td>Total</td>
<td>514</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Author

Table 5.2 presents respondents’ ages. The majority of respondents were 31 to 50 years old (76.3 per cent). Another 13.4 per cent of respondents were 21 to 30 years old, 9.5 per cent between 51 and 60, and almost 1 per cent were between 18 and 20 or more than 60 years old.

Table 5.2 Distribution of respondents according to age

<table>
<thead>
<tr>
<th>Age</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between 18 – 20</td>
<td>2</td>
<td>0.4</td>
</tr>
<tr>
<td>Between 21 – 30</td>
<td>69</td>
<td>13.4</td>
</tr>
<tr>
<td>Between 31 – 40</td>
<td>154</td>
<td>30</td>
</tr>
<tr>
<td>Between 41 – 50</td>
<td>238</td>
<td>46.3</td>
</tr>
<tr>
<td>Between 51 – 60</td>
<td>49</td>
<td>9.5</td>
</tr>
<tr>
<td>Over 60 years old</td>
<td>2</td>
<td>0.4</td>
</tr>
<tr>
<td>Total</td>
<td>514</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Author
As presented in Table 5.3, 62.1 per cent (319 out of 514) of respondents were married, 6.4 per cent (33 out of 514) of respondents were single and 31.5 per cent (162 out of 514) were neither married nor single.

Table 5.3 Distribution of respondents by marital status

<table>
<thead>
<tr>
<th>Marital Status</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>33</td>
<td>6.4</td>
</tr>
<tr>
<td>Married</td>
<td>319</td>
<td>62.1</td>
</tr>
<tr>
<td>Other</td>
<td>162</td>
<td>31.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>514</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: Author

As displayed in Table 5.4, 63.4 per cent (326 out of 514) of respondents held bachelor’s degrees, 20.6 per cent (106 out of 514) had TAFE qualifications, 14.6 per cent (75 out of 514) of respondents hold postgraduate qualifications, and 1.4 per cent (7 out of 514) of respondents had high school certificates or lower.

Table 5.4 Distribution of respondents by education

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School or Lower</td>
<td>7</td>
<td>1.4</td>
</tr>
<tr>
<td>TAFE Qualification</td>
<td>106</td>
<td>20.6</td>
</tr>
<tr>
<td>Bachelor Degree</td>
<td>326</td>
<td>63.4</td>
</tr>
<tr>
<td>Postgraduate Qualification</td>
<td>75</td>
<td>14.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>514</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: Author

According to Table 5.5, 58.6 per cent (301 out of 514) of respondents indicated having management job roles and 41.4 per cent (213 out of 514) held non-management positions. Another 41.4 per cent (213 out of 514) indicated they were employees.
Table 5.5 Distribution of respondents by position

<table>
<thead>
<tr>
<th>Position</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Founder</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>Owner</td>
<td>21</td>
<td>4</td>
</tr>
<tr>
<td>CEO</td>
<td>127</td>
<td>24.7</td>
</tr>
<tr>
<td>Managing Director</td>
<td>92</td>
<td>18</td>
</tr>
<tr>
<td>Director</td>
<td>31</td>
<td>6</td>
</tr>
<tr>
<td>Manager</td>
<td>19</td>
<td>3.7</td>
</tr>
<tr>
<td>Supervisor</td>
<td>1</td>
<td>0.2</td>
</tr>
<tr>
<td>Employee</td>
<td>213</td>
<td>41.4</td>
</tr>
<tr>
<td>Total</td>
<td>514</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Author

As shown in Table 5.6, 90.7 per cent (466 out of 514) of respondents indicated they had full-time employment, 7.8 per cent (40 out of 514) were part-time, and 1.5 per cent (8 out of 514) indicated they were casual employees.

Table 5.6 Distribution of respondents by employment

<table>
<thead>
<tr>
<th>Employment Status</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-time</td>
<td>466</td>
<td>90.7</td>
</tr>
<tr>
<td>Part-time</td>
<td>40</td>
<td>7.8</td>
</tr>
<tr>
<td>Casual</td>
<td>8</td>
<td>1.5</td>
</tr>
<tr>
<td>Total</td>
<td>514</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Author

As presented in Table 5.7, respondents with the highest median tenure were those with 4 years or fewer (56 per cent) and 5–7 years (32.1 per cent), respectively. Those who had held tenure for 8–10 years (9.2 per cent) and 11 years and above (2.7 per cent) had the lowest medians.
Table 5.7 Distribution of respondents by tenure

<table>
<thead>
<tr>
<th>Tenure</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 years and less</td>
<td>288</td>
<td>56</td>
</tr>
<tr>
<td>5 – 7 years</td>
<td>165</td>
<td>32.1</td>
</tr>
<tr>
<td>8 – 10 years</td>
<td>47</td>
<td>9.2</td>
</tr>
<tr>
<td>11 years and above</td>
<td>14</td>
<td>2.7</td>
</tr>
<tr>
<td>Total</td>
<td>514</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Author

5.2.2 Organisational Profiles

This section presents the profiles of respondent organisations with regard to size, state, operation, age of company, industry, sector, and business ownership. This information was provided by respondents answering the first section of the questionnaire (see Appendix C). Figure 5.1 is a descriptive frequency figure of SMEs based on business size: 74 per cent (381 out of 514) of SMEs were medium-sized (20–199 employees), and 26 per cent (133 out of 514) of SMEs were small-sized (118 with 5–19 employees and 15 with 1–4 employees).

Figure 5.1 Distribution of SMEs by business size

Source: Author
The number of SMEs by state and territory, based on their main state of operation in Australia, is shown in Figure 5.2. Three states, Victoria with 25 per cent (126 out of 514), New South Wales with 23 per cent (116 out of 514), and Queensland with 18 per cent (91 out of 514), accounted for 66 per cent of the SMEs that participated in the survey. The remaining 34 per cent divided between other states and territories.

Figure 5.2 Distribution of SMEs by state and territory

Source: Author

Figure 5.3 presents the distribution of SMEs by business operation: 40 per cent (207 out of 514), 43 per cent (221 out of 514), 9 per cent (44 out of 514) and 8 per cent (42 out of 514) of participated SMEs operate locally (only in one state), nationally (more than one state), locally and internationally, and nationally and internationally, respectively.
Figure 5.3 Distribution of SMEs by business operation
Source: Author

Based on Figure 5.4, 36 per cent (185 out of 514), 35 per cent (181 out of 514), 15 per cent (79 out of 514), 13 per cent (68 out of 514) of participating SMEs were 5–8 years, 9–12 years, more than 12 years and 1–4 years, respectively. One SME was less than a year old.

Figure 5.4 Distribution of SMEs by age of company
Source: Author
As presented in Figure 5.5, five industries accounted for over 80 per cent of respondent SMEs in this thesis:

- Professional, Scientific and Technical Services: 29 per cent (150 out of 514)
- Construction: 11 per cent (55 out of 514)
- Other Services: 11 per cent (55 out of 514)
- Information Media and Telecommunications: 10 per cent (52 out of 514)
- Financial and Insurance Services: 10 per cent (50 out of 514)
- Retail Trade: 10 per cent (47 out of 514)

![Figure 5.5 Distribution of SMEs by Industry](image)

**Figure 5.5 Distribution of SMEs by Industry**

Source: Author

According to Figure 5.6, 99 per cent (510 out of 514) of participating SMEs were from the private sector, and only 1 per cent (4 out of 514) from the public sector.
Based on Figure 5.7, the majority of participating SMEs were non-family owned businesses (95 per cent, 487 out of 514), while the remaining 5 per cent (27 out of 514) were family owned.

Figure 5.7 Distribution of SMEs by business ownership
Source: Author
5.2.3 Assessment of Mean and Standard Deviation (SD)

5.2.3.1 SME Leadership Behaviour

Twenty-four items on a 5-point Likert scale measured SME leadership behaviour. The Likert scale used measures of 1 = strongly disagree, 2 = disagree, 3 = neither disagree nor agree, 4 = agree, and 5 = strongly agree. Table 5.8 reports the means and standard deviations for this scale.

Table 5.8 Means and standard deviations for SME leadership behaviour

<table>
<thead>
<tr>
<th>Measure</th>
<th>Number</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supporting and stimulating creativity and innovation</td>
<td>514</td>
<td>4.31</td>
<td>0.71</td>
</tr>
<tr>
<td>Providing and motivating vision</td>
<td>514</td>
<td>3.94</td>
<td>0.88</td>
</tr>
<tr>
<td>Providing individual support</td>
<td>514</td>
<td>3.97</td>
<td>0.87</td>
</tr>
<tr>
<td>Total SME leadership behaviour</td>
<td>514</td>
<td>4.07</td>
<td>0.82</td>
</tr>
</tbody>
</table>

Source: Author

As presented in Table 5.8, the mean score for total SME leadership behaviour was 4.07 (SD=0.82). In regard to the factors of SME leadership behaviour, the highest mean was for supporting and stimulating creativity and innovation, with a mean score of 4.31 (SD=0.71). This was followed by providing individual support, with a mean score of 3.97 (SD=0.87). The mean score for providing and motivating vision was 3.94 (SD=0.88). This shows that in regard to the factors of SME leadership behaviour, the respondents (leaders and non-leaders) perceived that leaders practise the attributes of supporting and stimulating creativity and innovation more often than other forms of leadership behaviour.

5.2.3.2 Employees’ Creativity

Thirteen items on a 5-point Likert scale were used to measure employees’ creativity. The Likert scale used measures of 1 = not at all characteristic, 2 = a little bit, 3 = neutral, 4 = characteristic, and 5 = very characteristic. Table 5.9 reports the mean and standard deviation for this scale.
As presented in Table 5.9, the mean score for employees’ creativity was 4.04 (SD=0.79). This shows that the respondents (leaders and non-leaders) perceived employees as creative individuals.

### 5.2.3.3 Employees’ Innovative Behaviour

Ten items on a 5-point Likert scale were used to measure employees’ innovative behaviour. The Likert scale used measures of 1 = never, 2 = rarely, 3 = sometimes, 4 = most of the time, and 5 = always. Table 5.10 reports the mean and standard deviation for this scale.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Number</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employees’ Innovative Behaviour</td>
<td>514</td>
<td>3.84</td>
<td>0.83</td>
</tr>
</tbody>
</table>

As shown in Table 5.10, the mean score for employees’ innovative behaviour was 3.84 (SD=0.83). This indicates that the respondents (leaders and non-leaders) perceived employees as innovative individuals. The comparison of means in Tables 5.9 and 5.10 suggests that respondents perceived employees as more creative than innovative.

### 5.2.3.4 Employees’ Personal Initiative

Seven items on a 5-point Likert scale were used to measure employees’ personal initiative. The measures were 1 = strongly disagree, 2 = disagree, 3 = neither disagree nor agree, 4 = agree, and 5 = strongly agree. To measure employees’ personal initiative, the researcher considered answers from respondents who identified themselves as leaders and non-leaders (founders, owners, CEOs, managing directors, directors,
managers, supervisors and employees). Table 5.11 reports the mean and standard deviation of this scale.

Table 5.11 Mean and standard deviation for employees’ personal initiative

<table>
<thead>
<tr>
<th>Measure</th>
<th>Number</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employees’ personal initiative</td>
<td>514</td>
<td>3.89</td>
<td>0.63</td>
</tr>
</tbody>
</table>

Source: Author

As presented in Table 5.11, the mean score for employees’ personal initiative was 3.89 (SD=0.63). This shows that participating employees perceived themselves as showing initiative in identifying and solving problems.

5.2.3.5 Individuals’ Perceptions of a Supportive Climate for Innovation

Sixteen items on a 5-point Likert scale were used to measure individuals’ perceptions of a supportive climate for innovation. The measures were 1 = strongly disagree, 2 = disagree, 3 = neither disagree nor agree, 4 = agree, and 5 = strongly agree. Table 5.12 reports the mean and standard deviation for this construct.

Table 5.12 Mean and standard deviation for individuals’ perceptions of a supportive climate for innovation

<table>
<thead>
<tr>
<th>Measures</th>
<th>Number</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individuals’ perceptions of a supportive climate for innovation</td>
<td>514</td>
<td>3.89</td>
<td>0.83</td>
</tr>
</tbody>
</table>

Source: Author

As presented in Table 5.12, the mean score for individuals’ perceptions of a supportive climate for innovation was 3.89 (SD=0.83). This shows that the respondents (leaders and non-leaders) perceived the climate supported creativity and innovative behaviour.

5.2.3.6 Individuals’ Emotional Intelligence

Sixteen items on a 5-point Likert scale were used to measure individuals’ emotional intelligence. The measures were 1 = strongly disagree, 2 = disagree, 3 = neither disagree nor agree, 4 = agree, and 5 = strongly agree. To measure individuals’ emotional
intelligence, the researcher considered answers from respondents who identified themselves as leaders and non-leaders (founders, owners, CEOs, managing directors, directors, managers, supervisors and employees). Table 5.13 reports the means and standard deviations for the individuals’ emotional intelligence scale.

**Table 5.13 Means and standard deviations for individuals’ emotional intelligence**

<table>
<thead>
<tr>
<th>Measure</th>
<th>Number</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-emotion appraisal</td>
<td>514</td>
<td>4.26</td>
<td>0.66</td>
</tr>
<tr>
<td>Others’ emotion appraisal</td>
<td>514</td>
<td>3.46</td>
<td>0.87</td>
</tr>
<tr>
<td>Use of emotion</td>
<td>514</td>
<td>4.11</td>
<td>0.71</td>
</tr>
<tr>
<td>Regulation of emotion</td>
<td>514</td>
<td>3.72</td>
<td>0.80</td>
</tr>
<tr>
<td>Total individuals’ emotional intelligence</td>
<td>514</td>
<td>3.89</td>
<td>0.76</td>
</tr>
</tbody>
</table>

Source: Author

As presented in Table 5.13, the mean score for total individuals’ emotional intelligence was 3.89 (SD=0.76). In regard to the factors of individuals’ emotional intelligence, the highest mean was for self-emotion appraisal, with a mean score of 4.26 (SD=0.66). This was followed by use of emotion, with a mean score of 4.11 (SD=0.71). The mean score for regulation of emotion was 3.72 (SD=0.80). The mean score for others’ emotion appraisal was 3.46 (SD=0.87). This shows that participating individuals (leaders and non-leaders) perceived that they practised the attribute of self-emotion appraisal more often than the other attributes of emotional intelligence.

**5.3 Measurement Reliability**

As discussed in Chapter 3, six independent scales were utilised in the survey questionnaire to determine the constructs suggested in the research model. These six scales are SME Leadership Behaviour (SMELB), Employees’ Creativity (EC), Employees’ Innovative Behaviour (EIB), Employees’ Personal Initiative (EPI), Individuals’ Perceptions of a Supportive Climate for Innovation (IPSCFI), and Individuals’ Emotional Intelligence (IEI).

To ensure that this set of measurement scales accurately and consistently captured the meaning of the constructs, an analysis of scale reliability was conducted by estimating
internal consistency and item-total correlations. Every estimation method and its related outcomes is shown in Sections 5.3.1 and 5.3.2.

5.3.1 Internal Consistency

Internal consistency refers to the level to which responses are consistent across the items in a measurement scale (Kline 2010). It is measured by the Cronbach’s alpha coefficient, which is the assessment correlation of instrument items (Churchill 1979). When Cronbach’s alpha is low, it indicates that items are disharmonic and do not represent the measure (Kline 2010). Churchill (1979) stressed that to estimate the quality of scale, researchers should first measure Cronbach’s alpha. According to Hair et al. (2010), alpha coefficients of 0.60 to 0.70 are the acceptable lower limit. Kline (2010) proposed a guideline for the acceptance of an alpha coefficient:

- a value around 0.70 is adequate
- a value around 0.80 is very good
- a value around 0.90 is excellent.

Table 5.14 exhibits the Cronbach’s alphas of the construct’s measurement scales, ranging from 0.879 to 0.967, based on Hair et al. (2010). They were all above the lower limit of acceptability (0.60 to 0.70). Regarding Kline’s (2010) suggestions, all items fell in ranges that are considered very good and excellent. These results show that the measurement scales consist of a set of homogeneous items for measuring the meaning of the constructs.

Table 5.14 Cronbach’s alphas of measurement scales

<table>
<thead>
<tr>
<th>Measurement Scale</th>
<th>Number of Items</th>
<th>Cronbach Alpha</th>
<th>Acceptance</th>
</tr>
</thead>
<tbody>
<tr>
<td>SME Leadership Behaviour</td>
<td>24</td>
<td>0.964</td>
<td>Excellent</td>
</tr>
<tr>
<td>Employees’ Creativity</td>
<td>13</td>
<td>0.945</td>
<td>Excellent</td>
</tr>
<tr>
<td>Employees’ Innovative Behaviour</td>
<td>10</td>
<td>0.944</td>
<td>Excellent</td>
</tr>
<tr>
<td>Employees’ Personal Initiative</td>
<td>7</td>
<td>0.879</td>
<td>Very Good</td>
</tr>
<tr>
<td>Individuals’ Perceptions of a Supportive Climate for Innovation</td>
<td>16</td>
<td>0.967</td>
<td>Excellent</td>
</tr>
<tr>
<td>Individuals’ Emotional Intelligence</td>
<td>16</td>
<td>0.955</td>
<td>Excellent</td>
</tr>
</tbody>
</table>

Source: Author
5.3.2 Item-Total Correlations

Item-total correlation refers to the correlation of an item with the composite score of all items constituting the measure of the construct (Lu, Lai & Cheng 2007). In line with Churchill (1979), Koufteros (1999) noted that if all items share a common core of the same construct, the score of each item and that of the whole construct must be highly correlated. Kline (2010) and Churchill (1979) suggested that this analysis be conducted to purify the assessment of uncorrelated items before finding the factors that represent the construct.

The corrected item-total correlation was performed for each of the six constructs’ items using SPSS. According to Koufteros (1999), the corrected item-total correlation keeps out the score of an item of interest when computing the composite score. Pallant (2011) suggested that a value of a corrected item-total correlation of lower than 0.30 reveals that the item is gauging something different from the construct. The outcomes of item-total correlations exhibited in Table 5.15 indicate that all of the items within each construct seem to measure the same concept, as their corrected item-total correlations are above 0.30; hence, all items were retained for further analysis.

