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**LEARNING AT WORK:  
A MODEL OF LEARNING & DEVELOPMENT  
FOR YOUNGER WORKERS**

A thesis presented in partial fulfilment of the requirements for the degree of  
Doctor of Philosophy in Human Resource Management  
at Massey University, New Zealand

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**2011**

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## **ABSTRACT**

An organisation's competitiveness is largely determined by the capability of its workforce (Combs, Luthans, & Griffith, 2009; Den Hartog & Verbarg, 2004). The development of employee capability is, therefore, an important goal for organisations and human resource practitioners. Because the workforce is ageing, organisations need to pay particular attention to developing the capability of younger, novice workers who will become the core workforce as older workers move out of the labour market. However, little is known about the process by which younger workers learn and develop at work or how organisations may be able to influence this process to enhance the development of their skills, knowledge and abilities.

To address this gap in the literature, the present study examined a model of learning and development for younger workers. The model posited that younger workers' 'development self-efficacy' beliefs would mediate the relationship between salient contextual (work environment) and individual factors and motivational components of the development process.

A total of 1758 young people aged between 16 and 24 years employed full-time participated in the study. Eligible employees were invited to take part via their organisations. Organisations were selected using a multi-stage stratified random sampling method which enabled a diverse and comprehensive sample of younger workers to be achieved. The method resulted in a sampling frame comprising small, medium and large organisations from four major industries (business, construction, manufacturing and retail) located in nine medium and large urban centres around New Zealand. Participants were asked to complete a questionnaire which contained a series of questions about their learning-related beliefs and attitudes, intentions to participate in development activities, and perceptions of developmental support from their organisation, manager and co-workers.

The study found that individual and contextual factors both have an important influence on younger workers' participation in development activities, but affect this through different aspects of the development process. Development self-efficacy mediates the influence of certain contextual and individual factors on learning motivation. In addition, other individual and contextual factors directly influence young people's intentions to engage in development activities through their learning attitudes, motivation and career-job beliefs.

In addition, there is evidence to suggest that certain factors may be more relevant to the development of younger workers than their more experienced colleagues. Consequently, life-stage is a potentially important factor to consider when developing employee capability.

## ACKNOWLEDGEMENTS

First, thank you to all the organisations and younger workers throughout New Zealand who took part in this study – it would not have been possible without you! I hope that this study provides some insights into understanding the way in which young people learn and develop at work, and how organisations can enhance this process.

I am also thankful to Massey University, the Department of Labour and the Human Resource Institute of New Zealand (Manawatu branch) who provided financial assistance that made this study possible. Approval for this study was sought and granted by the Massey Human Ethics Committee, Northern: 07/049.

I am sincerely grateful to so many people who supported me in so many different ways during this journey. I owe many thanks to my supervisors who helped guide the design, implementation and write up of the study: Associate Professor Lynn Jeffrey and Dr Karl Pajo, and also to Associate Professor Lisa Emerson for her guidance and support in the final stages.

A special thank you goes to my family and friends who in various ways listened, encouraged, bought coffee and prayed for me throughout the process.

Finally, my deepest gratitude goes to my wonderfully supportive, ever patient and incredibly generous husband Glenn. Words cannot express how much I appreciate your love, support and encouragement. Thanks for believing in me and helping me to believe in myself. I couldn't have done this without you.

Robyn

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# TABLE OF CONTENTS

<b>ABSTRACT .....</b>	<b>I</b>
<b>ACKNOWLEDGEMENTS.....</b>	<b>III</b>
<b>TABLE OF CONTENTS.....</b>	<b>V</b>
<b>LIST OF TABLES.....</b>	<b>IX</b>
<b>LIST OF FIGURES.....</b>	<b>X</b>
<b>PROLOGUE: A PERSONAL JOURNEY .....</b>	<b>1</b>
<b>CHAPTER 1: INTRODUCTION .....</b>	<b>3</b>
<b>1.1 BACKGROUND.....</b>	<b>3</b>
1.1.1 The Development of Employee Capability .....	5
<b>1.2 AIM OF THE STUDY .....</b>	<b>9</b>
<b>1.3 THESIS STRUCTURE .....</b>	<b>10</b>
<b>CHAPTER 2: YOUNGER WORKERS.....</b>	<b>13</b>
<b>2.1 OVERVIEW .....</b>	<b>13</b>
<b>2.2 WHO ARE YOUNGER WORKERS?.....</b>	<b>15</b>
2.2.1 Defining Younger Workers .....	15
2.2.2 Emerging Adulthood .....	17
2.2.3 Part-Time versus Full-Time Workers.....	21
<b>2.3 YOUNGER WORKERS' EXPERIENCES OF LEARNING AND DEVELOPMENT.....</b>	<b>26</b>
2.3.1 The Work Environment .....	26
2.3.2 The Experiences of Part-Time & Full-Time Workers .....	29
<b>2.4 CONCLUSION .....</b>	<b>35</b>