Table 5.15 Item-total correlations of the construct items

<table>
<thead>
<tr>
<th>Items</th>
<th>Corrected Item – Total Correlation</th>
<th>Items</th>
<th>Corrected Item – Total Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>SME Leadership Behaviour (SMELB) Items</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SMELB1</td>
<td>0.650</td>
<td>SMELB13</td>
<td>0.707</td>
</tr>
<tr>
<td>SMELB2</td>
<td>0.676</td>
<td>SMELB14</td>
<td>0.752</td>
</tr>
<tr>
<td>SMELB3</td>
<td>0.683</td>
<td>SMELB15</td>
<td>0.719</td>
</tr>
<tr>
<td>SMELB4</td>
<td>0.683</td>
<td>SMELB16</td>
<td>0.742</td>
</tr>
<tr>
<td>SMELB5</td>
<td>0.654</td>
<td>SMELB17</td>
<td>0.709</td>
</tr>
<tr>
<td>SMELB6</td>
<td>0.656</td>
<td>SMELB18</td>
<td>0.747</td>
</tr>
<tr>
<td>SMELB7</td>
<td>0.680</td>
<td>SMELB19</td>
<td>0.703</td>
</tr>
<tr>
<td>SMELB8</td>
<td>0.708</td>
<td>SMELB20</td>
<td>0.713</td>
</tr>
<tr>
<td>SMELB9</td>
<td>0.753</td>
<td>SMELB21</td>
<td>0.718</td>
</tr>
<tr>
<td>SMELB10</td>
<td>0.751</td>
<td>SMELB22</td>
<td>0.716</td>
</tr>
<tr>
<td>SMELB11</td>
<td>0.785</td>
<td>SMELB23</td>
<td>0.736</td>
</tr>
<tr>
<td>SMELB12</td>
<td>0.756</td>
<td>SMELB24</td>
<td>0.720</td>
</tr>
<tr>
<td>Employees’ Creativity (EC) Items</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EC1</td>
<td>0.742</td>
<td>EC8</td>
<td>0.718</td>
</tr>
<tr>
<td>EC2</td>
<td>0.749</td>
<td>EC9</td>
<td>0.704</td>
</tr>
<tr>
<td>EC3</td>
<td>0.594</td>
<td>EC10</td>
<td>0.755</td>
</tr>
<tr>
<td>EC4</td>
<td>0.710</td>
<td>EC11</td>
<td>0.768</td>
</tr>
<tr>
<td>EC5</td>
<td>0.711</td>
<td>EC12</td>
<td>0.813</td>
</tr>
<tr>
<td>Items</td>
<td>Corrected Item – Total Correlation</td>
<td>Items</td>
<td>Corrected Item – Total Correlation</td>
</tr>
<tr>
<td>------------</td>
<td>-----------------------------------</td>
<td>------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>EC6</td>
<td>0.728</td>
<td>EC13</td>
<td>0.806</td>
</tr>
<tr>
<td>EC7</td>
<td>0.757</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Employees’ Innovative Behaviour (EIB) Items</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EIB1</td>
<td>0.781</td>
<td>EIB6</td>
<td>0.741</td>
</tr>
<tr>
<td>EIB2</td>
<td>0.795</td>
<td>EIB7</td>
<td>0.772</td>
</tr>
<tr>
<td>EIB3</td>
<td>0.718</td>
<td>EIB8</td>
<td>0.798</td>
</tr>
<tr>
<td>EIB4</td>
<td>0.760</td>
<td>EIB9</td>
<td>0.739</td>
</tr>
<tr>
<td>EIB5</td>
<td>0.749</td>
<td>EIB10</td>
<td>0.832</td>
</tr>
<tr>
<td><strong>Employees’ Personal Initiative (EPI) Items</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EPI1</td>
<td>0.679</td>
<td>EPI5</td>
<td>0.652</td>
</tr>
<tr>
<td>EPI2</td>
<td>0.734</td>
<td>EPI6</td>
<td>0.710</td>
</tr>
<tr>
<td>EPI3</td>
<td>0.549</td>
<td>EPI7</td>
<td>0.728</td>
</tr>
<tr>
<td>EPI4</td>
<td>0.606</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Individuals’ Perceptions of a Supportive Climate for Innovation (IPSCFI) Items</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IPSCFI1</td>
<td>0.819</td>
<td>IPSCFI9</td>
<td>0.795</td>
</tr>
<tr>
<td>IPSCFI2</td>
<td>0.843</td>
<td>IPSCFI10</td>
<td>0.815</td>
</tr>
<tr>
<td>IPSCFI3</td>
<td>0.802</td>
<td>IPSCFI11</td>
<td>0.692</td>
</tr>
<tr>
<td>IPSCFI4</td>
<td>0.823</td>
<td>IPSCFI12</td>
<td>0.781</td>
</tr>
<tr>
<td>IPSCFI5</td>
<td>0.826</td>
<td>IPSCFI13</td>
<td>0.778</td>
</tr>
<tr>
<td>IPSCFI6</td>
<td>0.834</td>
<td>IPSCFI14</td>
<td>0.725</td>
</tr>
<tr>
<td>IPSCFI7</td>
<td>0.866</td>
<td>IPSCFI15</td>
<td>0.784</td>
</tr>
<tr>
<td>IPSCFI8</td>
<td>0.735</td>
<td>IPSCFI16</td>
<td>0.762</td>
</tr>
<tr>
<td><strong>Individuals’ Emotional Intelligence (IEI) Items</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IEI1</td>
<td>0.671</td>
<td>IEI9</td>
<td>0.731</td>
</tr>
<tr>
<td>IEI2</td>
<td>0.677</td>
<td>IEI10</td>
<td>0.753</td>
</tr>
<tr>
<td>IEI3</td>
<td>0.608</td>
<td>IEI11</td>
<td>0.752</td>
</tr>
<tr>
<td>IEI4</td>
<td>0.670</td>
<td>IEI12</td>
<td>0.721</td>
</tr>
<tr>
<td>IEI5</td>
<td>0.812</td>
<td>IEI13</td>
<td>0.770</td>
</tr>
<tr>
<td>IEI6</td>
<td>0.805</td>
<td>IEI14</td>
<td>0.777</td>
</tr>
<tr>
<td>IEI7</td>
<td>0.766</td>
<td>IEI15</td>
<td>0.716</td>
</tr>
<tr>
<td>IEI8</td>
<td>0.781</td>
<td>IEI16</td>
<td>0.780</td>
</tr>
</tbody>
</table>

Source: Author

SMELB=SME Leadership Behaviour; EC=Employees’ Creativity; EIB=Employees’ Innovative Behaviour; EPI=Employees’ Personal Initiative; IPSCFI=Individuals’ Perceptions of a Supportive Climate for Innovation; IEI=Individuals’ Emotional Intelligence

### 5.4 Development of Path Model

#### 5.4.1 Exploratory Factor Analysis

To estimate the validity of scales, exploratory factor analysis (EFA) was conducted to reduce the large number of items into a smaller, more controllable set of dimensions (Hair et al. 2010). Broadly, the EFA can be conducted by employing either R-type or Q-type factor analysis. The former aims to find a set of dimensions that is hidden in a large set of items, while the latter aims to condense large numbers of people into separate
groups (Hair et al. 2010). The R-type was adopted since the main purpose of this assessment was to allocate the items to dimensions in a set.

According to Russell (2002), EFA must be employed to understand whether a theoretical construct is a single or multidimensional factor, which gives a clear estimation of the factor structure of the measures. As suggested by Gerbing and Anderson (1988), EFA is very useful in the absence of an adequately detailed theory about the connections of items to constructs. The researcher took this vital advice, since the SME leadership behaviour measure developed specifically in this thesis had never been developed or validated before. It is important to mention that all items for this construct were adopted from a comprehensive literature review and prior studies. Since a different scale estimated each construct, EFA was employed individually for each construct. Sections 5.4.1.1 to 5.4.1.4 outline the details of the analysis.

5.4.1.1 Factorability of Data

To establish the suitability of the collected data for the six EFA models, factorability was examined. The Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) and Bartlett’s test of sphericity both estimate the factorability of data (Coakes 2012; Pallant 2011). According to Hair et al. (2010), data is factorable when the KMO is between 0.5 and 1 and Bartlett’s test of sphericity is significant (< 0.05). Tabachnick and Fidell (2007) and Coakes (2012) suggested data is factorable if the KMO is above 0.60.

As shown in Table 5.16 (KMO and Bartlett’s test of sphericity), the values of KMO for each construct ranged from 0.897 to 0.968, considerably above the minimum satisfactory level (>0.60) and therefore showing sampling adequacy. The results of Bartlett’s test of sphericity for each construct were significant (<0.05), showing there were sufficient associations between the items involved in the analysis (Field 2009; Hair et al. 2010). These findings endorsed the factorability of the EFA (Hair et al. 2010; Pallant 2011). This result definitely supports conducting EFA.
Table 5.16 KMO and Bartlett’s Test of Sphericity

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Number of items</th>
<th>KMO</th>
<th>Bartlett’s test of sphericity</th>
</tr>
</thead>
<tbody>
<tr>
<td>SME Leadership Behaviour</td>
<td>24</td>
<td>0.954</td>
<td>0.000</td>
</tr>
<tr>
<td>Employees’ Creativity</td>
<td>13</td>
<td>0.956</td>
<td>0.000</td>
</tr>
<tr>
<td>Employees’ Innovative Behaviour</td>
<td>10</td>
<td>0.952</td>
<td>0.000</td>
</tr>
<tr>
<td>Employees’ Personal Initiative</td>
<td>7</td>
<td>0.897</td>
<td>0.000</td>
</tr>
<tr>
<td>Individuals’ Perceptions of a Supportive Climate for Innovation</td>
<td>16</td>
<td>0.968</td>
<td>0.000</td>
</tr>
<tr>
<td>Individuals’ Emotional Intelligence</td>
<td>16</td>
<td>0.931</td>
<td>0.000</td>
</tr>
<tr>
<td>Overall</td>
<td>86</td>
<td>0.981</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Source: Author

5.4.1.2 Factor Extraction and Rotation

Once the appropriateness of the data for factor analysis is determined, the EFA follows two steps: factor extraction; and factor rotation and explanation (Pallant 2011). Factor extraction aims to find out factors, while factor rotation aims to improve the explanation of a given factor solution (Field 2009; Tabachnick & Fidell 2007).

To conduct factor extraction, this thesis used principal component analysis PCA to define the factors required to represent the structure of the items. To achieve this, four criteria were used: 1) latent root criterion; 2) Catell’s scree test; 3) percentage of variance criterion; and 4) a priori criterion (Hair et al. 2010). The latent root criterion recommends that factors having an eigenvalue above 1 are significant and those below 1 must be ignored. The Catell’s scree test uses a graphical plot of eigenvalues versus the number of factors in their arrangement of extraction. An immediate change of incline in the curve shows the highest number of factors to be extracted. The percentage of variance criterion guarantees actual significance for the extracted factors, through which the particular amount of variance is interpreted (Hair et al. 2010). According to Hair et al. (2010), it is common to consider a solution that explains 60 per cent or less of the total variance in a social science study, because in this field the data by nature is frequently less exact. A priori criterion is a reasonable and simple criterion, when the number of factors is known earlier to conduct the factor analysis. They emphasised that researchers must unite the conceptual basis with empirical evidence to decide the
correct and appropriate number of factors to extract or keep, preferably relying only on the outcomes from each particular criterion (Hair et al. 2010).

Once the factors are extracted, it is proper to decide the degree to which the items load onto these factors (Field 2009). According to Tabachnick and Fidell (2007) and Hair et al. (2010), despite the extraction method conducted, the first factor solution is not appropriate to provide a sufficient explanation in most cases, since the majority of items have high loading on the most significant factors, and small loading on the remaining factors. To overcome this problem factor rotation was used to obtain more significant and simpler solutions. The Varimax rotation method was employed for two following reasons:

- It is the most commonly conducted and simplest rotation method.
- It can load items to factors clearly (Hair et al. 2010).

After the factors were loaded, a particular criterion was used to give reasons for the significance of the factor loadings to make sure there was a significant correlation between item and factor (Hair et al. 2010; Tabachnick & Fidell 2007). A cut-off factor loading of 0.50 was employed to guarantee that each item for each factor was significant (Hair et al. 2010). Sections 5.4.1.3 and 5.4.1.4 exhibit the outcomes of the EFA.

**5.4.1.3 EFA Outcomes**

EFA was employed for each of the six constructs separately, using SPSS (version 22). The scree test discovered three factors accounting for 66.2 per cent of the total variance for the construct of SME leadership behaviour. Table 5.17 shows that six items (SMELB25 to SMELB30) did not load sufficiently (<0.50), and therefore were removed from previous and further analyses. These six items constituted the component encouraging decision-making, based on the result of the measurement development.
Table 5.17 Rotated factor loadings of the 30 items of the SMELB construct

<table>
<thead>
<tr>
<th>Items</th>
<th>Rotated Component</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>SMELB1</td>
<td>0.786</td>
</tr>
<tr>
<td>SMELB2</td>
<td>0.789</td>
</tr>
<tr>
<td>SMELB3</td>
<td>0.656</td>
</tr>
<tr>
<td>SMELB4</td>
<td>0.656</td>
</tr>
<tr>
<td>SMELB5</td>
<td>0.614</td>
</tr>
<tr>
<td>SMELB6</td>
<td>0.620</td>
</tr>
<tr>
<td>SMELB7</td>
<td>0.740</td>
</tr>
<tr>
<td>SMELB8</td>
<td>0.727</td>
</tr>
<tr>
<td>SMELB9</td>
<td>0.357</td>
</tr>
<tr>
<td>SMELB10</td>
<td>0.311</td>
</tr>
<tr>
<td>SMELB11</td>
<td>0.320</td>
</tr>
<tr>
<td>SMELB12</td>
<td>0.294</td>
</tr>
<tr>
<td>SMELB13</td>
<td>0.209</td>
</tr>
<tr>
<td>SMELB14</td>
<td>0.252</td>
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<tr>
<td>SMELB15</td>
<td>0.243</td>
</tr>
<tr>
<td>SMELB16</td>
<td>0.326</td>
</tr>
<tr>
<td>SMELB17</td>
<td>0.301</td>
</tr>
<tr>
<td>SMELB18</td>
<td>0.279</td>
</tr>
<tr>
<td>SMELB19</td>
<td>0.252</td>
</tr>
<tr>
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<td>0.242</td>
</tr>
<tr>
<td>SMELB21</td>
<td>0.221</td>
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<tr>
<td>SMELB22</td>
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<td>0.281</td>
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<td>SMELB24</td>
<td>0.306</td>
</tr>
<tr>
<td>SMELB25</td>
<td>0.437</td>
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<td>SMELB26</td>
<td>0.467</td>
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<tr>
<td>SMELB27</td>
<td>0.443</td>
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<td>SMELB28</td>
<td>0.456</td>
</tr>
<tr>
<td>SMELB29</td>
<td>0.492</td>
</tr>
<tr>
<td>SMELB30</td>
<td>0.408</td>
</tr>
</tbody>
</table>

Source: Author
Note: Cumulative variance explained = 64.5%; Cronbach’s alpha coefficient = 0.972.

The remaining 24 items were matched with the theoretical factor structure presented in Chapter 4 (see 4.6.6.1) for the construct of SME leadership behaviour. Cronbach’s alpha was recomputed and yielded a value of 0.964 (before removing six items it was 0.972), showing that the modified scale was reliable. Three factors extracted from the 24 SME Leadership Behaviour items (Table 5.18) are summarised below:

- supporting and stimulating creativity and innovation (component 1, 8 items)
- providing and motivating vision (component 2, 8 items)
- providing individual support (component 3, 8 items).
Since the Employees’ Creativity construct has only one factor, the criterion for extracting for this construct was a priori. The outcomes indicate that the predetermined single factor accounted for 60.8 per cent. All loadings of the 13 items, as shown in Table 5.19, were above the threshold level of 0.50 and ranged from 0.646 to 0.848; therefore, all were kept for further analysis.
Table 5.19 Rotated factor loadings of the EC Construct

<table>
<thead>
<tr>
<th>Items</th>
<th>Rotated Component</th>
<th>Items</th>
<th>Rotated Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC1</td>
<td>0.789</td>
<td>EC8</td>
<td>0.762</td>
</tr>
<tr>
<td>EC2</td>
<td>0.795</td>
<td>EC9</td>
<td>0.751</td>
</tr>
<tr>
<td>EC3</td>
<td>0.646</td>
<td>EC10</td>
<td>0.798</td>
</tr>
<tr>
<td>EC4</td>
<td>0.754</td>
<td>EC11</td>
<td>0.810</td>
</tr>
<tr>
<td>EC5</td>
<td>0.757</td>
<td>EC12</td>
<td>0.848</td>
</tr>
<tr>
<td>EC6</td>
<td>0.776</td>
<td>EC13</td>
<td>0.840</td>
</tr>
<tr>
<td>EC7</td>
<td>0.800</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Author
Note: Cumulative variance explained = 60.8%; Cronbach’s alpha coefficient = 0.945.

While the Employees’ Innovative Behaviour construct has only one factor, the criterion for extracting for this construct was a priori. The results indicate that the predetermined single factor accounted for 66.7 per cent. All loadings of the ten items, as shown in Table 5.20, were above the threshold level of 0.50 and ranged from 0.771 to 0.870; therefore, all were retained for further analysis.

Table 5.20 Rotated factor loadings of the EIB construct

<table>
<thead>
<tr>
<th>Items</th>
<th>Rotated Component</th>
<th>Items</th>
<th>Rotated Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>EIB1</td>
<td>0.830</td>
<td>EIB6</td>
<td>0.793</td>
</tr>
<tr>
<td>EIB2</td>
<td>0.841</td>
<td>EIB7</td>
<td>0.817</td>
</tr>
<tr>
<td>EIB3</td>
<td>0.771</td>
<td>EIB8</td>
<td>0.842</td>
</tr>
<tr>
<td>EIB4</td>
<td>0.809</td>
<td>EIB9</td>
<td>0.789</td>
</tr>
<tr>
<td>EIB5</td>
<td>0.801</td>
<td>EIB10</td>
<td>0.870</td>
</tr>
</tbody>
</table>

Source: Author
Note: Cumulative variance explained = 66.7%; Cronbach’s alpha coefficient = 0.944.

Since the Employees’ Personal Initiative construct has only one factor, the criterion for extracting for this construct was a priori. The findings reveal that the predetermined single factor accounted for 58.5 per cent. All loadings of the seven items, presented in Table 5.21, were above the threshold level of 0.50 and ranged from 0.653 to 0.824; therefore, all were kept for further analysis.
Table 5.21 Rotated factor loadings of the EPI construct

<table>
<thead>
<tr>
<th>Items</th>
<th>Rotated Component</th>
<th>Items</th>
<th>Rotated Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPI1</td>
<td>0.783</td>
<td>EPI5</td>
<td>0.747</td>
</tr>
<tr>
<td>EPI2</td>
<td>0.824</td>
<td>EPI6</td>
<td>0.806</td>
</tr>
<tr>
<td>EPI3</td>
<td>0.653</td>
<td>EPI7</td>
<td>0.818</td>
</tr>
<tr>
<td>EPI4</td>
<td>0.706</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Author
Note: Cumulative variance explained = 58.5%; Cronbach’s alpha coefficient = 0.879.

As the Individuals’ Perceptions of a Supportive Climate for Innovation construct has only one factor, the criterion for extracting for it was a priori. The results show that the predetermined single factor accounted for 67.3 per cent. All loadings of the 16 items, presented in Table 5.22, were above the threshold level of 0.50 and ranged from 0.726 to 0.887; therefore, all were retained for further analysis.

Table 5.22 Rotated factor loadings of the IPSCFI construct

<table>
<thead>
<tr>
<th>Items</th>
<th>Rotated Component</th>
<th>Items</th>
<th>Rotated Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPSCFI1</td>
<td>0.845</td>
<td>IPSCFI9</td>
<td>0.821</td>
</tr>
<tr>
<td>IPSCFI2</td>
<td>0.866</td>
<td>IPSCFI10</td>
<td>0.841</td>
</tr>
<tr>
<td>IPSCFI3</td>
<td>0.827</td>
<td>IPSCFI11</td>
<td>0.726</td>
</tr>
<tr>
<td>IPSCFI4</td>
<td>0.849</td>
<td>IPSCFI12</td>
<td>0.808</td>
</tr>
<tr>
<td>IPSCFI5</td>
<td>0.850</td>
<td>IPSCFI13</td>
<td>0.805</td>
</tr>
<tr>
<td>IPSCFI6</td>
<td>0.857</td>
<td>IPSCFI14</td>
<td>0.760</td>
</tr>
<tr>
<td>IPSCFI7</td>
<td>0.887</td>
<td>IPSCFI15</td>
<td>0.814</td>
</tr>
<tr>
<td>IPSCFI8</td>
<td>0.766</td>
<td>IPSCFI16</td>
<td>0.794</td>
</tr>
</tbody>
</table>

Source: Author
Note: Cumulative variance explained = 67.3%; Cronbach’s alpha coefficient = 0.967.

An a priori criterion was used to produce the four factors of the Individuals’ Emotional Intelligence construct, because the construct was conceptualised as having four separate components: self-emotion appraisal, others’ emotion appraisal, use of emotion, and regulation of emotion. These predetermined factors accounted for 83 per cent of the total variance explained. All 16 items, exhibited in Table 5.23, with factor loadings ranging from 0.698 to 0.832, were retained.
Table 5.23 Rotated factor loadings of the IEI construct

<table>
<thead>
<tr>
<th>Items</th>
<th>Rotated Component</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>IEI1</td>
<td>0.812</td>
</tr>
<tr>
<td>IEI2</td>
<td>0.814</td>
</tr>
<tr>
<td>IEI3</td>
<td>0.832</td>
</tr>
<tr>
<td>IEI4</td>
<td>0.808</td>
</tr>
<tr>
<td>IEI5</td>
<td>0.245</td>
</tr>
<tr>
<td>IEI6</td>
<td>0.224</td>
</tr>
<tr>
<td>IEI7</td>
<td>0.180</td>
</tr>
<tr>
<td>IEI8</td>
<td>0.237</td>
</tr>
<tr>
<td>IEI9</td>
<td>0.401</td>
</tr>
<tr>
<td>IEI10</td>
<td>0.315</td>
</tr>
<tr>
<td>IEI11</td>
<td>0.281</td>
</tr>
<tr>
<td>IEI12</td>
<td>0.265</td>
</tr>
<tr>
<td>IEI13</td>
<td>0.252</td>
</tr>
<tr>
<td>IEI14</td>
<td>0.251</td>
</tr>
<tr>
<td>IEI15</td>
<td>0.117</td>
</tr>
<tr>
<td>IEI16</td>
<td>0.237</td>
</tr>
</tbody>
</table>

Source: Author
Note: Cumulative variance explained = 83%; Cronbach’s alpha coefficient = 0.957.

5.4.1.4 Common Method Variance Test

To find the number of factors (dimensions), EFA was conducted to estimate the common method variance through Harman’s one factor test. In this test, the presence of a substantial amount of common method variance is found when one factor emerges from the factor analysis, or when a general factor explains the majority of the covariance (>50 per cent) between the measures (Podsakoff et al. 2003). EFA was conducted on all 86 items, based on these criteria. The findings show that all 86 items were extracted into ten factors accounting for 70 per cent of the variances in the measures (Table 5.24). The largest factor describes only 14 per cent of the variance in the measures (< 50 per cent); therefore, the results indicate that common method variance was not a concern.
### Table 5.24 Common method variance test

<table>
<thead>
<tr>
<th>Components</th>
<th>Initial Eigenvalues</th>
<th>Extraction Sums of Squared Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>% of Variance</td>
</tr>
<tr>
<td>4</td>
<td>7.976</td>
<td>9.275</td>
</tr>
<tr>
<td>5</td>
<td>5.304</td>
<td>6.168</td>
</tr>
<tr>
<td>6</td>
<td>5.048</td>
<td>5.869</td>
</tr>
<tr>
<td>7</td>
<td>4.749</td>
<td>5.522</td>
</tr>
<tr>
<td>8</td>
<td>3.300</td>
<td>3.837</td>
</tr>
<tr>
<td>9</td>
<td>2.135</td>
<td>2.483</td>
</tr>
<tr>
<td>10</td>
<td>1.170</td>
<td>1.361</td>
</tr>
</tbody>
</table>

Source: Author

#### 5.4.2 Confirmatory Factor Analysis (CFA)

The EFA conducted in the previous section found a number of factors (dimensions) and confirmed the reliability of the measurement scales that supported the constructs. However, this technique does not provide an extensive estimation of construct validity and unidimensionality (Gerbing & Anderson 1988; Hair et al. 2010). According to Hair et al. (2010), construct validity indicates the extent to which a set of measured items actually reflects the construct. Unidimensionality assesses the existence of a single construct supporting a set of measured items (Gerbing & Anderson 1988).

To estimate construct validity and unidimensionality appropriately, CFA was used. According to Gerbing and Anderson (1988), CFA is the best method, preferred over EFA as it provides an absolute estimation. By conducting CFA, researchers can assess the structure of factors and whether its particular pattern of loadings matches the data (Hair et al. 2010). DiStefano and Hess (2005) noted that CFA may be helpful in terms of refining an existing model, supporting an existing structure, and assessing a known factorial structure in additional populations. To strengthen the outcomes of EFA, CFA was conducted to support the recognised factor structures. The method included testing how well the factor structure of the model constructs fitted the data, and assessing the model indices to examine construct validity and unidimensionality. According to Hair et al. (2010), the factor structure is considered a CFA model, which draws a set of
associations to present how the measured items stand for latent factors. Sections 5.4.2.1 to 5.4.2.3 provide details of the analysis.

**5.4.2.1 Estimation of Model Fit and Assessment Methods**

To determine how well a particular factor model depicts the data, model fit indices were examined. Usually, if the fit parameters (indices) are confirmed as good, the model is accepted. In preference to outright rejection, a model with unacceptable fit parameters is usually respecified to improve model fit. Fit parameters are commonly categorised as either absolute or incremental (Hoyle & Panter 1995); these two types are explained below.

Absolute fit indices indicate the degree to which the proposed model produces the sample again (Shah & Goldstein 2006). The basic index for this is Chi-square (X\(^2\)) statistics, which contain the value of X\(^2\), degree of freedom (df) and significant level (p-value). The non-significant X\(^2\) shows that the model fits the data and therefore must be acceptable. The significant X\(^2\) indicates that the model does not fit the data and hence must be rejected. Because of this traditional rule, there is some lack of clarity involved in explaining X\(^2\) (Hoyle & Panter 1995). Kline (2010) added that when the sample size is large, X\(^2\), which is a function of sample size, is considered biased. Therefore, multiple alternative fit indices have been produced to measure the degree of model fit (Shah & Goldstein 2006). Some of these alternative fit indices are:

- Normed chi-square (X\(^2\)/df);
- Goodness-of-fit index (GFI);
- Adjusted-goodness-of-fit index (AGFI);
- Standardised root mean-square residual (SRMR); and
- Root mean-square error of approximation (RMSEA)

According to Hoyle and Panter (1995) and Shah and Goldstein (2006), incremental fit indices indicate the degree to which one model is superior to the alternative models: 1) the null mode, in which no covariances between the items are found; and 2) the model that fits ideally with the data. Some of the most common incremental fit indices are:

- Normed-fit index (NFI);
According to Hair et al. (2010), besides chi-square ($X^2$) value and degree of freedom (df), at least one incremental index (CFI or TLI) and one absolute index (RMSEA or SRMR) must be reported. For this thesis, five model fit indices were used: $X^2$/df, RMSEA, CFI, TLI and IFI. The sample size for measuring SME leadership behaviour, employees’ creativity, employees’ innovative behaviour, individuals’ perceptions of a supportive climate for innovation, employees’ personal initiative, and individuals’ emotional intelligence is 514; the number of observed items is more than 30. Following the suggestions of Byrne (2010) and Kline (2010), this thesis evaluated model fit based on chosen fit measures as summarised in Table 5.25.

Table 5.25 Criteria for a model fit

<table>
<thead>
<tr>
<th>Type</th>
<th>Model Fit Indices</th>
<th>Abbreviation</th>
<th>Acceptable Values of a Good Fit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absolute fit indices</td>
<td>Relative chi-square</td>
<td>$X^2$/df</td>
<td>1 &lt; value &lt; 5</td>
</tr>
<tr>
<td></td>
<td>Root mean-square error of</td>
<td>RMSEA</td>
<td>Values &lt; 0.08/0.10</td>
</tr>
<tr>
<td></td>
<td>approximation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incremental fit indices</td>
<td>Comparative-fit index</td>
<td>CFI</td>
<td>&gt; 0.90</td>
</tr>
<tr>
<td></td>
<td>Tucker-Lewis index</td>
<td>TLI</td>
<td>&gt; 0.90</td>
</tr>
<tr>
<td></td>
<td>Incremental-fit index</td>
<td>IFI</td>
<td>&gt; 0.90</td>
</tr>
</tbody>
</table>

Source: Hair et al. (2010)

5.4.2.2 Estimation of Construct Validity and Unidimensionality

Branine and Pollard (2010) noted that the construct validity of the scales could be estimated by its convergent validity and discriminant validity. Convergent validity estimates the extent to which the items establishing the construct converge or have a high ratio of variance in common, while discriminant validity assesses the extent to which a construct is distinct from other model constructs (Hair et al. 2010). The various measures of convergent validity are briefly discussed below.

The test of convergent validity concentrates on the extent of the standardised factor loadings together with their significant level. The greater the factor loadings with parallel significant t-values, the stronger the proof that the measured items stand for the
model constructs (Bollen 1989). According to Hair et al. (2010), the factor loadings must be larger than 0.50. Koufteros (1999) argued that significant t-values must meet in order to indicate convergent validity. Additionally, items must have adequate reliability, which may be measured by $R^2$ or SMC values. As suggested by Hair et al. (2010), to indicate satisfactory reliability of an item, that item must have an $R^2$ value larger than 0.30 and preferably 0.50 or above. Standardised estimates of 0.50 but preferably 0.70 and above are recommended for construct validity (Hair et al. 2010). Discriminant validity may be tested by an appraisal of the correlation coefficient between each pair of items. If the value of the correlation is greater than 0.850, then the items of interest depict the same concept, and may be gathered as a single item (Kline 2010).

While unidimensionality may be estimated through model fit parameters, it exists when the indicator items load on just one construct. Unidimensionality may be established if the fit parameters of the model with all the factors defined to be loaded are acceptable on just one construct (Koufteros 1999).

**5.4.2.3 CFA Outcomes**

The CFA model of SME leadership behaviour is presented in Figure 5.8. The outcome of this model seems to have sufficient fit: $X^2/df = 3.33$; RMSEA = 0.068; CFI = 0.933; TLI = 0.923; and IFI = 0.933. All the factor loadings, ranging from 0.68 to 0.85, are larger than the threshold level of 0.70, and are all significant at p-value < 0.001, supporting convergent validity.

All the SMC values are greater than 0.50, indicating the reliability of the variables (Table 5.26). All the correlation coefficients between each pair of factors, ranging from 0.71 to 0.82, are less than 0.85, suggesting discriminant validity. Ultimately, as long as the model fit indices are demonstrated to be good, unidimensionality is established.
Figure 5.8 CFA model of the SME leadership behaviour construct

Source: Author
Table 5.26 SMC and T-values of the SME Leadership Behaviour Items

<table>
<thead>
<tr>
<th>Items</th>
<th>SMC</th>
<th>T-values a</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1st Component</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SMELB1</td>
<td>0.62</td>
<td>Scaling</td>
</tr>
<tr>
<td>SMELB2</td>
<td>0.63</td>
<td>19.55***</td>
</tr>
<tr>
<td>SMELB3</td>
<td>0.57</td>
<td>14.89***</td>
</tr>
<tr>
<td>SMELB4</td>
<td>0.57</td>
<td>13.80***</td>
</tr>
<tr>
<td>SMELB5</td>
<td>0.51</td>
<td>15.74***</td>
</tr>
<tr>
<td>SMELB6</td>
<td>0.51</td>
<td>14.06***</td>
</tr>
<tr>
<td>SMELB7</td>
<td>0.63</td>
<td>13.99***</td>
</tr>
<tr>
<td>SMELB8</td>
<td>0.66</td>
<td>13.65***</td>
</tr>
<tr>
<td><strong>2nd Component</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SMELB9</td>
<td>0.63</td>
<td>Scaling</td>
</tr>
<tr>
<td>SMELB10</td>
<td>0.66</td>
<td>13.01***</td>
</tr>
<tr>
<td>SMELB11</td>
<td>0.72</td>
<td>11.79***</td>
</tr>
<tr>
<td>SMELB12</td>
<td>0.63</td>
<td>10.70***</td>
</tr>
<tr>
<td>SMELB13</td>
<td>0.58</td>
<td>10.76***</td>
</tr>
<tr>
<td>SMELB14</td>
<td>0.65</td>
<td>10.85***</td>
</tr>
<tr>
<td>SMELB15</td>
<td>0.60</td>
<td>12.22***</td>
</tr>
<tr>
<td>SMELB16</td>
<td>0.60</td>
<td>10.34***</td>
</tr>
<tr>
<td><strong>3rd Component</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SMELB17</td>
<td>0.56</td>
<td>Scaling</td>
</tr>
<tr>
<td>SMELB18</td>
<td>0.66</td>
<td>12.09***</td>
</tr>
<tr>
<td>SMELB19</td>
<td>0.58</td>
<td>12.30***</td>
</tr>
<tr>
<td>SMELB20</td>
<td>0.62</td>
<td>13.40***</td>
</tr>
<tr>
<td>SMELB21</td>
<td>0.62</td>
<td>12.57***</td>
</tr>
<tr>
<td>SMELB22</td>
<td>0.61</td>
<td>13.23***</td>
</tr>
<tr>
<td>SMELB23</td>
<td>0.62</td>
<td>10.81***</td>
</tr>
<tr>
<td>SMELB24</td>
<td>0.58</td>
<td>11.40***</td>
</tr>
</tbody>
</table>

Source: Author
SMELB=SME leadership behaviour

*a* Scaling denotes standardised factor loadings value of indicator set to 1 to enable latent factor identification.

***p < 0.001

The CFA model of employees’ creativity is presented in Figure 5.9. The outcome seems to be a good enough fit: $X^2/df = 4.46$; RMSEA = 0.083; CFI = 0.942; TLI = 0.930; and IFI = 0.942. All the factor loadings (except EC3, EC4, EC5, EC8 and EC9), ranging from 0.71 to 0.81, were larger than the threshold level of 0.70 and were significant at p-value < 0.001, supporting convergent validity. All the SMC values (except EC3, EC4, EC5, EC8 and EC9) were greater than 0.50, indicating the reliability of the variables.
The resulting model, after deleting EC3, EC4, EC5, EC8 and EC9, is presented in Figure 5.10. The corresponding goodness of fit statistics are: $X^2/df = 3.87$; RMSEA = 0.076; CFI = 0.976; TLI = 0.965; and IFI = 0.977. All the factor loadings, ranging from 0.73 to 0.79, were larger than the threshold level of 0.70 and were significant at p-value < 0.001, supporting convergent validity. All the SMC values were greater than 0.50, indicating the reliability of the variables (Table 5.27). As long as the model fit indices are demonstrated to be good, unidimensionality is established.

Figure 5.9 CFA model of the employees’ creativity construct

Source: Author
Table 5.27 SMC and T-values of the employees’ creativity items

<table>
<thead>
<tr>
<th>Items</th>
<th>SMC</th>
<th>T-values a</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC1</td>
<td>0.56</td>
<td>Scaling</td>
</tr>
<tr>
<td>EC2</td>
<td>0.60</td>
<td>11.76***</td>
</tr>
<tr>
<td>EC6</td>
<td>0.53</td>
<td>13.92***</td>
</tr>
<tr>
<td>EC7</td>
<td>0.57</td>
<td>14.18***</td>
</tr>
<tr>
<td>EC10</td>
<td>0.54</td>
<td>15.65***</td>
</tr>
<tr>
<td>EC11</td>
<td>0.56</td>
<td>15.80***</td>
</tr>
<tr>
<td>EC12</td>
<td>0.63</td>
<td>17.11***</td>
</tr>
<tr>
<td>EC13</td>
<td>0.59</td>
<td>15.68***</td>
</tr>
</tbody>
</table>

Source: Author

EC=Employees’ creativity

*Scaling denotes standardised factor loadings value of indicator set to 1 to enable latent factor identification.

***p < 0.001

Figure 5.10 CFA Model of the employees’ creativity construct after deleting EC3, EC4, EC5, EC8 & EC9

Source: Author

The CFA model of the employees’ innovative behaviour construct is presented in Figure 5.11. The outcome seems to have an adequate fit: $X^2/df = 3.57$; RMSEA = 0.072; CFI = 0.974; TLI = 0.965; and IFI = 0.974. All the factor loadings, ranging from 0.72 to 0.84, were larger than the threshold level of 0.70 and all were significant at p-value < 0.001, supporting convergent validity. All the SMC values were greater than 0.50, indicating the reliability of the variables (Table 5.28).
Table 5.28 SMC and T-values of the employees' innovative behaviour items

<table>
<thead>
<tr>
<th>Items</th>
<th>SMC</th>
<th>T-values a</th>
</tr>
</thead>
<tbody>
<tr>
<td>EIB1</td>
<td>0.62</td>
<td>Scaling</td>
</tr>
<tr>
<td>EIB2</td>
<td>0.63</td>
<td>12.15***</td>
</tr>
<tr>
<td>EIB3</td>
<td>0.53</td>
<td>7.37***</td>
</tr>
<tr>
<td>EIB4</td>
<td>0.57</td>
<td>7.56***</td>
</tr>
<tr>
<td>EIB5</td>
<td>0.56</td>
<td>8.63***</td>
</tr>
<tr>
<td>EIB6</td>
<td>0.56</td>
<td>9.94***</td>
</tr>
<tr>
<td>EIB7</td>
<td>0.58</td>
<td>11.07***</td>
</tr>
<tr>
<td>EIB8</td>
<td>0.65</td>
<td>9.15***</td>
</tr>
<tr>
<td>EIB9</td>
<td>0.53</td>
<td>12.63***</td>
</tr>
<tr>
<td>EIB10</td>
<td>0.71</td>
<td>11.47***</td>
</tr>
</tbody>
</table>

Source: Author

EIB=Employees’ innovative behaviour

a Scaling denotes standardised factor loadings value of indicator set to 1 to enable latent factor identification.

***p < 0.001

Figure 5.11 CFA Model of the employees’ innovative behaviour construct

Source: Author

The CFA model of the employees’ personal initiative construct is presented in Figure 5.12. The outcome seems to be a satisfactory fit: X²/df = 4.01; RMSEA = 0.078; CFI = 0.971; TLI = 0.953; and IFI = 0.971. All the factor loadings (except EPI3, EPI4 and EPI5), ranging from 0.74 to 0.79, were larger than the threshold level of 0.70 and were all significant at p-value < 0.001 level, supporting convergent validity. All the SMC values (except EPI3, EPI4 and EPI5) were greater than 0.50, indicating the reliability of the variables.
Figure 5.12 CFA Model of the employees’ personal initiative construct

Source: Author

The measurement model that results after deleting EPI3, EPI4 and EPI5 is presented in Figure 5.13. The corresponding goodness of fit statistics are $X^2/df = 4.00; \text{RMSEA} = 0.077; \text{CFI} = 0.996; \text{TLI} = 0.979; \text{and IFI} = 0.996$. All the factor loadings, ranging from 0.73 to 0.80, were larger than the threshold level of 0.70 and were all significant at $p$-value $< 0.001$ level, supporting convergent validity. All the SMC values were greater than 0.50, indicating the reliability of the variables (Table 5.29). As long as the model fit indices are demonstrated to be good, unidimensionality is established.

Table 5.29 SMC and T-values of the employees’ personal initiative items

<table>
<thead>
<tr>
<th>Items</th>
<th>SMC</th>
<th>T-values $^a$</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPI1</td>
<td>0.59</td>
<td>Scaling</td>
</tr>
<tr>
<td>EPI2</td>
<td>0.64</td>
<td>14.88***</td>
</tr>
<tr>
<td>EPI6</td>
<td>0.53</td>
<td>14.82***</td>
</tr>
<tr>
<td>EPI7</td>
<td>0.57</td>
<td>16.01***</td>
</tr>
</tbody>
</table>

Source: Author

EPI=Employees’ personal initiative

$^a$Scaling denotes standardised factor loadings value of indicator set to 1 to enable latent factor identification.

$^{***}p < 0.001$
The CFA model of the individuals’ perceptions of a supportive climate for innovation construct is presented in Figure 5.14. The outcome of CFA model seems to have an enough fit: $\chi^2/df = 4.74$; RMSEA = 0.086; CFI = 0.938; TLI = 0.927; and IFI = 0.938. All the factor loadings (except IPSCFI 8 and IPSCFI 11), ranging from 0.72 to 0.84, where larger than the threshold level of 0.70 and were all significant at p-value < 0.001 level, supporting convergent validity. All the SMC values (except IPSCFI 8 and IPSCFI 11) were greater than 0.50, indicating the reliability of the variables.
The resulting model after deleting IPSCFI 8 and IPSCFI 11 is presented in Figure 5.15. The corresponding goodness of fit statistics are: $X^2/df = 4.63$; RMSEA = 0.085; CFI = 0.950; TLI = 0.940; and IFI = 0.950. All the factor loadings, ranging from 0.73 to 0.84, were larger than the threshold level of 0.70 and all were significant at p-value < 0.001, supporting convergent validity. All the SMC values were greater than 0.50, indicating reliability of the variables (Table 5.30). As long as the model fit indices are demonstrated to be good, unidimensionality is established.
Table 5.30 SMC and T-values of the individuals’ perceptions of a supportive climate for innovation items

<table>
<thead>
<tr>
<th>Items</th>
<th>SMC</th>
<th>T-values a</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPSCFI1</td>
<td>0.60</td>
<td>Scaling</td>
</tr>
<tr>
<td>IPSCFI2</td>
<td>0.67</td>
<td>16.54***</td>
</tr>
<tr>
<td>IPSCFI3</td>
<td>0.59</td>
<td>15.25***</td>
</tr>
<tr>
<td>IPSCFI4</td>
<td>0.62</td>
<td>13.65***</td>
</tr>
<tr>
<td>IPSCFI5</td>
<td>0.64</td>
<td>13.81***</td>
</tr>
<tr>
<td>IPSCFI6</td>
<td>0.64</td>
<td>13.60***</td>
</tr>
<tr>
<td>IPSCFI7</td>
<td>0.71</td>
<td>15.06***</td>
</tr>
<tr>
<td>IPSCFI9</td>
<td>0.55</td>
<td>13.46***</td>
</tr>
<tr>
<td>IPSCFI10</td>
<td>0.62</td>
<td>15.53***</td>
</tr>
<tr>
<td>IPSCFI12</td>
<td>0.54</td>
<td>12.22***</td>
</tr>
<tr>
<td>IPSCFI13</td>
<td>0.55</td>
<td>14.57***</td>
</tr>
<tr>
<td>IPSCFI14</td>
<td>0.54</td>
<td>13.90***</td>
</tr>
<tr>
<td>IPSCFI15</td>
<td>0.57</td>
<td>17.19***</td>
</tr>
<tr>
<td>IPSCFI16</td>
<td>0.54</td>
<td>12.42***</td>
</tr>
</tbody>
</table>

Source: Author

IPSCFI = Individuals’ perceptions of a supportive climate for innovation

a Scaling denotes standardised factor loadings value of indicator set to 1 to enable latent factor identification.