<b>CHAPTER 3: LITERATURE REVIEW – EMPLOYEE LEARNING &amp; DEVELOPMENT .....</b>	<b>39</b>
<b>3.1 OVERVIEW .....</b>	<b>39</b>
<b>3.2 A THEORETICAL FRAMEWORK OF EMPLOYEE LEARNING &amp; DEVELOPMENT .....</b>	<b>40</b>
<b>3.3 SELF-EFFICACY .....</b>	<b>43</b>
3.3.1 Overview .....	43
3.3.2 Levels of Specificity .....	45
3.3.3 Self-Efficacy for Learning and Development .....	50
<b>3.4 ATTITUDINAL &amp; MOTIVATIONAL OUTCOMES .....</b>	<b>52</b>
3.4.1 Overview .....	52
3.4.2 Attitudes & Motivation .....	53
3.4.3 Intentions to Participate .....	57
<b>3.5 EXTERNAL &amp; INTERNAL SOURCES OF SELF-EFFICACY BELIEFS .....</b>	<b>59</b>
3.5.1 Overview .....	59
3.5.2 The Formation of Efficacy Beliefs .....	60
3.5.3 The Work Environment .....	65
3.5.4 Individual Self-Beliefs .....	74
<b>3.6 CONCLUSION .....</b>	<b>81</b>
3.6.1 A Model of Learning & Development for Younger Workers .....	81
<b>CHAPTER 4: RESEARCH DESIGN .....</b>	<b>91</b>
<b>4.1 OVERVIEW .....</b>	<b>91</b>
<b>4.2 SAMPLING &amp; ADMINISTRATION .....</b>	<b>92</b>
4.2.1 Sampling .....	92
4.2.2 Survey Administration .....	96
4.2.3 Participant Characteristics .....	100
<b>4.3 MEASURES .....</b>	<b>102</b>
4.3.1 Analysis of Measures .....	103
4.3.2 Psychological Constructs .....	104
4.3.3 Demographic & Organisational Information .....	108

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<b>4.4 DATA SCREENING &amp; ANALYSIS .....</b>	<b>110</b>
4.4.1 Data Screening .....	110
4.4.2 Analytical Strategies.....	111
 <b>CHAPTER 5: RESULTS .....</b>	<b>117</b>
 <b>5.1 OVERVIEW .....</b>	<b>117</b>
 <b>5.2 DESCRIPTIVE STATISTICS .....</b>	<b>117</b>
 <b>5.3 MEASUREMENT MODEL.....</b>	<b>120</b>
5.3.1 Reported Goodness-of-Fit Indices.....	120
5.3.2 Results .....	122
 <b>5.4 STRUCTURAL MODEL .....</b>	<b>125</b>
5.4.1 Fully-Mediated Model.....	125
5.4.2 Alternative Models.....	128
5.4.3 Cross-Validation .....	132
 <b>5.5 MULTI-GROUP ANALYSES.....</b>	<b>137</b>
5.5.1 Model Testing .....	137
5.5.2 Cross-Validation .....	139
 <b>CHAPTER 6: DISCUSSION .....</b>	<b>143</b>
 <b>6.1 OVERVIEW .....</b>	<b>143</b>
 <b>6.2 A MODEL OF LEARNING AND DEVELOPMENT FOR YOUNGER WORKERS.....</b>	<b>144</b>
6.2.1 Factors that Influence Development Self-Efficacy Beliefs.....	144
6.2.2 Factors that Influence Attitudes and Motivation.....	150
6.2.3 Factors that Influence Developmental Intentions .....	157
6.2.4 The Moderating Effect of Gender .....	161
 <b>6.3 GENERAL DISCUSSION: IMPLICATIONS AND RECOMMENDATIONS .....</b>	<b>164</b>
6.3.1 Developing Younger Workers .....	164
6.3.2 Younger Workers as a Distinct Group of Employees.....	172
6.3.3 Generational Differences .....	174

<b>6.4</b>	<b>LIMITATIONS.....</b>	<b>177</b>
<b>6.5</b>	<b>AVENUES FOR FUTURE RESEARCH.....</b>	<b>180</b>
	<b>CHAPTER 7: CONCLUSION.....</b>	<b>185</b>
	<b>REFERENCES.....</b>	<b>191</b>
	<b>APPENDIX A: INFORMATION SHEET FOR ORGANISATIONS .....</b>	<b>227</b>
	<b>APPENDIX B: SURVEY INSTRUCTIONS FOR ORGANISATIONS.....</b>	<b>233</b>
	<b>APPENDIX C: INFORMATION SHEET FOR PARTICIPANTS .....</b>	<b>237</b>
	<b>APPENDIX D: LEARNING AT WORK SURVEY .....</b>	<b>241</b>
	<b>APPENDIX E: PARAMETER ESTIMATES FOR MEASUREMENT MODEL ....</b>	<b>253</b>
	<b>APPENDIX F: PARAMETER ESTIMATES FOR FULLY-MEDIATED STRUCTURAL MODEL .....</b>	<b>257</b>
	<b>APPENDIX G: PARAMETER ESTIMATES FOR FINAL STRUCTURAL MODEL .....</b>	<b>261</b>
	<b>APPENDIX H: PARAMETER ESTIMATES FOR CROSS-VALIDATION OF STRUCTURAL MODEL .....</b>	<b>265</b>
	<b>APPENDIX I: PARAMETER ESTIMATES FOR MODERATED STRUCTURAL MODEL .....</b>	<b>269</b>
	<b>APPENDIX J: PARAMETER ESTIMATES FOR CROSS-VALIDATION OF MODERATED STRUCTURAL MODEL.....</b>	<b>275</b>

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## LIST OF TABLES

Table 1:	Participant Characteristics from Final Sample .....	100
Table 2:	EFA Results by Measurement Cluster .....	104
Table 3:	Summary of Measures .....	109
Table 4:	Data Samples .....	113
Table 5:	Means, Standard Deviations, and Intercorrelations amongst Latent Constructs in the Structural Model .....	118
Table 6:	Fit Statistics for Measurement Models .....	124
Table 7:	Fit Statistics for Structural Models .....	129
Table 8:	Summary of Hypotheses .....	134
Table 9:	Fit Statistics for Moderated Structural Model .....	138
Table 10:	Fit Statistics for Nested Model Comparisons .....	138
Table 11:	Fit Statistics for Cross-Validation of Moderated Structural Model .....	141
Table 12:	Fit Statistics for Cross-Validation of Nested Model Comparisons .....	141

## LIST OF FIGURES

Figure 1:	Simplified Model of an Employee Learning & Development Orientation .....	41
Figure 2:	Hypothesised Fully-Mediated Structural Model.....	86
Figure 3:	Alternative Hypotheses: Partially-Mediated Structural Model.....	88
Figure 4:	Hypothesised Structural Model (Fully-Mediated).....	126
Figure 5:	Observed Structural Model (Fully-Mediated).....	127
Figure 6:	Final Model.....	131
Figure 7:	Cross-Validation Model.....	136
Figure 8:	A Model of Learning and Development for Younger Workers.....	143

## PROLOGUE: A PERSONAL JOURNEY

My interest in undertaking this study stems from my own background and journey; a journey which has taken me on a number of paths I had never expected, and resulted in accomplishments I never thought possible. It is this process of discovery, which began long before I was even aware of it, that has been pivotal in my decision to undertake this course of study.