***p < 0.001

Figure 5.15 CFA model of the individuals’ perceptions of a supportive climate for innovation construct after deleting IPSCFI8 & IPSCFI11

Source: Author
The CFA model of the individuals’ emotional intelligence construct is shown in Figure 5.16. The result seems to be a good enough fit: $X^2/df = 4.30$; RMSEA = 0.08; CFI = 0.958; TLI = 0.948; and IFI = 0.958. All the factor loadings, ranging from 0.80 to 0.93, were larger than the threshold level of 0.70 and were all significant at p-value < 0.001 level, suggesting convergent validity.

![Figure 5.16 CFA model of the individuals’ emotional intelligence construct](source.png)

Source: Author
1st Component = Self-emotion appraisal; 2nd Component = Others’ emotion appraisal; 3rd Component = Use of emotion; 4th Component = Regulation of emotion
All the SMC values were greater than 0.50, indicating the reliability of the variables (Table 5.31). All the correlation coefficients between each pair of factors, ranging from 0.55 to 0.75, were less than 0.85, suggesting discriminant validity. As long as the model fit indices are demonstrated to be good, unidimensionality is established.

Table 5.31 SMC and T-values of the individuals’ emotional intelligence items

<table>
<thead>
<tr>
<th>Item</th>
<th>SMC</th>
<th>T-values a</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1st Component</td>
<td></td>
</tr>
<tr>
<td>IEI1</td>
<td>0.75</td>
<td>Scaling</td>
</tr>
<tr>
<td>IEI2</td>
<td>0.73</td>
<td>12.73***</td>
</tr>
<tr>
<td>IEI3</td>
<td>0.68</td>
<td>14.58***</td>
</tr>
<tr>
<td>IEI4</td>
<td>0.70</td>
<td>14.93***</td>
</tr>
<tr>
<td></td>
<td>2nd Component</td>
<td></td>
</tr>
<tr>
<td>IEI5</td>
<td>0.87</td>
<td>Scaling</td>
</tr>
<tr>
<td>IEI6</td>
<td>0.90</td>
<td>11.16***</td>
</tr>
<tr>
<td>IEI7</td>
<td>0.72</td>
<td>12.77***</td>
</tr>
<tr>
<td>IEI8</td>
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<td>11.41***</td>
</tr>
<tr>
<td></td>
<td>3rd Component</td>
<td></td>
</tr>
<tr>
<td>IEI9</td>
<td>0.70</td>
<td>Scaling</td>
</tr>
<tr>
<td>IEI10</td>
<td>0.72</td>
<td>9.88***</td>
</tr>
<tr>
<td>IEI11</td>
<td>0.73</td>
<td>9.79***</td>
</tr>
<tr>
<td>IEI12</td>
<td>0.71</td>
<td>10.01***</td>
</tr>
<tr>
<td></td>
<td>4th Component</td>
<td></td>
</tr>
<tr>
<td>IEI13</td>
<td>0.80</td>
<td>Scaling</td>
</tr>
<tr>
<td>IEI14</td>
<td>0.84</td>
<td>13.55***</td>
</tr>
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<td>IEI15</td>
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</tr>
<tr>
<td>IEI16</td>
<td>0.80</td>
<td>10.89***</td>
</tr>
</tbody>
</table>

Source: Author
IEI=Individuals’ emotional intelligence

*aScaling denotes standardised factor loadings value of indicator set to 1 to enable latent factor identification.

***p < 0.001

The outcomes of the measurement model examination exhibited in Figure 5.17 and Table 5.32. The model presented an acceptable level of fit ($X^2$/df = 2.11; RMSEA = 0.047; CFI = 0.907; TLI = 0.902; and IFI = 0.907). All the items had significant loadings greater than 0.70 ($p < 0.001$) on their respective constructs. In terms of reliability, all items (except SMELB1, SMELB2, and IEI2) had SMC values greater than the suggested level of 0.50. Since the factor loadings of these three items were meaningful and significant, they were retained in the measurement model. In addition, nearly all of the correlation coefficients between each pair of the constructs were less than recommended level of 0.850, suggesting an appropriate discriminant validity...
(Kline 2010). All these outcomes demonstrated that the measurement model possessed significant convergent validity, discriminant validity and unidimensionality.

Although the high correlation between the employees’ creativity and employees’ innovative behaviour constructs (0.87) indicated their ability to depict the same concept, combining them was not justified for two reasons:

Figure 5.17 Full measurement model
Source: Author

Although the high correlation between the employees’ creativity and employees’ innovative behaviour constructs (0.87) indicated their ability to depict the same concept, combining them was not justified for two reasons:
1) The items of the two constructs measure different notions. Employees’ creativity refers to idea generation, while employees’ innovative behaviour refers to the implementation or application of a new idea. Researchers have stressed that these two constructs should be kept separate (e.g., Mumford & Licuanan 2004). Shalley and Gilson (2004, p. 34) stated that ‘creativity differs from innovation’.

2) Combining these two constructs as a single construct does not improve the model fit indices.

Table 5.32 Factor loading, SMC and T-values of the measurement model outcomes

<table>
<thead>
<tr>
<th>Items</th>
<th>Factor Loading</th>
<th>SMC</th>
<th>Items</th>
<th>Factor Loading</th>
<th>SMC</th>
<th>Items</th>
<th>Factor Loading</th>
<th>SMC</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMELB 1</td>
<td>0.70</td>
<td>0.49</td>
<td>EC 7</td>
<td>0.75</td>
<td>0.56</td>
<td>IPSCFI 15</td>
<td>0.76</td>
<td>0.58</td>
</tr>
<tr>
<td>SMELB 2</td>
<td>0.70</td>
<td>0.48</td>
<td>EC 10</td>
<td>0.73</td>
<td>0.54</td>
<td>IPSCFI 16</td>
<td>0.73</td>
<td>0.54</td>
</tr>
<tr>
<td>SMELB 3</td>
<td>0.71</td>
<td>0.50</td>
<td>EC 11</td>
<td>0.74</td>
<td>0.55</td>
<td>EPI 1</td>
<td>0.77</td>
<td>0.59</td>
</tr>
<tr>
<td>SMELB 4</td>
<td>0.71</td>
<td>0.50</td>
<td>EC 12</td>
<td>0.80</td>
<td>0.65</td>
<td>EPI 2</td>
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<td>0.63</td>
</tr>
<tr>
<td>SMELB 5</td>
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<td>0.63</td>
<td>EPI 6</td>
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<tr>
<td>SMELB 6</td>
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<td>0.50</td>
<td>EIB 1</td>
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<td>0.61</td>
<td>EPI 7</td>
<td>0.77</td>
<td>0.60</td>
</tr>
<tr>
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<td>0.50</td>
<td>EIB 2</td>
<td>0.79</td>
<td>0.62</td>
<td>IEI 1</td>
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<td>0.51</td>
</tr>
<tr>
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<td>EIB 3</td>
<td>0.74</td>
<td>0.54</td>
<td>IEI 2</td>
<td>0.72</td>
<td>0.49</td>
</tr>
<tr>
<td>SMELB 9</td>
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<td>0.58</td>
<td>EIB 4</td>
<td>0.76</td>
<td>0.58</td>
<td>IEI 3</td>
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<td>0.50</td>
</tr>
<tr>
<td>SMELB 10</td>
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<td>0.58</td>
<td>EIB 5</td>
<td>0.74</td>
<td>0.54</td>
<td>IEI 4</td>
<td>0.72</td>
<td>0.50</td>
</tr>
<tr>
<td>SMELB 11</td>
<td>0.80</td>
<td>0.63</td>
<td>EIB 6</td>
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<td>0.55</td>
<td>IEI 5</td>
<td>0.83</td>
<td>0.70</td>
</tr>
<tr>
<td>SMELB 12</td>
<td>0.77</td>
<td>0.59</td>
<td>EIB 7</td>
<td>0.77</td>
<td>0.60</td>
<td>IEI 6</td>
<td>0.84</td>
<td>0.71</td>
</tr>
<tr>
<td>SMELB 13</td>
<td>0.72</td>
<td>0.52</td>
<td>EIB 8</td>
<td>0.80</td>
<td>0.64</td>
<td>IEI 7</td>
<td>0.82</td>
<td>0.67</td>
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<tr>
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<td>0.68</td>
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<td>0.53</td>
</tr>
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<td>IPSCFI 2</td>
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<td>IEI 11</td>
<td>0.72</td>
<td>0.52</td>
</tr>
<tr>
<td>SMELB 18</td>
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<td>0.56</td>
<td>IPSCFI 3</td>
<td>0.77</td>
<td>0.59</td>
<td>IEI 12</td>
<td>0.72</td>
<td>0.52</td>
</tr>
<tr>
<td>SMELB 19</td>
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<td>0.50</td>
<td>IPSCFI 4</td>
<td>0.78</td>
<td>0.61</td>
<td>IEI 13</td>
<td>0.78</td>
<td>0.61</td>
</tr>
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<td>IPSCFI 5</td>
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<td>IPSCFI 7</td>
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<td>0.69</td>
<td>IEI 16</td>
<td>0.73</td>
<td>0.54</td>
</tr>
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<td></td>
<td></td>
</tr>
<tr>
<td>EC 1</td>
<td>0.74</td>
<td>0.55</td>
<td>IPSCFI 12</td>
<td>0.74</td>
<td>0.54</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EC 2</td>
<td>0.74</td>
<td>0.55</td>
<td>IPSCFI 13</td>
<td>0.74</td>
<td>0.55</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EC 6</td>
<td>0.72</td>
<td>0.51</td>
<td>IPSCFI 14</td>
<td>0.74</td>
<td>0.55</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Author

SMELB=SME leadership behaviour; EC=employees’ creativity; EIB=employees’ innovative behaviour; EPI=employees’ personal initiative; IPSCFI=individuals’ perceptions of a supportive climate for innovation; IEI=individuals’ emotional intelligence.
5.5 Path Model Analysis: Hypothesis Testing

To assess the developed hypotheses for this thesis, path analysis utilising the maximum likelihood assessment was used to take into account the logical and important associations between SME leadership behaviour, employees’ creativity, and employees’ innovative behaviour, and to investigate the mediating effects of employees’ personal initiative and individuals’ perceptions of a supportive climate for innovation between SME leadership behaviour, and employees’ creativity and innovative behaviour. Also, two path analyses were developed to examine the moderating influences of individuals’ emotional intelligence on the relationships between SME leadership and employees’ creativity and innovative behaviour. Path analysis, as a subset of structural equation modelling (SEM), uses bivariate correlations to examine the direct and indirect associations between these constructs. According to Hair et al. (2010), this method estimates the strength of every structural association in a path diagram.

By employing SEM, the researcher can modify the research model when the hypothesised model does not fit the data properly. According to Kline (2010), researchers can add new paths or remove original paths when the result from the appraised variance/covariance matrix does not reproduce the sample variance/covariance matrix adequately. Modification can be undertaken to improve data derived from AMOS via modification indices. According to Hair et al. (2010), researchers should not make changes based only on the modification indices. Instead, they should seek model re-specifications that are consistent with theory and not with data only (Kline, 2010).

5.5.1 SME Leadership Behaviour and Employees’ Creativity

To evaluate the association between SME leadership behaviour and employees’ creativity and to test the first hypothesis suggested in this thesis (H1: SME leadership behaviour positively and significantly influences employees’ creativity in SMEs in Australia), a path model was developed. The final path of the direct model (Figure 5.18) of the association between SME leadership behaviour and employees’ creativity fitted the data well, and all the indices achieved satisfactory goodness of fit (GOF) statistics.
The fit indices of the model are: $X^2/DF = 3.070$, CFI = 0.931, TLI = 0.924, IFI = 0.932, and RMSEA = 0.064.

The first hypothesis was based on the relationship between SME leadership behaviour and employees’ creativity. Based on the findings depicted in Figure 5.18, SME leadership behaviour positively and significantly influences employees’ creativity ($\beta = 0.899$, $p < 0.001$). The result presents full support for H1.

**5.5.2 SME Leadership Behaviour and Employees’ Innovative Behaviour**

To assess the relationship between SME leadership behaviour and employees’ innovative behaviour and to answer the second hypothesis suggested in this thesis (**H2**: SME Leadership behaviour positively and significantly influences employees’ innovative behaviour in SMEs in Australia), a second path model was developed. The final path of the direct model (Figure 5.19) of the relationship between SME leadership behaviour and employees’ innovative behaviour fitted the data well and all the indices achieved satisfactory level of goodness of fit (GOF) statistics. The fit indices of the model are: $X^2/DF = 2.851$, CFI = 0.935, TLI = 0.928, IFI = 0.935, and RMSEA = 0.060.
The second hypothesis was based on the relationship between SME leadership behaviour and employees’ innovative behaviour. Based on the finding shown in Figure 5.19, SME leadership behaviour positively and significantly influences employees’ innovative behaviour ($\beta = 0.870$, $p < 0.001$). The result presents full support for H2.

5.5.3 Mediating Effect of Employees’ Personal Initiative on the Relationship between SME Leadership Behaviour and Employees’ Creativity

For investigating mediating effects, Baron and Kenny (1986) recommended that a variable mediates a relationship if it lessens the path coefficient of a direct association once the mediator is computed into the model. Full mediation takes place when the path between the independent variable and the dependent variable becomes insignificant when a mediator variable is introduced into the model (Baron & Kenny 1986). Hair et al. (2010) suggested that if the association between independent and dependent variables is diminished to the point that it is not significant after the mediation variable is added, full mediation occurs. Partial mediation takes place when the association between the independent variable and the dependent variable is diminished but remains significant when the mediation variable is introduced into the model (Baron & Kenny 1986). If the relationship between independent and mediating variables is significant but the association between mediating and dependent variables is not, it can be concluded that there is no mediation effect between independent and dependent variables (Baron & Kenny 1986): in other words, in this condition there is only a direct relationship between mediator and dependent variables. The researcher considered the
recommendations of Baron and Kenny (1986) and Hair et al. (2010) in a consideration of each mediating hypothesis.

To assess the mediating effect of employees’ personal initiative on the relationship SME leadership behaviour–employees’ creativity and to answer the third hypothesis formulated in this thesis (H3: Employees’ personal initiative mediates the relationship between SME leadership behaviour and employees’ creativity in SMEs in Australia), a new path model was developed and tested. Figure 5.20 shows the final path model of the mediating influence of employees’ personal initiative on the association SME leadership behaviour–employees’ creativity. The model fitted the data well and all the indices achieved satisfactory levels of goodness of fit (GOF) statistics. The fit indices of the model are: $X^2/DF = 2.548$, CFI = 0.926, TLI = 0.932, IFI = 0.925, and RMSEA = 0.056.

Figure 5.20 Final path of the mediating model of employees’ personal initiative in the relationship between SME leadership behaviour and employees’ creativity
Source: Author

It was proposed that employees’ personal initiative would mediate the relationship between SME leadership behaviour and employees’ creativity. To show support for this hypothesis, a guideline developed by Baron and Kenny (1986) in regard to the
intervention of an association was followed. The initial step in establishing a mediating effect is to demonstrate that the independent variable (SME leadership behaviour) has a significant association with the dependent variable (employees’ creativity). The finding of this relationship is displayed and discussed in Section 5.5.1 (see Figure 5.18), and is also presented in Figure 5.20.

The next step is to establish that the independent variable is related significantly with the mediating variable. The final step is to establish that the mediating variable is correlated significantly with the dependent variable. According to the outcomes exhibited in Figure 5.20, SME leadership behaviour ($\beta = 0.723, p < 0.001$) has a significant relationship to employees’ personal initiative. Moreover, employees’ personal initiative has a significant relationship to employees’ creativity ($\beta = 0.141, p < 0.001$); therefore, both conditions are met.

As presented in Figure 5.20, the path coefficient between SME leadership behaviour and employees’ creativity is reduced but still significant in the mediation model ($\beta = 0.612, p < 0.001$). This outcome shows that employees’ personal initiative partially (not fully) mediates the influence of leadership behaviour on employees’ creativity, suggesting that H3 is partially supported.

5.5.4 Mediating Effect of Employees’ Personal Initiative on the Relationship between SME Leadership Behaviour and Employees’ Innovative Behaviour

To assess the mediating effect of employees’ personal initiative on the SME leadership behaviour–employees’ innovative behaviour association and to answer the fourth hypothesis formulated in this thesis (H4: Employees’ personal initiative mediates the relationship between leadership behaviour and employees’ innovative behaviour in SMEs in Australia), a new path model was developed and examined. Figure 5.21 presents the final path model of the mediating influence of employees’ personal initiative on the SME leadership behaviour–employees’ innovative behaviour relationship. The model fitted the data well and all the indices achieved satisfactory level of goodness of fit (GOF) statistics. The fit indices of the model are: $X^2/DF = 3.173$, CFI = 0.902, TLI = 0.906, IFI = 0.908, and RMSEA = 0.063.
It was proposed that employees’ personal initiative would mediate the relationship between SME leadership behaviour and employees’ innovative behaviour. To show support for this hypothesis, the guideline developed by Baron and Kenny (1986) in regard to the intervention of an association was again followed, first demonstrating that the independent variable (SME leadership behaviour) has a significant association with the dependent variable (employees’ innovative behaviour). The finding of this relationship is shown and discussed in Section 5.5.2 (see Figure 5.19), and is also presented in Figure 5.21.

After establishing that the independent variable is related significantly with the mediating variable, the final step is to establish that the mediating variable is correlated significantly with the dependent variable. According to the outcomes exhibited in Figure 5.21, SME leadership behaviour ($\beta = 0.723$, $p < 0.001$) has a significant relationship to employees’ personal initiative, which in turn has a significant relationship to employees’ innovative behaviour ($\beta = 0.277$, $p < 0.001$); therefore, both conditions are met.
As presented in Figure 5.21, the path coefficient between SME leadership behaviour and employees’ innovative behaviour is reduced but still significant in the mediation model ($\beta = 0.542$, $p < 0.001$). This result indicates that employees’ personal initiative partially (not fully) mediates the influence of SME leadership behaviour on employees’ innovative behaviour, and suggests that H4 is partially supported.

### 5.5.5 Mediating Effect of Individuals’ Perceptions of a Supportive Climate for Innovation on the Relationship between SME Leadership Behaviour and Employees’ Creativity

To assess the mediating effect of individuals’ perceptions of a supportive climate for innovation on the SME leadership behaviour–employees’ creativity relationship, and to answer the fifth hypothesis of this thesis (H5: Individuals’ perceptions of a supportive climate for innovation mediate the relationship between SME leadership behaviour and employees’ creativity in SMEs in Australia), another path model was developed and tested. Figure 5.22 shows the final path model of the mediating influence of individuals’ perceptions of a supportive climate for innovation on the SME leadership behaviour–employees’ creativity association. The model fitted the data well and all the indices achieved a satisfactory level of goodness of fit (GOF) statistics. The fit indices of the model are $X^2/DF = 2.995$, CFI = 0.910, TLI = 0.904, IFI = 0.910, and RMSEA = 0.062.
It was proposed that individuals’ perceptions of a supportive climate for innovation would mediate the relationship between SME leadership behaviour and employees’ creativity. To show support for this hypothesis, Baron and Kenny’s (1986) guideline was followed once more. The initial step is to demonstrate that the independent variable (SME leadership behaviour) has a significant association with the dependent variable (employees’ creativity). The finding of this relationship is displayed and discussed in Section 5.5.1 (see Figure 5.18), and is also presented in Figure 5.22.

The next step is to establish that the independent variable is related significantly with the mediating variable, and the final step to establish that the mediating variable is correlated significantly with the dependent variable. According to the outcomes exhibited in Figure 5.22, SME leadership behaviour ($\beta = 0.909$, $p < 0.001$) has a significant relationship to individuals’ perceptions of a supportive climate for innovation. Individuals’ perceptions of a supportive climate for innovation have a
significant relationship to employees’ creativity ($\beta = 0.404, p < 0.001$); therefore, both conditions are fulfilled.

As shown in Figure 5.22, the path coefficient between SME leadership behaviour and employees’ creativity is reduced but still significant in the mediation model ($\beta = 0.532, p < 0.001$). This shows that individuals’ perceptions of a supportive climate for innovation partially (but not fully) mediate the influence of SME leadership behaviour on employees’ creativity, and suggests that H5 is partially supported.

5.5.6 Mediating Effect of Individuals’ Perceptions of a Supportive Climate for Innovation on the Relationship between SME Leadership Behaviour and Employees’ Innovative Behaviour

To evaluate the mediating influence of individuals’ perceptions of a supportive climate for innovation on the SME leadership behaviour–employees’ innovative behaviour relationship and to answer the sixth hypothesis formulated in this thesis (H6: Individuals’ perceptions of a supportive climate for innovation mediate the relationship between SME leadership behaviour and employees’ innovative behaviour in SMEs in Australia), a path model was again developed and tested. Figure 5.23 presents the final path model of the mediating influence of individuals’ perceptions of a supportive climate for innovation on the SME leadership behaviour–employees’ innovative behaviour relationship. The model fitted the data well and all the indices achieved satisfactory level of goodness of fit (GOF) statistics. The fit indices of the model are: $X^2/DF = 2.907$, $CFI = 0.910$, $TLI = 0.905$, $IFI = 0.910$, and $RMSEA = 0.061$. 
It was proposed that individuals’ perceptions of a supportive climate for innovation would mediate the relationship between SME leadership behaviour and employees’ innovative behaviour. To show support for this hypothesis, the guideline by Baron and Kenny (1986) was followed. The initial step is to demonstrate that the independent variable (SME leadership behaviour) has a significant association with the dependent variable (employees’ innovative behaviour). The finding of this relationship is displayed and discussed in Section 5.5.2 (see Figure 5.19), and is exhibited in Figure 5.23.

The next step is to establish that the independent variable is related significantly with the mediating variable. The final step is to establish that the mediating variable is correlated significantly with the dependent variable. According to the findings exhibited in Figure 5.23, SME leadership behaviour ($\beta = 0.909$, $p < 0.001$) has a significant relationship to individuals’ perceptions of a supportive climate for innovation, and individuals’ perceptions of a supportive climate for innovation has a significant
relationship to employees’ innovative behaviour ($\beta = 0.422, p < 0.001$); therefore, both conditions are fulfilled.

As shown in Figure 5.23, the path coefficient between SME leadership behaviour and employees’ innovative behaviour is reduced but still significant in the mediation model ($\beta = 0.487, p < 0.001$). This result indicates that individuals’ perceptions of a supportive climate for innovation partially (but not fully) mediate the influence of SME leadership behaviour on employees’ innovative behaviour, suggesting that H6 is partially supported.

5.5.7 Moderating Effect of Individuals’ Emotional Intelligence on the Relationship between SME Leadership Behaviour and Employees’ Creativity

The researcher conducted three tests suggested by Baron and Kenny (1986) to evaluate this moderating effect. First, the impact of independent variable on the dependent variable was tested to confirm the correlation is significant. Second, the influence of the moderator variable on the dependent variable was investigated to ensure the relationship is significant. A third test examined the significant interaction effects of the independent and moderator variables on the dependent variable.

To assess the moderating effect of individuals’ emotional intelligence on the SME leadership behaviour–employees’ creativity relationship, and to answer the seventh hypothesis formulated in this thesis (H7: Individuals’ emotional intelligence moderates the relationship between SME leadership behaviour and employees’ creativity in SMEs in Australia such that the relationship is more positive with high than with low emotional intelligence), two new paths were developed and tested: the influence of individuals’ emotional intelligence on employees’ creativity, and the interaction effects of SME leadership behaviour and individuals’ emotional intelligence on employees’ creativity. Figure 5.24 presents the results of these three tests.
It was proposed that individuals’ emotional intelligence would moderate the relationship between leaders’ behaviour and employees’ creativity. The first step is to demonstrate that the independent variable (SME leadership behaviour) has a significant association with the dependent variable (employees’ creativity). The finding (Figure 5.24) shows that SME leadership behaviour ($\beta = 0.872, p < 0.001$) has a significant relationship with employees’ creativity. The next step is to demonstrate that the moderator variable (individuals’ emotional intelligence) has a significant relationship with the dependent variable (employees’ creativity). Figure 5.24 indicates that individuals’ emotional intelligence ($\beta = 0.033, p < 0.001$) has a significant association with employees’ creativity. The final step is to show that the interaction of independent and moderator variables has a significant association with the dependent variable. As presented in Figure 5.24, the interaction of SME leadership behaviour $\times$ individuals’ emotional intelligence ($\beta = 0.022, p < 0.001$) has a significant relationship to employees’ creativity.
Figure 5.25 Scree plot of the moderating effect of individuals’ emotional intelligence on the SME leadership behaviour–employees’ creativity relationship

Source: Author

Figure 5.25 depicts the plot of the significant interaction term. As shown, the association between SME leadership behaviour and employees’ creativity is stronger when individuals have high rather than low emotional intelligence. Therefore, the researcher concludes that individuals’ emotional intelligence moderates the relationship between SME leadership behaviour and employees’ creativity. This result suggests that H7 is accepted.

5.5.8 Moderating Effect of Individuals’ Emotional Intelligence on the Relationship between SME Leadership Behaviour and Employees’ Innovative Behaviour

To evaluate the moderating influence of individuals’ emotional intelligence on the SME leadership behaviour–employees’ innovative behaviour relationship, the researcher followed the guideline provided by Baron and Kenny (1986), discussed in Section 5.5.7. To investigate the moderating influence of individuals’ emotional intelligence on the SME leadership behaviour–employees’ innovative behaviour relationship and to answer the eighth hypothesis formulated in this thesis (H8: Individuals’ emotional intelligence
moderates the relationship between SME leadership behaviour and employees’ innovative behaviour in SMEs in Australia such that the relationship is more positive with high than with low emotional intelligence), two new paths were developed and tested: the influence of individuals’ emotional intelligence on employees’ innovative behaviour, and the interaction effects of SME leadership behaviour and individuals’ emotional intelligence on employees’ innovative behaviour. Figure 5.26 shows the results of three paths testing the moderating influence of individuals’ emotional intelligence on the SME leadership behaviour–employees’ innovative behaviour association.

Figure 5.26 Final path of the moderating model of individuals’ emotional intelligence in the relationship between SME leadership behaviour and employees’ innovative behaviour

Source: Author

***p < 0.001

It was proposed that individuals’ emotional intelligence would moderate the relationship between SME leadership behaviour and employees’ innovative behaviour. The first step in establishing a moderating effect is to demonstrate that the independent variable (SME leadership behaviour) has a significant association with the dependent variable (employees’ innovative behaviour). Figure 5.26 shows that SME leadership behaviour (β = 0.862, p < 0.001) has a significant relationship to employees’ innovative behaviour. The second step is to exhibit that the moderator variable (individuals’
emotional intelligence) has a significant relationship with the dependent variable (employees’ innovative behaviour). Figure 5.26 shows that individuals’ emotional intelligence ($\beta = 0.280$, $p < 0.001$) has a significant association with employees’ innovative behaviour. The third step is to show that the interaction of independent and moderator variables has a significant association with the dependent variable. As displayed in Figure 5.26, the moderating role of individuals’ emotional intelligence in the SME leadership behaviour–employees’ innovative behaviour relationship, has no significant interaction effect ($\beta = 0.040$, ns). This finding suggests that H8 is rejected.

5.6 Chapter Summary

This chapter has been designed to appraise the collected data for mean and standard deviation, and to provide a demographic profile of the respondents as well as the participating organisations. Inspection of the respondents’ demographics reveals their gender, age, marital status, position, employment status, tenure, and level of education. An examination of the profiles of the SMEs who participated in the survey reveals their size, state, operation, company age, industry, sector, and business ownership. Finally mean and standard deviations for each variable and its latent variables have been discussed.

This chapter has also presented the details and outcomes of the measurement scale analysis, including the evaluation of scale reliability, exploratory factor analysis (EFA), and confirmatory factor analysis (CFA) of the survey data. The examination of the scale reliability has indicated that the measurement scales are reliable, demonstrated by the high levels of Cronbach’s alpha for each construct. The item–total correlations of all the items have been shown to be substantial, indicating that each item sufficiently measured its construct.

EFA was applied to each construct to determine the adequate number of latent factor structures. In addition, by conducting Harman’s one factor test, EFA was conducted on whole items to evaluate the problem of common-method variance. The findings have revealed that common method variance is not a major concern in regard to the reliability of the scale. Following this, CFA was used to confirm the validity of the measurement scale. For each construct, the outcomes showed the final factors indicated adequate
reliability, validity and unidimensionality. These CFA results have demonstrated that the measurement model has acceptable levels of fit, convergent validity, discriminant validity and unidimensionality.

Of the eighth hypotheses formulated at the start of this study, three have been fully supported, four partially supported, and one rejected. In regard to the direct relationships between SME leadership behaviour, and employees’ creativity and innovative behaviour, the findings have shown that SME leadership behaviour positively and significantly influence employees’ creativity and innovative behaviour. Evaluating the mediating effects of employees’ personal initiative, and individuals’ perceptions of a supportive climate for innovation found that these variables only partially mediate the relationships between SME leadership behaviour, and employees’ creativity and innovative behaviour. Assessing the moderating influence of individuals’ emotional intelligence has revealed that individuals’ emotional intelligence moderates only the association between SME leadership behaviour and employees’ creativity, and not between SME leadership behaviour and employees’ innovative behaviour.
Chapter 6
Discussion

6.1 Introduction

The objective of this chapter is to link the findings uncovered in Chapter 5, with regard to the four developed research questions and eight formulated hypotheses, to the relevant literature. This chapter relates the results from the quantitative data to the pertinent literature and empirical studies of the relationships between SME leadership behaviour, employees’ creativity, employees’ innovative behaviour, employees’ personal initiative, individuals’ perceptions of a supportive climate for innovation, and individuals’ emotional intelligence to identify the significant contributions. The last section (Section 6.3) provides a summary of this chapter.

6.2 Main Results

6.2.1 Relationships between SME Leadership Behaviour, and Employees’ Creativity and Innovative Behaviour

The first two path models were developed to investigate the associations between SME leadership behaviour and employees’ creativity, and between SME leadership behaviour and employees’ innovative behaviour in SMEs. The first research question (RQ1) was developed to assist the researcher formulating the hypotheses in this regard:

• RQ1: To what extent does SME leadership behaviour influence employees’ creativity and innovative behaviour in SMEs in Australia?

To provide answers to this question, two hypotheses were formulated and tested. These hypotheses suggested that SME leadership behaviour positively and significantly influences employees’ creativity and innovative behaviour in SMEs in Australia. The results presented in Figures 5.18 and 5.19 demonstrate that hypotheses 1 and 2 are fully supported: the outcomes of these two hypotheses confirm the positive and significant impact of SME leadership behaviour on both employees’ creativity and their innovative behaviour in SMEs in Australia.
The role of leadership is significant for creativity and innovation in SMEs. Tidd, Bessant and Pavitt (2004) noted that leadership plays a key role in encouraging innovation in workplaces. According to McAdam et al. (2010), leadership is even more essential and influential in SMEs than in larger organisations. The positive and significant associations reported in this thesis between SME leadership behaviour, and employees’ creativity and innovative behaviour, are consistent with the findings of studies by Černe, Jaklič and Škerlavaj (2013), Cheung and Wong (2011), Gumusluoglu and Ilsev (2009), Nusair, Ababneh and Bae (2012), Qu, Janssen and Shi (2015), Renvers et al. (2008), Wang, Tsai and Tsai (2014), and Zhou et al. (2014). For instance, drawing from a sample of 182 supervisor–follower dyads from a restaurant, hotel, retail store, travel agent and bank, Cheung and Wong (2011) found a positive relationship between transformational leadership and employees’ creativity. They argued that employees tend to be loyal, and to rely heavily on a transformational leader to support and inspire them in an Asian context. In other words, they found that the attributes of a transformational leader could be adapted to accommodate the needs of creative followers. In a study of 420 leader–follower dyads in an energy company in China, Qu, Janssen and Shi (2015) demonstrated that transformational leadership was an important enabler of employees’ creativity. The results of this thesis are similar to what Gumusluoglu and Ilsev (2009) found in a study of 163 R&D managers and personnel in 43 small and medium-sized software development companies in Turkey. They discovered a positive association between transformation leadership and creativity. Similarly, drawing from a sample of 23 leaders and 289 workers in a processing and manufacturing firm, Černe, Jaklič and Škerlavaj (2013) found a positive association between authentic leadership and employees’ creativity. They argued that authentic leaders’ behaviours lead to high degrees of emotional safety and increase the number of unconventional ideas suggested by employees. In a study of 395 supervisors and employees working in international hotels in Taiwan, Wang, Tsai and Tsai (2014) found that transformational leadership positively impacts on employees’ creative behaviour. They argued that transformational leaders can enhance and support the desire of creative followers to provide better services to customers.

Leadership studies have suggested leadership theories (transformational leadership, authentic leadership, leader–member exchange etc.) as leverage for promoting
employees’ innovative behaviour (Eisenbeiss & Boerner 2010; Michaelis, Stegmaier & Sonntag 2010; Oldham & Cummings 1996). For instance, Nusair, Ababneh and Bae (2012), in a study of 358 followers in Jordan, discovered a positive relationship between transformational leadership and employees’ innovative behaviour. They argued that to encourage employees’ innovative behaviour, leaders should build interactive individualised connections with employees, inspire subordinates to work to achieve a shared vision, and support followers intellectually. Similarly, Renvers et al. (2008) found a positive association between transformational leadership and followers’ innovative behaviour in a study of Australian hospitals. They claimed that managers showing transformational leadership are more expert in motivating innovative behaviour in employees. In particular, managers who evince compassion and trust for the individual, and show they are grateful when employees meet objectives, are more successful in eliciting innovative behaviour from employees. Avolio, Bass and Jung (1999) noted that managers who conduct their organisation through transformational leadership behaviours are stimulated to prepare against issues and setbacks, to pursue and satisfy their intellectual inquisitiveness, to use their creative power, and to take pleasure in new thoughts and solutions. These behaviours help workers focus on their tasks instead of on external concerns and fears, and consequently motivates them to seek new and better methods of doing things (Amabile 1996). Zhou et al. (2014), in a study of 388 employees of manufacturing companies in China, found a positive and significant relationship between authentic leadership and employees’ innovative behaviour. They argued that authentic leadership can support and encourage innovativeness in employees, compared with other forms of leadership.

Kissi, Dainty and Liu (2012) emphasised that leadership behaviour appears as one of the strongest influences on followers’ creativity and innovative behaviour, because creativity and innovative behaviour often require other than normal work duties; hence staff may feel fear and anxiety when undertaking creative and innovative behaviours (Csikszentmihalyi 1996). In this situation leadership behaviour can play a vital role because it helps produce a risk-tolerant environment in which subordinates feel able to go beyond standard expectations and participate in creative and innovative behaviours (De Jong & Den Hartog 2007; Simmons & Sower 2012).
According to Oke, Munshi and Walumbwa (2009), leaders not only work as behavioural role models for creativity and innovative behaviour, but are pivotal in supporting creative and innovative behaviours and encouraging attitudes that are useful to creation and innovation. In a similar vein, the findings of this thesis regarding the first and second hypotheses suggest that the newly developed leadership behaviour construct (see Section 4.6.6.1) can be effective in fostering and enhancing followers’ creative and innovative behaviours in SMEs in Australia. To be more specific, the results lend support for these associations and indicate that the leadership behaviours of people in management positions directly influence employees’ creativity and innovative behaviour in SMEs in Australia. In this specific context, this thesis suggests, leaders need to practise the behaviours identified as supporting and stimulating creativity and innovation, providing and motivating vision, and providing individual support. The ability of those in management positions in SMEs in Australia to show these behaviours can enhance their employees’ creativity and innovative behaviour.

The positive role of developed leadership behaviours on creativity and innovative behaviours can be traced through the different leadership theories employed to develop a leadership construct in Chapter 4 (transformational leadership, leader–member exchange, innovation champion, change-oriented leadership, and authentic leadership). As discussed there, transformational leadership was chosen as the foundation on which to synthesise theoretical components of the various theories and develop a measure of SME leadership behaviour. Matzler et al. (2008) indicated that transformational leadership may be pertinent in the context of SMEs, suggesting that because of the dominant role of the managers and the relatively flat structure of SMEs, leaders are frequently those who provide direction and are able to communicate objectives to employees, and therefore are able to carry out transformational leadership. They argued that transformational leadership is suitable in the context of SMEs if leaders wish to nurture creativity and innovation.

Transformational leadership is closely compatible with the determinants of creativity and innovation in an organisation (Elkins & Keller 2003). Transformational leaders are likely to act as ‘creativity enhancing forces’: inspirational motivation ‘provides encouragement into the idea generation process’ by invigorating employees to work for
the firm’s vision; individualised consideration ‘serves as a reward’ for subordinates by providing encouragement and recognition; and intellectual stimulation ‘enhances exploratory thinking’ by providing support for challenge and innovation (Bass & Avolio 1997; Sosik, Kahai & Avolio 1998, p. 113). As an example, newly developed behaviours of leaders can help to generate a risk-tolerant environment in which employees feel comfortable going beyond the present situation of the organisation and displaying their creative ideas. Chang and Hughes (2012) identified risk-taking tolerance as a characteristic of SMEs’ top leadership. According to Shin and Zhou (2003), employees are likely to take risks and explore new thoughts and approaches whenever leaders practise individualised consideration.

The identified leadership behaviours in this thesis can help employees in SMEs in Australia to transform new, fresh thoughts into innovative actions. Whenever employees in SMEs perceive their managers support creativity and innovation, they are likely to suggest creative solutions and implement their ideas to improve the routines of their managers or colleagues. As discussed in Chapter 4, the newly developed leadership behaviours are intended to encourage employees’ creativity and innovative behaviour. This can be achieved whenever people in management positions in SMEs in Australia show a desire to discover new ways of doing daily tasks (i.e., promoting innovative behaviour and showing their appreciation). Smyrnios and Gome (2008) noted that leaders’ behaviour is a key factor in initiating and implementing creativity in SMEs.

6.2.2 Mediating Effect of Employees’ Personal Initiative on the Relationships between SME Leadership Behaviour, and Employees’ Creativity and Innovative Behaviour

The third and fourth final path models developed in this thesis evaluated the role of SME employees’ personal initiative as a mediator of the associations between leadership behaviour and employees’ creativity, as well as between leadership behaviour and employees’ innovative behaviour. The second research question was developed at first to help the researcher formulate the third and fourth hypotheses:
• **RQ2**: To what extent do employees’ personal initiative mediate the relationships between SME leadership behaviour, and employees’ creativity and innovative behaviour in SMEs in Australia?

The third and fourth hypotheses proposed in this thesis focus on the mediating role of employees’ personal initiative, on the relationship between SME leadership behaviour and employees’ creativity (H3) and on the association between SME leadership behaviour and employees’ innovative behaviour (H4) (see Figures 5.20 and 5.21). The findings presented in Sections 5.5.3 and 5.5.4, indicate that employees’ personal initiative partially mediates the relationships between SME leadership behaviour and employees’ creativity (H3) and employees’ innovative behaviour (H4) in SMEs. Therefore, hypotheses (H3 and H4) are both partially supported.

The positive and significant associations reported between SME leadership behaviour, employees’ personal initiative, and employees’ creativity and innovative behaviour are consistent with the findings of studies by Binnewies and Gromer (2012), Binnewies, Ohly and Sonnentag (2007), Hartog and Belschak (2012) and Wang and Howell (2010). For example, drawing from a sample of 60 leaders and 203 group members working in Canadian industries including forestry, retail, transportation, shipbuilding, media and equipment, Wang and Howell (2010) found that transformational leadership was positively related to employees’ personal initiative. They argued that transformational leadership behaviour positively affects followers’ personal initiative because transformational leadership is focused on achieving performance beyond expectations and beyond the job description.