After finding I had hit a 'dead-end' with my academic choices at the end of my 6<sup>th</sup> form year, I left school, moved to the city and, after completing a year of secretarial studies, began working life as a legal secretary. Three years later, with itchy feet and the greener pastures of the UK in my sights, I left my job and spent my summer working at McDonald's. Who'd have thought; I loved it! To cut a long story short, instead of heading off overseas, and despite having already resigned, I accepted a role as a trainee manager.

And so began a new chapter of my life, filled with challenges, laughter (and lots of nightclubbing); but, most of all, with rich personal learnings that have helped shape who I am today, and who I will no doubt be in the future. In addition to my own learning, during my four years at McDonald's I was inspired and challenged by helping others to learn and grow – not just in their job skills, but in discovering what they could do and who they might become. Helping young people realise that they can learn, grow and do things they may not have thought possible have been some of my most rewarding work experiences.

Our experiences, and interpretation of those experiences, both consciously and subconsciously shape who we are now and who we will be in the future. Yes, we are shaped by our history and past experiences, but we can be more than who we were then and who we currently are. I believe we each hold the ability to shape our future, however large or small the influence we have on it may seem. Moreover,

each of us has the ability to be involved in this process: to discover our interests and passions and pursue them, not just once, but over the course of our lives; and, in doing so, to face the things we find challenging and experience what it's like to overcome them. This, I think, is one of the most empowering experiences one can have.

Many young people do not have the experiences of learning at school that they may have wanted. However, once they enter the workforce, the majority of their opportunities for learning and growth come from their work environment. I have seen the enormous impact positive workplace learning experiences can have on young people's confidence, self-beliefs and career aspirations. These and my own experiences of learning has led to a personal interest in exploring the way in which young people's confidence for learning and development may be influenced by their experiences of support in their work environment. My interest in this area is also strongly associated with my belief that many individual skills, knowledge and abilities can be developed, and that one's confidence for learning may be enhanced when they are supported in the development process, particularly in their work environment.

This thesis draws on a broad and diverse body of scholarly knowledge as well as my own experiences of learning and development, and my experiences of helping others to learn and develop in the workplace. Seeing someone who may not have had a great deal of affirmation about their potential develop not only their work skills and capabilities, but achieve meaningful personal growth through their work experiences is, for me, one of the most motivating reasons to be involved in human resource development. The literature suggests, and I strongly agree, that organisations have considerable opportunity to guide, challenge and support young people to grow and develop not only their work skills, but their beliefs about themselves as learners. In this way, organisations have a key role to play in helping young people realise and achieve their potential, both now and for the future.

I hope you enjoy reading my thesis.

# CHAPTER 1: INTRODUCTION

## 1.1 BACKGROUND

In an increasingly competitive global economy, developing individual and workforce capability is recognised as a key means of achieving economic competitiveness and growth (Combs, et al., 2009; Den Hartog & Verbarg, 2004). Employees who have higher levels of skills and knowledge are able to contribute more effectively to organisational performance and are better able to adapt to changing work environments (Bandura, 1997). Thus, to keep pace with extant and anticipated change, organisations need employees who are willing and able to learn, not just now, but over the course of their lives (Skill New Zealand, 2001; Sonnentag, Niessen, & Ohly, 2004). The development of employee capability is, therefore, a priority for organisations.

Developing employee capability has a number of benefits not only for organisations, but also for individuals and society. Organisations that emphasise employee development report higher levels of organisational performance reflected through increases to employee productivity, work quality, teamwork, innovation, creativity and reduced costs associated with production and turnover (Aguinis & Kraiger, 2009; Tannenbaum, 1997). Consequently, one of the central concerns of human resource development is improving organisational performance through the development of individual skills, knowledge and ability, which are vital components of an employee's capability (Akdere & Roberts, 2008).

For individuals, the development of skills and knowledge and the acquisition of formal qualifications lead to improvements in wages and long-term employability (European Foundation for the Improvement of Living and Working Conditions, 2005; E. Smith & Comyn, 2004). Employees who believe their organisation invests in and supports their development have higher levels of job performance, are more satisfied with their jobs and are more committed to the organisation (Aguinis &



Kraiger, 2009; Lee & Bruvold, 2003; Maurer & Lippstreu, 2008; Pajo, Ward, & Mallon, 2005; Tansky & Cohen, 2001). They also tend to be more motivated to learn, to participate in development activities and to transfer learning to the workplace (Birdi, Allan, & Warr, 1997; Pajo, et al., 2005; Tharenou, 2001; Tracey, Tannenbaum, & Kavanagh, 1995; Warr & Birdi, 1998).