The findings related to H3 and H4 are also similar to what Binnewies, Ohly and Sonnentag (2007) discovered in a study of 52 nurses in Germany. They found a positive relationship between personal initiative and creativity. Creativity frequently involves a departure from the standard way of working (Ford 1996) and an investigation of new territory (Amabile et al. 2004). Binnewies, Ohly and Sonnentag (2007) argued that since personal initiative involves going above and beyond the call of duty, it is generally linked with the development of fresh and useful thoughts. Binnewies and Gromer (2012) who studied a sample of 89 teachers in Germany, discovered that personal initiative positively influences innovative behaviour. Personal initiative
involves persisting in the face of barriers (Frese et al. 1996), and according to Binnewies and Gromer (2012), innovative behaviour requires enormous persistence and effort because it is attended with setbacks: and only a person with a high degree of personal initiative may be able to persist.

The findings of this thesis indicate that employees in SMEs in Australia who have personal initiative are able to partially adopt the behaviours of their leaders to their creative and innovative behaviours. Despite the limited impact of employees’ personal initiative, the important role of this factor has been acknowledged as a key prerequisite of creativity and innovation in the relevant literature (Herrmann & Felfe, 2012). Creativity and innovative behaviour can be produced and implemented by employees as proper solutions to difficulties and setbacks, in order to change the status quo of the firm. In general, individuals who are creative and innovative must be proactive, self-starter, and persistent in identifying and solving problems in the workplace (Kim, Hon & Crant 2009). Identifying new opportunities and implementing start-ups are both creative and innovative processes, and require an proactively creative and innovative executor (Rooks, Sserwanga & Frese 2014).

Creativity and innovative behaviour are necessary proactive behaviours, and according to Frese and Fay (2001), they can be only found in those who have personal initiative. Employees with this quality, which is highly related to their creativity, are able to go beyond the terms of their formal job. Moreover, employees who have personal initiative respond better to positive leadership behaviours if they believe their leaders both desire and support initiatives for change in the workplace. Baer and Frese (2003) claimed that this type of employee believes that problems are tolerated by leaders, which lessens the degrees of resistance to change and consequently encourages employees to show more creativity and innovative behaviour. For instance, when people in management positions use transformational leadership behaviour (i.e., intellectual stimulation), employees are more likely to be sensitive to the motivation and therefore try harder to alter present conditions (Shin & Zhou 2003), and concentrate on using their initiative (Michaelis, Stegmaier & Sonntag 2010).

In this thesis the researcher argues that SME leadership behaviour influences employees’ creativity and innovative behaviour through the mechanism of employees’
personal initiative. Employees’ personal initiative can be very important in both creativity and innovation in SMEs, as it requires persistence and the ability to meet and overcome obstacles. Personal initiative employees may enhance a SME’s capacity to handle creativity and innovation and be proactive, persistent and self-starting. In other words, to nurture and enhance their creative and innovative behaviours, employees in SMEs have to be proactive (for example by anticipating opportunities and detecting problems when presenting new ideas), and need to actively gather knowledge and information and the resources needed to carry out an innovative behaviour. More importantly, workforces in SMEs have to be persistent in defeating barriers and obstacles. The findings of this thesis corroborate these ideas.

The findings of this thesis support the idea that employees’ personal initiative influences leaders’ responses to employees’ creative and innovative behaviours in SMEs in Australia. The outcomes confirm that leadership behaviour encourages the personal initiative of employees, which in turn positively affects the employees’ creativity and innovative behaviour. Employees’ personal initiative plays a mediating role by stimulating their creativity and innovative behaviour through the influence of the responses of the founders, owners and managers; employees who have personal initiative are found to display creativity and innovative behaviour. It is evident that it is not just essential for leaders to support and encourage employees’ creativity and innovative behaviour directly, but that they must also skilfully manage employees’ personal initiative. To generalise this finding, further empirical investigation is required in the context of SMEs in Australia.

6.2.3 Mediating Effect of Individuals’ Perceptions of a Supportive Climate for Innovation on the Relationships between SME Leadership Behaviour, and Employees’ Creativity and Innovative Behaviour

The fifth and sixth final path models developed in this thesis investigated the role of individuals’ perceptions of a supportive climate for innovation, as a mediator on the relationships between SME leadership behaviour and employees’ creativity, as well as between SME leadership behaviour and employees’ innovative behaviour in SMEs. The third research question was developed to assist the researcher to formulate the fifth and sixth hypotheses:
• **RQ3**: To what extent do individuals’ perceptions of a supportive climate for innovation mediate the relationships between SME leadership behaviour, and employees’ creativity and innovative behaviour in SMEs in Australia?

The fifth and sixth hypotheses proposed in this thesis focus on the mediating role of individuals’ perceptions of a supportive climate for innovation on the relationship between SME leadership behaviour and employees’ creativity (H5) and on the association between SME leadership behaviour and employees’ innovative behaviour (H6) (see Figures 5.22 and 5.23). The findings, discussed in Sections 5.5.5 and 5.5.6, reveal that individuals’ perceptions of a supportive climate for innovation partially mediate the relationships between SME leadership behaviour and employees’ creativity (H5) and employees’ innovative behaviour (H6) in SMEs. Therefore, hypotheses (H5 and H6) are both partially supported.

A supportive climate and culture for creativity and innovation is important to foster and enhance these facets of employees’ behaviours. Wan, Ong and Lee (2005, p. 267) argued that ‘what is ultimately of crucial importance to organisations is the nurture and development of an innovation-supportive culture’. The positive and significant relationships reported between SME leadership behaviour, individuals’ perceptions of a climate supportive of innovation, and employees’ creativity and innovative behaviour are consistent with the results of studies by Černe, Jaklič and Škerlavaj (2013), Gumusluoglu and Ilsev (2009), Jung, Chow and Wu (2003), Paulsen et al. (2013) and Smith-Jentsch, Salas and Brannick (2001). For example, drawing from a sample of 104 participants in a large R&D company in Australia, Paulsen et al. (2013) found a positive and significant association between transformational leadership and the perception of support for innovation. They also found a positive link between this perception and employees’ innovative behaviour. They argued that transformational leaders, by motivating and supporting new ways of investigating setbacks and modelling unconventional behaviours, are able to support a norm of creativity and innovation in an environment that offers support for new procedures and where creative and innovative outputs are appreciated. They added that in such a climate each member of the organisation could feel comfortable taking risks, testing new ideas, and exchanging knowledge, ultimately leading to creativity and innovation.
In a study of 23 group leaders and 289 group members in a manufacturing and processing company Černe, Jaklič and Škerlavaj (2013) found that at the individual level a supportive climate for innovation has a partial mediating affect on the relationship between transformational leadership and creativity. They argued that a supportive climate for innovation is important in encouraging creativity in individuals and that staff who work in an environment supporting innovativeness show high degrees of creative performance. They presented the idea that leaders are more able to enhance creative behaviour when they establish an innovative climate in which they value experimentation and tolerate occasional flaws. However, in a sample of 163 R&D managers and personnel in 43 micro and small software development firms in Turkey, Gumusluoglu and Ilsev (2009) found that the mediating effect of a supportive innovative climate in an organisation on the association between transformational leadership and creative behaviour was not supported. In line with the result of this thesis, Imran and Anis-ul-Haque (2011), in a study of 320 managers from fast-moving consumer goods companies in Pakistan, found that the perception of a supportive organisational climate partially mediates the relationship between transformational leadership and innovative behaviour. They argued that innovative behaviour usually involves making risky choice, and the environment cannot be considered encouraging if it does not provide appropriate structure and guidance.

In this thesis the researcher argues that SME leadership behaviour influences employees’ creativity and innovative behaviour through a particular mechanism, individuals’ perceptions of a supportive climate for innovation. Therefore, another vital outcome of this thesis is related to the mediating influences of individuals’ perceptions of such a supportive climate on the relationships between SME leadership behaviour and employees’ creativity and innovative behaviour. The researcher indicates that the newly developed construct of leadership behaviour could have influences on followers’ creative and innovative behaviours, like available leadership theories (e.g., transformational leadership and authentic leadership). Individuals’ perceptions of a supportive climate for innovation play a mediating role in promoting employees’ creativity and innovative behaviour from leadership influences. It has been documented (e.g., by Černe, Jaklič & Škerlavaj 2013) that a supportive climate for innovative activities encourages subordinates’ creative and innovative behaviours because in such
a climate leaders value experimentation, and some deficiencies and faults are accepted as part of the process.

Notwithstanding the importance of this factor, the findings of this thesis reveal that individuals’ perceptions of a supportive climate for innovation only partially mediate the relationships between leadership behaviour, and employees’ creativity and innovative behaviour in SMEs in Australia. Employees’ creativity and innovative behaviour can be facilitated by enhancement of the workplace environment, like providing adequate time and resources for creativity and innovation. Leaders of SMEs in Australia should improve the perceptions of individuals by valuing creative and innovative work. The results of this thesis corroborate these ideas. More particularly, the findings indicate that creating an environment in which leaders and non-leaders are encouraged to formulate and implement new ideas would facilitate the influence of leaders’ behaviours on employees’ creative and innovative behaviours. The outcomes confirm that when leadership behaviour facilitates a supportive environment for innovation, that in turn positively affects employees’ creativity and innovative behaviour.

The sample for this thesis came from Australia, where cultural values are low in power distance (Hofstede 1997). In such culture and societies, employees do not tend to want managers to control the work processes (Chow, Shields & Wu 1999), and may work better when left to determine for themselves what they are required to do and how to do it. This may be one of the reasons for the partial (not complete) mediating role of individuals’ perceptions of a supportive climate for innovation between leadership behaviour, and employees’ creativity and innovative behaviour in SMEs in Australia. Another possible reason for the only partial intervening role of individuals’ perceptions of a supportive climate between leadership behaviour, and employees’ creativity and innovative behaviour, may be related to the flat structure of SMEs: in other words, SMEs tend to be less structured than large organisations, and employees who work in SMEs may prefer a less structured workplace environment. To generalise these findings, further empirical investigation is required in the context of SMEs in Australia.
6.2.4 Moderating Effect of Individuals’ Emotional Intelligence on the Relationships between SME Leadership Behaviour, and Employees’ Creativity and Innovative Behaviour

The seventh and eighth final path models developed in this thesis examine the role of individuals’ emotional intelligence as a moderator on the associations between SME leadership behaviour and employees’ creativity, as well as between SME leadership behaviour and employees’ innovative behaviour in SMEs. The fourth research question (RQ4) was developed to let the researcher to formulate the seventh and eighth hypotheses:

- **RQ4**: To what extent does individuals’ emotional intelligence mediate the relationships between SME leadership behaviour, and employees’ creativity and innovative behaviour in SMEs in Australia?

The seventh and eighth hypotheses proposed in this thesis focus on the moderating role of individuals’ emotional intelligence on the relationship between SME leadership behaviour and employees’ creativity (H7) and on the association between SME leadership behaviour and employees’ innovative behaviour (H8) (see Figures 5.24 and 5.26). The findings discussed in Sections 5.5.7 and 5.5.8, indicate that individuals’ emotional intelligence moderates the relationship between SME leadership behaviour and employees’ creativity (H7), but does not moderate the impact of SME leadership behaviour on employees’ innovative behaviour (H8). Therefore, the seventh hypothesis is accepted while the eighth is rejected.

Empirical studies have documented the positive relationships between leadership behaviour, emotional intelligence, creativity, and innovative behaviour. For example, drawing from a sample of 859 staff working in a public-sector organisation in South Korea, Hur, Berg and Wilderom (2011) reported a positive association between transformational leadership and emotional intelligence. They argued that emotionally intelligent leaders are more successful because they show more transformational leadership behaviours. Likewise, in a study of 267 leaders working in various units in Greece (human resources, R&D, logistics, finance, accounting, marketing, sales, production), Polychroniou (2009) discovered a positive association between
transformational leadership and emotional intelligence. He suggested that different components of transformational leadership (e.g., intellectual stimulation and individualised consideration) are positively associated with some competencies of emotional intelligence (e.g., social skills and empathy), and argued that social skills related to enabling staff to engage in desirable behaviours are seemingly related to intellectual stimulation. Further, he determined a link between individualised consideration and empathy, because managers who possess empathy are probably able to recognise employees’ needs and respond to them, to change their emotional state.

In a study of 500 staff from 19 companies in the United Arab Emirates, Suliman and Al-Shaikh (2007) discovered a positive and significant association between subordinates’ emotional intelligence and their creativity and innovative behaviour. They determined that employees with higher levels of emotional intelligence show higher levels of readiness to be creative and innovative, and argued that employees with high levels of emotional intelligence seemingly have more stable lives, with less stress and conflict, which helps them be creative and innovative. They suggested that to expect creativity and innovative behaviour from their co-workers, employees need to build good relationships with them and understand their emotions and feelings. In a sample of 138 managers from 66 companies operating in the European Union, Rego et al. (2007) found that emotionally intelligent leaders behave in a ways that motivate the creativity of their followers. They believed that leaders with a high degree of emotional intelligence are self-controlled in the face of criticism. In this environment, employees feel more stimulated to show creative solutions.

Although creativity and innovative behaviour have potential benefits for an organisation, they can be stressful for employees (Janssen 2004). Creative behaviour needs an employee to take considerable effort to produce new and fresh ideas. Innovative behaviour often requires change-oriented actions, which puts the instigating employee in a situation where opposition may arise from individuals (leaders and non-leaders) in the workplace who prefer the status quo. Boren (2010) suggested that creative ideas arise through emotions, because the generation of new thoughts about services, products and processes are encouraged by emotions; she also argued that the ability to be creative is essential to the prosperity and permanence of an organisation.
Therefore, the capacity of an organisation to develop creative ideas started by emotions is important, and SMEs are no exception. According to Zhou and George (2003), creative and innovative behaviours can be emotionally taxing as changes to routine caused by these behaviours may cause leaders and co-workers to reject them. One way to the ease anxiety and stress of creative and innovative employees is to have a better understanding of their emotions and feelings, which is related to emotional intelligence. This competency can help both leaders and non-leaders nurture and enhance the creativity and innovation of their employees instead of repressing these two behaviours. In any case, a good understanding of employees’ emotions and feelings is worth developing since it can assist better communication between leaders and co-workers. Emotionally intelligent employees are able to promote their creative ideas and find a proper way to implement them in the workplace.

Despite the importance of emotional intelligence in motivating employees’ creative performance and innovative behaviour, it is a factor missing from the study of SMEs (Piperopoulos 2010). According to Rhee and White (2007), lessening the feelings of risk-taking in pursuing new opportunities in SMEs can be only achieved by using the competencies associated with emotional intelligence. Chell and Karataş-Özkan (2014) noted that emotional intelligence is a vital factor that may improve the ability of individuals to provide feedback, and the way that feedback is perceived. Baron (2008) contended that positive emotions like opportunity recognition improve individuals’ creativity. The findings of this thesis corroborate the idea that individuals’ emotional intelligence is a pivotal factor that can strengthen the influence of SME leadership behaviour on employees’ creativity, but not their innovative behaviour; however, to generalise this outcome, further empirical investigation is needed in the context of SMEs in Australia.

Despite the rejected moderating impact of individuals’ emotional intelligence, this construct has generally been recognised as an important factor in fostering and enhancing creativity, innovation, and performance and competitiveness in SMEs (Piperopoulos 2010). One of the significant roles that leaders need to play in SMEs in Australia is to manage their own and others’ emotions and feelings skilfully. This will help them have a greater impact on their employees’ creativity.
As discussed in Chapter 3 (see Section 3.3.4) to date very few studies have examined the relationships between leadership behaviour, emotional intelligence, and employees’ creativity and innovative behaviour. Although the importance of emotional intelligence in management studies is clear, one finding of this thesis is that individuals’ emotional intelligence can only moderate the relationship between SME leadership behaviour and employees’ creativity in SMEs in Australia. This result suggests that individuals’ emotional intelligence cannot amplify the effect of leadership behaviour on followers’ innovative behaviour. The outcome of this thesis regarding the moderating role of individuals’ emotional intelligence on the associations between SME leadership behaviour, and employees’ creativity and innovative behaviour, enrich the literature on this topic and provide guidance that can be considered by leaders in SMEs to support and motivate subordinates’ creativity and innovative behaviour, particularly in Australia.

### 6.3 Chapter Summary

This chapter has provided a discussion addressing the results of this study. It confirms direct, positive and significant relationships between SME leadership behaviour, and employees’ creativity and innovative behaviour and concludes that the associations between SME leadership behaviour and employees’ creativity, as well as between SME leadership behaviour and employees’ innovative behaviour, are partially mediated by two personal and contextual mediator variables, employees’ personal initiative and individuals’ perceptions of a supportive climate for innovation. It also confirms that individuals’ emotional intelligence has only a moderate effect on the relationship between SME leadership behaviour and employees’ creativity. Hence, leaders of SMEs in Australia are encouraged to show the newly developed leadership behaviours (see Chapter 4) to nurture and enhance employees’ creativity and innovative behaviour. Focusing on the development of employees’ personal initiative and individuals’ perceptions of a climate supportive of innovation also may assist leaders of SMEs in Australia to encourage and motivate employees’ creativity and innovative behaviour. The development of individuals’ emotional intelligence may help those in management positions in SMEs have better influence on the first stage of the innovation process, which is creativity. However, leaders of SMEs in Australia should not expect emotional
intelligence to work as a moderating mechanism to improve SME leadership behaviours towards employees’ innovative behaviours.
Chapter 7
Conclusion

7.1 Introduction

The purpose of this chapter is to summarise the conclusions from the research findings, to emphasise the theoretical, managerial and practical implications of the thesis, and to suggest a new framework presenting the enablers of employees’ creativity and innovative behaviour in the context of SMEs in Australia. The limitations of the research are addressed, and suggestions for future research are made. The second section of this chapter (Section 7.2) presents the conclusions from the research findings. Section 7.3 highlights the contributions and implications of this thesis. Section 7.4 presents the limitations of the research. Section 7.5 recommends directions for future study. Section 7.6 summarises the chapter.

7.2 Conclusions from Research Findings

This section presents the conclusions from the research model (Section 7.2.1) followed by those from the research questions and hypotheses (Section 7.2.2), and then from the research methodology (Section 7.2.3).

7.2.1 Conclusion from Research Model

The research model developed in this thesis combines SME leadership behaviour, employees’ creativity, employees’ innovative behaviour, and personal and contextual variables (employees’ personal initiative, individuals’ emotional intelligence, and individuals’ perceptions of a supportive climate for innovation). The model proposes that leadership behaviour, and the personal and contextual constructs used as mediator and moderator variables, are important predictors of employees’ creativity and innovative behaviour in SMEs. Figure 7.1 shows the final research model of this thesis.
Based upon the research model, three analyses were performed to test the eight hypotheses. The first analysis was an empirical investigation of the influence of leadership behaviour on both employees’ creativity and their innovative behaviour in SMEs. The second analysis evaluated the extent of the effects of employees’ personal initiative and individuals’ perceptions of a supportive climate for innovation as two mediators in the relationships between SME leadership behaviour and employees’ creativity, as well as between SME leadership behaviour and employees’ innovative behaviour in SMEs. Finally, the third analysis appraised the moderating influence of individuals’ emotional intelligence on the relationships between SME leadership behaviour, and employees’ creativity and innovative behaviour. The findings from these three analyses are summarised in the next section.

The final research model (Figure 7.1) comprises six constructs: a predictor (SME leadership behaviour); two mediators (employees’ personal initiative and individuals’
perceptions of a supportive climate for innovation); a moderator (individuals’ emotional intelligence); and two dependent variables (employees’ creativity and innovative behaviour). All six constructs were validated and produced acceptable goodness-of-fit statistics.

In addition to contributing to empirical findings, the research model extends the theories of leadership, and particularly of transformational leadership, innovation champion, change-oriented leadership, leader–member exchange, and authentic leadership, as the construct of SME leadership behaviour was developed by gathering the theoretical dimensions of these leadership theories. The three developed components of the construct of SME leadership behaviour demonstrated acceptable reliability and validity.

7.2.2 Conclusion from Research Questions and Hypotheses

Four research questions were developed for this thesis. The aim of this section is to summarise each of them and to provide a summary of the eight hypotheses formulated for this thesis and relating to the research questions.

- **RQ1**: To what extent does SME leadership behaviour influence employees’ creativity and innovative behaviour in SMEs in Australia?

Two hypotheses (H1 and H2) were formulated to answer this first question. The findings established from the results discussed in Chapter 6 indicate that SME leadership behaviour positively and significantly influences both employees’ creativity and their innovative behaviour: in other words, the outcomes indicate that the practice of newly developed leadership behaviours (see Chapter 4) by people in management positions has positive and significant effects on employees’ creativity and innovative behaviour in SMEs in Australia. These leadership behaviours are to 1) support and stimulate creativity and innovation, 2) provide and motivate vision, and 3) provide individual support; and leaders applying these behaviours are able to positively and significantly influence employees’ creativity and innovative behaviour in SMEs in Australia. This suggests that leaders need to concentrate on the leadership behaviour construct developed here, if they are to optimise their influence on employees’ creativity and innovative behaviour. The factors of the construct of SME leadership...
behaviour seem to be relevant to the creativity and innovative behaviour of subordinates, and that appropriate degrees of leadership behaviour will translate into greater creativity and innovative behaviour in followers.

- **RQ2**: To what extent does employees’ personal initiative mediate the relationships between SME leadership behaviour, and employees’ creativity and innovative behaviour in SMEs in Australia?

The second research question generated two hypotheses (H3 and H4). To answer this question, empirical evaluations of the role of employees’ personal initiative as a mediator in the associations between SME leadership behaviour, and employees’ creativity and innovative behaviour, were conducted and the two hypotheses formulated. Two structural models were developed to show the mediating models and allow for the confirmation of these two hypotheses, as reported in Chapter 5.

It was concluded that leadership behaviour positively and significantly influences the level of personal initiative practised by employees in SMEs. In turn, employees’ personal initiative positively and significantly affects both employees’ creativity and their innovative behaviour. The finding of the mediating affect of employees’ personal initiative indicates that employees’ personal initiative only partially mediates the relationships between leadership behaviour, and employees’ creativity and innovative behaviour in SMEs.

Despite the limited effect of employees’ personal initiative as a mediator, this thesis concludes that employees’ personal initiative is a proper mediator in the associations between SME leadership behaviour, and employees’ creativity and innovative behaviour. This suggests that when leaders adopt the newly developed construct of SME leadership behaviour and match it with an appropriate degree of employees’ personal initiative, they will have a positive influence on employees’ creativity and innovative behaviour.

Factors of SME leadership behaviour, like supporting and stimulating creativity and innovation, providing and motivating vision, and providing individual support for employees’ personal initiative, seem to be pertinent to the creativity and innovative
behaviour of employees. The right degrees of SME leadership behaviour and employees’ personal initiative would enhance the impact of leaders’ behaviour on the creativity and innovative behaviour of followers in SMEs.

- **RQ3**: To what extent do individuals’ perceptions of a supportive climate for innovation mediate the relationships between SME leadership behaviour, and employees’ creativity and innovative behaviour in SMEs in Australia?

The third research question generated two hypotheses (H5 and H6). To answer this question, empirical investigations into the role of individuals’ perceptions of a supportive climate for innovation as a mediator in the associations between SME leadership behaviour, and employees’ creativity and innovative behaviour were conducted, and two hypotheses were formulated. Two structural models were developed to show the mediating models and allow for a confirmation of these two hypotheses, as reported in Chapter 5.

It was concluded that SME leadership behaviour positively and significantly influences individuals’ perceptions of a supportive climate for innovation. In turn, individuals’ perceptions of such a climate positively and significantly influence both employees’ creativity and their innovative behaviour. The findings of a mediating affect of individuals’ perceptions of a supportive climate for innovation indicate that individuals’ perceptions of a supportive climate for innovation only partially mediate the relationships between leadership behaviour, and employees’ creativity and innovative behaviour in SMEs.

This suggests that people in management positions in SMEs need to focus on this newly developed construct of SME leadership behaviour and provide an appropriate level of support for innovation to have a positive impact on employees’ creativity and innovative behaviour. The elements of SME leadership behaviour influencing individuals’ perceptions of a supportive climate for innovation (supporting and stimulating creativity and innovation, providing and motivating vision, and providing individual support) appear to be related to the creativity and innovative behaviour of employees. A good degree of leadership behaviour and of individuals’ perceptions of a
supportive climate for innovation would reinforce the influence of leaders on the creativity and innovative behaviour of employees in SMEs.

- **RQ4:** To what extent does individuals’ emotional intelligence moderate the relationship between SME leadership behaviour, and employees’ creativity and innovative behaviour in SMEs in Australia?

The fourth research question generated two hypotheses (H7 and H8). To answer this question, empirical examinations of the moderating effects of individuals’ emotional intelligence on the associations between SME leadership behaviour, and employees’ creativity and innovative behaviour, were carried out, and two hypotheses were formulated. Two structural models were developed to present the moderating models and permit confirmation of these two hypotheses, as reported in Chapter 5.

It was determined that individuals’ emotional intelligence moderates the relationship between SME leadership behaviour and employees’ creativity. This suggests that individuals’ emotional intelligence competencies should be considered a good reinforcers of the effect of leaders’ behaviours on their followers’ creative behaviour. However, it was concluded that individuals’ emotional intelligence does not moderate the association between leadership behaviour and employees’ innovative behaviour in SMEs. This implies that the emotional intelligence of leaders and non-leaders should not be considered a factor leveraging the influence of leaders’ behaviour on employees’ innovative behaviour in SMEs: in other words, individuals’ emotional intelligence does not assist those in management positions to influence subordinates’ innovative behaviour. Table 7.1 provides a summary of the results of the formulated hypotheses in this thesis.

**Table 7.1 Summary of hypothesis testing**

<table>
<thead>
<tr>
<th>Hypotheses</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypothesis 1</td>
<td>Fully supported</td>
</tr>
<tr>
<td>Hypothesis 2</td>
<td>Fully supported</td>
</tr>
<tr>
<td>Hypothesis 3</td>
<td>Partially supported</td>
</tr>
<tr>
<td>Hypothesis 4</td>
<td>Partially supported</td>
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<tr>
<td>Hypothesis 5</td>
<td>Partially supported</td>
</tr>
<tr>
<td>Hypothesis 6</td>
<td>Partially supported</td>
</tr>
<tr>
<td>Hypothesis 7</td>
<td>Fully supported</td>
</tr>
<tr>
<td>Hypothesis 8</td>
<td>Rejected</td>
</tr>
</tbody>
</table>

Source: Author
7.2.3 Conclusion from Research Methodology

The use of quantitative research has added value to the existing literature, particularly in the context of SMEs in Australia. This thesis may be the first to evaluate the role of leadership behaviour on the separate issues of employees’ creativity and innovative behaviour, particularly in SMEs in Australia. Despite empirical studies that consider the mediating role of individuals’ perceptions of a supportive climate for innovation on leadership behaviour, and employees’ creativity and innovative behaviour, to date the literature has failed to hypothesise about, or test, the mediating effect of employees’ personal initiative and the moderating influence of individuals’ (leaders’ and non-leaders’) emotional intelligence in the relationships between SME leadership behaviour, and employees’ creativity and innovative behaviour.

The quantitative data was used to measure the extent of relationships between constructs and to examine the hypotheses that were formulated. Data was gathered from service and manufacturing industries to provide some generalisability to the population of SMEs in Australia. While previous studies on leadership behaviour, creativity and innovation have used the transformational leadership instrument, the development and validation of a new theory-based measure for leadership (see Section 4.6.6.1) has added substantial value to this field.

7.3 Contributions and Implications

The thesis findings generate both theoretical contributions (Section 7.3.1) and managerial implications (Section 7.3.2), drawn from the conclusions that have been highlighted in Section 7.2.

7.3.1 Theoretical Contributions

The first theoretical contribution of this thesis relates to the development of a theory-based measure that represents the construct of SME leadership behaviour towards employees’ creativity and innovation. The newly developed and validated leadership construct consists of three dimensions that enable leaders to nurture and amplify employees’ creative and innovative behaviours in the context of SMEs. As discussed earlier, at first four dimensions comprising 30 items emerged, but after conducting EFA
six items were dropped because they were not sufficiently loaded. These six made up the component regarding encouraging decision-making; the remaining 24 items, which presented three components of the construct, were discovered to be distinct from each other, validated, and generating acceptable goodness-of-fit statistics in CFA. These were empirically tested and found positively and significantly influencing employees’ creativity and innovative behaviour in SMEs, and were retained.

Another theoretical contribution of the thesis comes from the research model developed from SME leadership behaviour towards employees’ creativity and innovative behaviour. This model enhances the body of knowledge in the area of leadership and innovation by verifying the applicability of the newly developed leadership behaviour construct (see Chapter 4) to developed countries like Australia. Moreover, the assessments of personal factors (employees’ personal initiative and individuals’ emotional intelligence) and a contextual factor (individuals’ perceptions of a supportive climate for innovation) as mediator and moderator constructs are valuable contributions to the domain of leadership and innovation from the theoretical perspective. It can be concluded that leadership behaviour is the most important capability to nurture and enhance employees’ creativity and innovative behaviour, while employees’ personal initiative and individuals’ perceptions of a supportive climate for innovation have a partial mediating impact in the suggested associations. While individuals’ emotional intelligence is shown to have a good moderating influence on the leadership behaviour–employees’ creativity relationship, it fails to moderate the association between leadership behaviour and employees’ innovative behaviour; hence, it can be concluded that individuals’ emotional intelligence is a pivotal skill that can boost the impact of leadership behaviour on employees’ creativity.

This thesis makes a specific and valuable contribution to the field of leadership and innovation in the context of developed countries. Its findings provide evidence that SME leaders’ behaviour is an influential factor in enhancing employees’ creativity and innovative behaviour in small to medium enterprises in Australia. Quantitative data provides evidence that people in management positions in SMEs in Australia must practise and develop the newly identified leadership behaviours in order to encourage and sustain subordinates’ creativity and innovation. The findings of this thesis confirm
that a personal factor (employees’ personal initiative) and a contextual factor (individuals’ perceptions of a supportive climate for innovation) are also important, but to a lesser degree than SME leadership behaviour, in fostering followers’ creativity and innovation in SMEs in Australia. The results of this thesis also acknowledge the importance of individuals’ emotional intelligence as a personal factor that may influence the effect of leadership behaviour in nurturing and enhancing employees’ creativity.

Consideration of employees’ personal initiative and individuals’ perceptions of a supportive climate for innovation as a mediating mechanism augments existing theoretical models of a direct relationship between SME leadership behaviour, and employees’ creativity and innovative behaviour. Notwithstanding the independent connections established between leadership behaviour, personal initiative and supportive climate for innovation (e.g., Wang & Howell 2010; Paulsen et al. 2013), and between personal initiative, supportive climate for innovation, and employees’ creativity and innovative behaviour (e.g., Awwad & Ali 2012; Binnewies, Ohly & Sonnentag 2007), very few studies have examined the associations between leadership behaviour, a supportive climate for innovation and employees’ creativity, simultaneously with leadership behaviour, a supportive climate, and employees’ innovative behaviour (e.g., Gumusluoglu & Ilsev 2009; Imran & Anis-ul-Haque 2011; Černe, Jaklič & Škerlavaj 2013).

Few empirical studies have tested the mediating effect of a supportive climate for innovation in the associations between both leadership behaviour and followers’ creativity, and leadership behaviour and subordinates’ innovative behaviour, and the literature omits to present the mediating impact of employees’ personal initiative and the moderating influence of individuals’ emotional intelligence in the relationships between SME leadership behaviour and employees’ creativity, and between SME leadership behaviour and employees’ innovative behaviour. The majority of empirical studies have failed to address creativity and innovative behaviour as separate constructs; the understanding of the associations between these constructs offered by this thesis adds new knowledge to leadership and innovation literature within the context of SMEs, particularly in Australia.
It is found that employees’ personal initiative and individuals’ perceptions of a supportive climate for innovation are mediators between SME leadership behaviour and employees’ creativity, and between SME leadership behaviour and employees’ innovative behaviour. It is also discovered that individuals’ emotional intelligence moderates the relationships between SME leadership behaviour and employees’ creativity. The final theoretical models, besides verifying the direct positive and significant associations between both leadership behaviour and employees’ creativity, and leadership behaviour and employees’ innovative behaviour, also show that the presence of employees’ personal initiative and individuals’ perceptions of a supportive climate for innovation partially mediate the direct associations between SME leadership behaviour, and employees’ creativity and innovative behaviour. It also proves that individuals’ emotional intelligence is a good moderator in the association between SME leadership behaviour and employees’ creativity, indicating that leaders of SMEs who foster creativity and innovative behaviour as daily work-related behaviours may realise that this can be achieved not only from their behaviour but also by the development of employees’ personal initiative, enhancement of individuals’ perceptions of a supportive climate for innovation, and development of individuals’ (leaders’ and non-leaders’) emotional intelligence. A significant emphasis on employees’ personal initiative, individuals’ perceptions of a supportive climate for innovation, and individuals’ emotional intelligence may effectively facilitate and amplify the effect of leadership behaviour on employees’ creativity and innovative behaviour. These are the theoretical contributions that this thesis makes to the literature of leadership and followership, specifically in the fields of leadership, creativity, innovation, personal initiative, emotional intelligence and workplace climate.

**7.3.2 Managerial Implications**

It is expected that the findings of this thesis will assist in understanding the leadership behaviour of Australian business leaders and employees’ creative and innovative behaviours, especially within the context of SMEs. This study concludes that people in management positions in SMEs in Australia, by displaying behaviours like supporting and stimulating creativity and innovation, providing and motivating vision, and offering individual support, will foster and enhance employees’ creativity and innovative
behaviour. These three behaviours, under the construct of SME leadership behaviour, were empirically investigated and found to have positive and significant influence on followers’ creativity and innovative behaviour in SMEs in Australia. Hence, leaders of SMEs in Australia are encouraged to develop their skills and knowledge regarding the leadership behaviours identified here, which will assist them to nurture and strengthen subordinates’ creative and innovative behaviours. The qualities associated with the construct of SME leadership behaviour raise employees’ motivation and support them to show and share their creativity and innovative behaviour. Leaders of SMEs, particularly in Australia, who embody these qualities will be able to compete against better funded and larger organisations, and guarantee their own organisational survival and sustainability in today’s fast-paced business environment.

The central purpose behind this thesis is to provide findings that may be beneficial to, and practical for, SMEs in service and manufacturing industries in Australia. The results of this thesis conclude that the leadership behaviour of founders, owners and managers is an important factor that affects employees’ creativity and innovative behaviour. The effective practice of SME leadership behaviour is perceived to positively and significantly influence the creativity and innovative behaviour of employees in SMEs. In addition, the effective practice of employees’ personal initiative and individuals’ perceptions of a supportive climate for innovation are perceived to affect the impact of SMEs leaders’ behaviours on their employees’ creative and innovative behaviours. The influence of the newly developed construct of SME leadership behaviour on employees’ creativity is more pronounced in leaders and non-leaders with high emotional intelligence, who might best benefit from training that maximises leadership behaviour and thus enhance its impact on employees’ creativity. The leaders of SMEs in the service and manufacturing industries are encouraged to explore the complex reciprocal action between leaders’ behaviour and employees’ creativity and innovative behaviour, together with employees’ personal initiative, individuals’ emotional intelligence and individuals’ perceptions of a supportive climate for innovation as practised in the workplace, as these constructs are recognised as important enablers of employees’ creativity and innovative behaviour in SMEs.
The results have important implications for the enhancement and nourishment of proposed and tested personal and contextual variables (employees’ personal initiative, individuals’ perceptions of a supportive climate for innovation, and individuals’ emotional intelligence). The empirical outcomes show that the ability of employees to act on personal initiative, and to perceive the climate of their workplace as supportive of innovation, can mediate the influence of leaders’ behaviours on employees’ creativity and innovative behaviour. Based on the results of this thesis, leaders and employees who are high in emotional intelligence can strengthen the impact of leaders’ behaviours on followers’ creativity in SMEs in Australia. In this regard, the managerial implications for leaders of SMEs are:

- to practise and display leadership behaviour like supporting and stimulating creativity and innovation, providing and motivating vision, and providing individual support, which help people in management positions foster and enhance employees’ creativity and innovative behaviour
- to pay attention to employees’ personal initiative ability, and individuals’ perceptions of support for innovative activities, which may assist employees to be more creative and successful in implementing their novel ideas in the organisation
- to practise and develop individuals’ (leaders’ and non-leaders’) emotional intelligence competencies, which may help leaders make a better and stronger impact on employees’ creativity.

The findings from this research have significant practical implications for the development of SMEs in Australia. As discussed in Chapter 1 (see Section 1.4) leadership behaviour for creativity and innovation is relatively less developed in the context of SMEs in Australia. The Department of Innovation, Industry, Science and Research’s Innovation and Raising Australia’s Productivity Growth revealed that Australian SMEs generally have less developed managerial capabilities than larger firms, especially relating to innovation (DIISR 2009). Based on this warning from the Australian government, the researcher took this issue into account as a major challenge for SMEs’ survival in Australia, and in this thesis has provided a theory-based measure that presents a construct of leadership behaviour towards creativity and innovation. To
become creativity and innovation architects, leaders of SMEs in Australia must concentrate on the leadership behaviours identified in this new measurement instrument if their aim is to embed creativity and innovative behaviour in the DNA of their employees. The newly developed construct for leadership behaviour should be used in training and development for leaders of SMEs in Australia, with a focus on developing and fostering these newly identified qualities of leadership behaviour. Moreover, a leadership training course based on the identified leadership qualities should be specifically mandated for all people in management positions in SMEs in Australia, and for new entrepreneurs. To be able to compete against well funded, larger companies, as outlined by the government (DIISR 2009), SMEs in Australia require a leadership model that has a strong emphasis on creativity and innovation.

To further enhance employees’ creativity and innovative behaviour in SMEs, constant encouragement and help from the people in positions, would assist them to be confident in introducing new and useful ideas when they face setbacks in the workplace. This would also help employees implement their creative thoughts more often and with less hesitation. Since emotionally intelligent leaders have learned to minimise tension and disputes, they will have a stronger influence on employees’ creativity. Also, as emotionally intelligent employees know how to manage their own and others’ emotions, they can build better relationships with their leaders, as a result leaders will have a stronger influence on their employees’ creative behaviour. Another practical implication for SMEs in Australia is that the findings of this thesis provide an indication that employees’ personal initiative ability and individuals’ perceptions of a supportive climate for innovative behaviour help mediate the influence of SMEs leaders’ behaviours on employees’ creative and innovative behaviours.

7.4 Limitations of this Research

Every study has its limitations. According to Dolen, Ruyter and Lemmink (2004), the ability of research to identify its limitations is part of the strength of the study. A few limitations regarding this thesis are identified in this section.

First, all measures of SME leadership behaviour, individuals’ perceptions of a supportive climate for innovation, employees’ personal initiative, individuals’
emotional intelligence and employees’ creativity and innovative behaviour were examined through the responses of individuals in Australian SMEs. This thesis did not take into account differences between supervisor-reported and employee-reported responses in its analyses of these variables (and Harman’s one-factor test indicated that common method bias was not an issue in this thesis). Salancik and Pfeffer (1978) argued that through the effects of processing information socially, individual’s perceptions may be shared and hence can explain specific job behaviours over time. This is relevant in the SME context, because these businesses have a relatively limited number of tasks and assignments in their daily work.

Second, since data for this thesis was gathered at one time because it adopted a cross-sectional design, causal deductions could not made. Longitudinal research may definitely aid in supporting the causal nature of the associations proposed and tested here, when data on independent and dependent variables is collected at different times.

Third, this thesis provides generalisations for both service and manufacturing industries. The differences between these two industries were not considered for analytical purposes. There are different sub-categories of SMEs in each industry in Australia. A more detailed research focusing on each of these two industries and the variances between the sub-categories in and between industries, regarding SME leadership behaviour, employees’ personal initiative, individuals’ perceptions of a supportive climate for innovation, individuals’ emotional intelligence, and employees’ creativity and innovative behaviour, may provide a direction for later studies.

Finally, a quantitative approach is unable to evaluate why a phenomenon has occurred (Cassell & Symon 1994). For instance, the findings from the quantitative data showed a positive and significant relationship between SME leadership behaviour and employees’ creativity; but why this should be so can be only answered by a qualitative approach.

7.5 Directions for Future Research

It is expected that regardless of its limitations, the outcomes presented in this thesis provide useful directions for future research basically arising from: 1) the test of the
newly developed instrument for SME leadership behaviour towards creativity and innovation in the present study; and 2) the limitations discussed in Section 7.4.

Like every new construct, the theory-based measure for the construct of SME leadership behaviour, offered here for the first time, needs to be used and tested in future empirical investigations within the context of SMEs in Australia. This will help generalise the reliability and validity of the instrument. It is suggested that this instrument might also be of use in different countries, particularly in other developed countries. The results of such studies would further assess the applicability and validity of the measure.

Next, as discussed in the limitations section, a longitudinal research design would provide better understanding of the relationships between SME leadership behaviour, and employees’ creativity and innovative behaviour, as it could assess the influences of leadership and the enhancement of creative and innovative behaviours at various stages. This would provide important information about differences in proposed relationships at different times.

It is suggested that coming studies consider the differences between supervisory-rated and employee-reported responses when considering the roles of employees’ personal initiative, individuals’ perceptions of a supportive climate for innovation, and individuals’ emotional intelligence as three personal and contextual mediators. In other words, a comparative study of the suggested relationships, contrasting leaders’ perceptions and employees’ perceptions, might offer greater understanding of how employees’ creativity and innovative behaviour in SMEs could be further enhanced. This might also be applied for measuring SME leadership behaviour and employees’ creativity and innovative behaviour in future studies.

The assessment of SME leadership behaviour at the component level can lead to a greater comprehension of the factorial impacts of leadership on employees’ creativity and innovative behaviour. This would help CEOs or human resource managers of SMEs to better understand specific leadership behaviours that foster and enrich employees’ creativity and innovative behaviour.
7.6 Chapter Summary

Although leadership behaviour has been reported as one of the most influential constructs on followers’ creativity and innovation in the relevant literature (Kissi, Dainty & Liu 2012), there is still a need to provide empirical evidence of its associations with personal initiative, a climate supportive of innovation, emotional intelligence, creativity, and innovative behaviour in SMEs in Australia. The leadership behaviour of leaders impacts on their employees’ creativity (Wang, Tsai & Tsai 2014) innovative behaviour (Nusair, Ababneh & Bae 2012), personal initiative (Wang & Howell 2010), supportive climate for innovation (Paulsen et al. 2013), and emotional intelligence (Hur, Berg & Wilderom 2011). Literature and empirical studies support the positive impacts of personal initiative, supportive climate for innovation and emotional intelligence on employees’ creativity and innovative behaviour (Rego et al. 2007; Gumusluoglu & Ilsev 2009; Binnewies & Gromer 2012).

The outcomes of this thesis indicate that SME leadership behaviour is one of the most significant elements for nurturing and enhancing subordinates’ creativity and innovative behaviour. The top managers (i.e., founders, owners, CEOs and human resource managers) of companies must realise that the leadership behaviour they show and practise has important direct relationships to employees’ creativity and innovative behaviour. Leadership behaviour displayed by those in management positions makes an indirect contribution to employees’ creativity and innovative behaviour through employees’ personal initiative and individuals’ perceptions of a supportive climate for innovation. In addition, the emotional intelligence of leaders and non-leaders in SMEs plays a key role as a moderating construct, which can amplify the influence of leadership behaviour on employees’ creative behaviour although it cannot strengthen its influence on innovative behaviour.

The research model, the study questions, and the research methodology presented here contribute to the existing body of knowledge in leadership, creativity and innovation literature. The theoretical contributions, as well as the managerial implications, are important for leaders of SMEs and their development in Australia. In the meantime, some limitations are addressed that indicate suggestive new avenues of research.
Once again the researcher must stress the importance of this thesis. In 2009 the Department of Innovation, Industry, Science and Research reported that SMEs in Australia have been suffering from underdeveloped leadership qualities, especially those foster innovative activities. The leadership behaviour instrument, newly developed in this thesis, could be helpful to SMEs in Australia for indicating how and to what effect nurturing and enhancing employees’ creativity and innovative behaviour can be accomplished, ensuring the innovation capabilities of SMEs. When SMEs are innovative, they are better able to compete against larger enterprises and guarantee their organisational survival and sustainability. The directions offered in thesis will augment the already substantial contribution of SMEs to the economy of Australia.
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217


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Appendix A: Ethics Approval

Notice of Approval

Date: 4 April 2013
Project number: 1000494
Project title: Leading Towards Creativity and innovation: A Study of fast-Growth Small and Medium-Sized Enterprises (SMEs) in Australia
Risk classification: Low Risk
Principal Investigator: Dr Nutavuth Muenjohn
Student Investigator: Mr Ashkan Khalili
Project Approved: From: 28 March 2013 To: 18 February 2019

Terms of approval:

1. Responsibilities of the principal investigator
   It is the responsibility of the principal investigator to ensure that all other investigators and staff on a project are aware of the terms of approval and to ensure that the project is conducted as approved by BCHEAN. Approval is only valid while the investigator holds a position at RMIT University.

2. Amendments
   Approval must be sought from BCHEAN to amend any aspect of a project including approved documents. To apply for an amendment submit a request for amendment form to the BCHEAN secretary. This form is available on the Human Research Ethics Committee (HREC) website. Amendments must not be implemented without first gaining approval from BCHEAN.

3. Adverse events
   You should notify BCHEAN immediately of any serious or unexpected adverse effects on participants or unforeseen events affecting the ethical acceptability of the project.

4. Participant Information and Consent Form (PICF)
   The PICF must be distributed to all research participants, where relevant, and the consent form is to be retained and stored by the investigator. The PICF must contain the RMIT University logo and a complaints clause including the above project number.

5. Annual reports
   Continued approval of this project is dependent on the submission of an annual report.

6. Final report
   A final report must be provided at the conclusion of the project. BCHEAN must be notified if the project is discontinued before the expected date of completion.

7. Monitoring
   Projects may be subject to an audit or any other form of monitoring by BCHEAN at any time.

8. Retention and storage of data
   The investigator is responsible for the storage and retention of original data pertaining to a project for a minimum period of five years.
INVITATION TO PARTICIPATE IN A RESEARCH PROJECT
PROJECT INFORMATION STATEMENT

Plain Language Statement

Project Title: Leading towards Creativity and Innovation: A Study of Small and Medium-Sized Enterprises (SMEs) in Australia

Investigators:
Nuttawuth Muenjohn, PhD
School of Management, RMIT University, Melbourne, Australia
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Tele: 03 9925 5109

Adela McMurray, Professor
Research Supervisor
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Tele: 03 9925 5946

Student Investigator:
Ashkan Khalili
PhD Candidate
School of Management, RMIT University,
ashkan.khalili@rmit.edu.au
Tele: 03 9925 1511

Dear Participant,

You are invited to participate in a research project being conducted by RMIT University, Melbourne, Australia. This information sheet describes the project in straightforward language, or 'plain English'. Please read this sheet carefully and be confident that you understand its contents before deciding whether to participate. If you have any questions about the project, please ask one of the investigators above.

Who is involved in this research project? Why is it being conducted?

This research is being conducted by Ashkan Khalili, a PhD candidate enrolled in the School of Management at RMIT University, Melbourne Australia. The research is supervised by Dr Nuttawuth Muenjohn and Dr Adela McMurray. This research project has been approved by the RMIT Human Research Ethics Committee. This project is being undertaken as part of the requirements for the degree of Doctor of Philosophy in Management.

Why have you been approached?

You have been invited to participate in this research because you work in an Australian SME.
What is the project about?

The present study will provide a better understanding of the sources of creativity and innovative behaviour in Australian SMEs. The aim of this project is to investigate the relationships among leadership behaviour, creativity and innovative behaviour in Australian small and medium-sized enterprises (SMEs). The primary research question for this research is to what extent do leadership behaviours impact employees’ creativity and innovative behaviour in SMEs in Australia? In addition, this project is designed to investigate other factors such as: personal initiative, support for innovation and emotional intelligence.

If I agree to participate, what will I be required to do?

You will be asked to participate in a survey (approximately 15 minutes). Complete confidentiality is assured as responses will be aggregated before analysing. While respondents are encouraged to respond, participation is voluntary thus you are not under any obligation to take part in this research.

What are the possible risks or disadvantages?

There are no perceived risks associated with participation in this research. Participation in this research is entirely voluntary and anonymous. You may withdraw your participation and any unprocessed data concerning you at any time, without prejudice. The respondents who give their first name and phone number at the end of survey through the links that are provided (it is completely optional) will provide with a copy of the research report and consider for a draw. If you are concerned about your responses, you should contact one of my supervisors Dr Nuttawuth Muenjohn and Professor Adela McMurray as soon as possible. My supervisors will discuss your concerns with you confidentially and suggest appropriate follow-up, if necessary.

What are the benefits associated with participation?

There is no direct benefit to you as a result of your participation. However, I will be delighted to provide you with a copy of the research report upon request as soon as it is published. The report will provide you with the information regarding the sources of creativity and innovative behaviour in Australian SMEs. Also respondents, who are interested in entering a draw, will have a chance to win one of two $200 Coles Group & Myer gift cards.

What will happen to the information I provide?

Your privacy and confidentiality will be strictly maintained in such a manner that you will not be identified in the thesis report or any publication. The aggregated result will be published in the PhD thesis, student reports, journal articles and conference papers. Any information that you provide can be disclosed only if (1) it is to protect you or others from harm, (2) a court order is produced, or (3) you provide the researchers with written permission. The research data will be kept securely at RMIT for 5 years after publication, before being destroyed. The final thesis will remain online. The collected data will only be seen by the investigators. Because of the nature of data collection I am not obtaining a written consent from you. Instead, I assume that you have given your consent by completing the online survey questionnaire.
The names and phone numbers of respondents who are entered draw or wish to receive a copy of the research report will not be linked to the survey data. The names and phone numbers will be kept separately from the survey and securely in a RMIT database and destroyed as soon as the winners of the draw receive their gift cards and the respondents who requested a copy of the research report receive their research reports.

What are my rights as a participant?

- The right to withdraw from participation at any time
- The right to have any unprocessed data withdrawn and destroyed, provided it can be reliably identified, and provided that so doing does not increase the risk for the participant.
- The right to have any questions answered at any time.

Whom should I contact if I have any questions?

If you have any queries regarding this project please email me at ashkan.khalili@rmit.edu.au; or my supervisors listed above. Any complaints about your participation in this project can be directed to the Chair, Business College Human Ethics Advisory Network, College of Business, RMIT GPO Box 2476, Melbourne 3001. Phone 03 9925 5596, email:bchean@rmit.edu.au. Details of the complaints procedure are available from: http://rmit.net.au/browse;ID=2jqrnb7hmypo

Yours sincerely,

Nuttawuth Muenjohn, PhD
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Tel: 03 9925 5946

Student Investigator:
Ashkan Khalili
PhD Candidate
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RMIT University,
Email: ashkan.khalili@rmit.edu.au
Tel: 03 9925 1511

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Appendix C: The Survey Questionnaire

**Project Title:** Leading towards Creativity and Innovation: A Study of Small to Medium Enterprises (SMEs) in Australia

**Section 1: Profile of Organisation**

Q1: How many employees does the present company have?

1) 1-4 employees  
2) 5-19 employees  
3) 20-199 employees

Q2: In which state is the present company’s head office located?

1) New South Wales  
2) Victoria  
3) Queensland  
4) South Australia  
5) Western Australia  
6) Tasmania  
7) Northern Territory  
8) Australian Capital Territory

Q3: The present company operates:

1) Locally (only in one state)  
2) Nationally (more than one state)  
3) Locally and Internationally  
4) Nationally and Internationally
Q4: How long has the present company been in business?

1) Less than a year  
2) 1-4 years  
3) 5-8 years  
4) 9-12 years  
5) More than 12 years

Q5: Please specify in what industry the present company is operating?

1) Agriculture, Forestry and Fishing  
2) Mining  
3) Manufacturing  
4) Electricity, Gas, Water and Waste Services  
5) Construction  
6) Wholesale Trade  
7) Retail Trade  
8) Accommodation and Food Services  
9) Transport, Postal and Warehousing  
10) Information Media and Telecommunications  
11) Financial and Insurance Services  
12) Rental, Hiring and Real Estate Services  
13) Professional, Scientific and Technical Services  
14) Administrative and Support Services  
15) Public Administration and Safety  
16) Education and Training  
17) Health Care and Social Assistance  
18) Arts and Recreation Services  
19) Other Services (please specify) ____________________

Q6: In which sector is the present company operating?

1) Private sector  
2) Public sector

Q7: Which category best describes the business ownership in the present company?

1) Family Business  
2) Non-family Business
Section 2: SME Leadership Behaviour

Please indicate the extent to which you agree or disagree in regard to the leaders’ behaviour in the present company by selecting a number from 1 to 5.

In this company, leaders:

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither Agree nor Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Search continuously to change or enhance the working conditions.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2) Encourage employees to develop their own ideas.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3) Seek out and promote creative and innovative thoughts in order to solve problems.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4) Listen closely to the ideas of those who disagree with them.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5) Have strong beliefs about personal values, character and integrity.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6) Persist in the face of adversity.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7) Like employees to attempt new approaches of doing their tasks.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8) Display their appreciation for creativity through providing public and meaningful recognition.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td>Neither Agree nor Disagree</td>
<td>Agree</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>---</td>
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</tr>
<tr>
<td>9) Create and express an exciting vision of the future.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>10) Inspire employees with plans for the future.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>11) Make the vision clearly understood by giving examples, telling stories, and using figures of speech and metaphors.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>12) Have visions/dreams of what can be.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>13) Have a clear image of the future.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>14) Express enthusiasm for their vision.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>15) Are models of what they want others to do.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>16) Use vision to give company life and work a sense of meaning and purpose.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>17) Understand employees’ job problems and needs.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>18) Are easily approachable to talk to about work-related problems.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>19) Provide advice and coaching.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>20) Recognise employees’ potential and contributions.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td>Neither Agree nor Disagree</td>
<td>Agree</td>
<td>Strongly Agree</td>
</tr>
<tr>
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</tr>
<tr>
<td>21)</td>
<td>Provide encouragement and support when there is a difficult and stressful task.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>22)</td>
<td>Use power to assist employees to solve problems.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>23)</td>
<td>Let members learn from mistakes without fear of reprisal.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>24)</td>
<td>Support creativity including risk-taking into new areas or areas where the member has little or no prior experience.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>25)</td>
<td>Encourage employees to share knowledge, information and resources.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>26)</td>
<td>Consult with employees when making decisions.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>27)</td>
<td>Listen very carefully to the ideas of others before making decisions.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>28)</td>
<td>Check with others before making decisions that affect them.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>29)</td>
<td>Encourage others to participate in decision making.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>30)</td>
<td>Use the ideas and suggestions of others in decision making.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
Section 3: Employees’ Creativity

Please rate the characteristic of each following statement in regard to the employee’s creativity in the present company by selecting a number from 1 to 5.

Here, an employee:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Not at all characteristic</th>
<th>A little bit</th>
<th>Neutral</th>
<th>Characteristic</th>
<th>Very characteristic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Suggests new ways to achieve goals or objectives.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2) Comes up with new and practical ideas to improve performance.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3) Searches out new technologies, processes, techniques, and/or product ideas.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4) Suggests new ways to increase quality.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5) Is a good source of creative ideas.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6) Is not afraid to take risks.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7) Promotes and champions ideas to others.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Not at all characteristic</td>
<td>A little bit</td>
<td>Neutral</td>
<td>Characteristic</td>
<td>Very characteristic</td>
</tr>
<tr>
<td>---</td>
<td>--------------------------</td>
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<td>----------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>8) Exhibits creativity on the job when given the opportunity to.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>9) Develops adequate plans and schedules for the implementation of new ideas.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>10) Often has new and innovative ideas.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>11) Comes up with creative solutions to problems.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>12) Often has a fresh approach to problems.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>13) Suggests new ways of performing work tasks.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
## Section 4: Employees’ Innovative Behaviour

Please judge how frequently each statement fits employee’s innovative behaviour in the present company by selecting a number from 1 to 5.

An employee here:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Most of the Time</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Pay attention to issues that are not part of his/her daily work.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2) Wonder how things can be improved.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3) Search out new working methods, techniques or instruments.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4) Generate original solutions for problems.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5) Find new approaches to execute tasks.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6) Make important organisational members enthusiastic for innovative ideas.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7) Attempt to convince people to support an innovative idea.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8) Systematically introduce innovative ideas into work practices.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>9) Contribute to the implementation of new ideas.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>10) Put effort in the development of new things.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
Section 5: Employees’ Personal Initiative

Please judge how frequently each statement fits employees’ personal initiative in the present company by selecting a number from 1 to 5.

Employees here:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither Agree nor Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Actively attack problems.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2) Whenever something goes wrong, they search for a solution immediately.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3) Whenever there is a chance to get actively involved, they take it.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4) They take initiative immediately even when others don’t.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5) They use opportunities quickly in order to attain their goals.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6) Usually they do more than they are asked to do.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7) They are particularly good at realising ideas.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
Section 6: Individuals’ Perceptions of a Supportive Climate for Innovation

The following statements are related to your perception of Support for Innovation in the present company. Please indicate the extent of your agreement or disagreement with each statement by selecting a number from 1 to 5.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither Agree nor Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Creativity is encouraged here.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2) Our ability to function creatively is respected by the leadership.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3) Around here, people are allowed to try to solve the same problems in different ways.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4) The main function of members in this organisation is to follow orders which come down through channels. (*)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5) Around here, a person can get in a lot of trouble by being different. (*)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6) This organisation can be described as flexible and continually adapting to change.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7) A person can’t do things that are too different around here without provoking anger. (*)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8) The best way to get along in this organisation is to think the way the rest of the group does. (*)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td>Neither Agree nor Disagree</td>
<td>Agree</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>---</td>
<td>------------------</td>
<td>----------</td>
<td>---------------------------</td>
<td>-------</td>
<td>----------------</td>
</tr>
<tr>
<td>9</td>
<td>People around here are expected to deal with problems in the same way. (*)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10</td>
<td>This organisation is open and responsive to change.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>11</td>
<td>The people in charge around here usually get credit for others’ ideas. (*)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>12</td>
<td>In this organisation, we tend to stick to tried and true ways. (*)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>13</td>
<td>This place seems to be more concerned with the status quo than with change. (*)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>14</td>
<td>Assistance in developing new ideas is readily available.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>15</td>
<td>There are adequate resources devoted to innovation in this organisation.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>16</td>
<td>There is adequate time available to pursue creative ideas here.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

Note: Item with (*) is a reverse coded item.
Section 7: Individuals’ Emotional Intelligence

The following statements are related to your Emotional Intelligence competencies. Please indicate the extent of your agreement or disagreement with each statement by selecting a number from 1 to 5.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither Agree nor Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) I have a good sense of why I have certain feelings most of the time.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2) I have good understanding of my own emotions.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3) I really understand what I feel.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4) I always know whether or not I am happy.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5) I always know my friends’ emotions from their behaviour.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6) I am good observer of others’ emotions.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7) I am sensitive to the feelings and emotions of others.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8) I have good understanding of the emotions of people around me.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td>Neither Agree nor Disagree</td>
<td>Agree</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>---</td>
<td>------------------</td>
<td>----------</td>
<td>-----------------------------</td>
<td>-------</td>
<td>---------------</td>
</tr>
<tr>
<td>9) I always set goals for myself and then try my best to achieve them.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>10) I always tell myself I am a competent person.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>11) I am a self-motivated person.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>12) I would always encourage myself to try my best.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>13) I am able to control my temper and handle difficulties rationally.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>14) I am quite capable of controlling my own emotions.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>15) I can always calm down quickly when I am very angry.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>16) I have good control of my own emotions.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
Section 8: Respondent Demographics

Q1: What is your gender?

- Male
- Female

Q2: What is your current marital status?

1) Single
2) Married
3) Other

Q3: Please indicate your age category:

1) Between 18-20
2) Between 21-30
3) Between 31-40
4) Between 41-50
5) Between 51-60
6) Over 60 years old

Q4: What is your position in the present company? (please tick as many as appropriate)

- Founder
- Owner
- CEO
- Managing Director
- Director
- Manager
- Supervisor
- Employee
Q5: Please specify your employment status in the present company?

- Full time
- Part time
- Casual

Q6: How long have you been with the present company?

1) 4 years and less
2) 5-7 years
3) 8-10 years
4) 11 years and above

Q7: What is the highest level of education that you achieved?

- High School or Lower
- TAFE Qualification
- Bachelor Degree
- Postgraduate Qualification (please specify) ____________________