Improvements to workers' skills and knowledge can also enhance their personal qualities and self-beliefs, including their sense of self-worth, enabling them to contribute in more effective and meaningful ways to family, community and society (Garavan, McGuire, & O'Donnell, 2004; Ministry of Economic Development, 2003). Investing in employee development is clearly more than just an economic imperative for organisations; it is also an important social good (Garavan, et al., 2004; Gorard, 2003; O'Donnell, Gubbins, McGuire, Jørgensen, Henriksen, & Garavan, 2007; Zidan, 2001). It is not surprising then that organisations are postulated as playing an important role in contributing to a knowledge economy and learning society (Kessels & Poell, 2004).

While the development of capability is important for employees of all ages, this study focuses on a particular group of employees who have been largely overlooked by human resource scholars. These employees are referred to in the current study as 'younger workers', and are defined as those aged 16-24 for whom work is their primary activity. While this cohort forms only a small proportion of the workforce at any point in time (approximately 13% of all full-time employees in New Zealand) (Statistics New Zealand, 2003, 2007), as they mature they will form an increasingly important group in the labour market. Indeed, many will take up positions of responsibility and influence in organisations and in society. Thus, long-term organisational capability depends heavily on these relatively inexperienced and impressionable employees.

In order to most effectively develop the capability of younger workers, both organisations and researchers need a sound understanding of who these employees

are and how their skills, knowledge and abilities may be enhanced in organisational settings. This study helps develop this understanding, focusing specifically on the development of full-time younger workers.

### **1.1.1 The Development of Employee Capability**

The acquisition of new skills and knowledge, and their application to the workplace, is central to the development of employee capability. However, capability development requires more than individuals simply acquiring skills or knowledge for a particular job. Rather, organisations want employees who are able to recognise and respond to the need for new skills, knowledge or ways of working, and are willing to continue learning over the course of their lives (Department of Labour, 1999; Leggatt-Cook, 2005; New Zealand Government, 2001). In other words, employees increasingly need a cognitive and attitudinal responsiveness that enables them to engage actively in ongoing skill development (Ministry of Economic Development, 2003). The need for such continuous development is particularly important for smaller organisations with high demands for skill versatility and adaptability (Gorard, 2003); key characteristics of organisations in New Zealand (Coetzer, 2006a; Statistics New Zealand, 2005).

Employees' cognitive and attitudinal responsiveness for learning can be described as their capacity or orientation for learning. This orientation for learning is an important part of their engagement in ongoing learning and development and is increasingly recognised as a source of competitive advantage for organisations (Maurer, 2002; Vaughan & Cameron, 2009). Although an individual's capacity to learn is to a degree innate, scholars believe this capacity can be developed over time (Bloomer & Hodkinson, 2000; Claxton, 2007; Larose, Bernier, & Tarabulsy, 2005; Maurer, 2002). The extent to which an organisation can foster an employee's capacity for learning has implications for the development of their skills and knowledge and, ultimately, their ability to contribute to the organisation's goals and performance. The challenge then is identifying the most effective ways to develop not only employee skills and knowledge, but also their capacity to learn.

In addressing this challenge, scholars have paid considerable attention to developing a better understanding of both the processes by which learning and development occurs, and the individual characteristics which have the most effect on developmental behaviours. Research shows that employees' participation in development activities, acquisition of skills and knowledge, and performance in training situations depend largely on their beliefs, attitudes and motivation for learning (Birdi, et al., 1997; Colquitt, LePine, & Noe, 2000; Maurer, Lippstreu, & Judge, 2008; Maurer, Weiss, & Barbeite, 2003; Tharenou, 2001; Tracey, Hinkin, Tannenbaum, & Mathieu, 2001). Together, these beliefs, attitudes and motivation orient an individual towards learning and development (Maurer, 2002). Thus, organisations can significantly stimulate the development of individual skills and knowledge by enhancing these important cognitive, affective and motivational characteristics. For this reason, researchers have paid increasing attention to identifying how these cognitive and affective characteristics are influenced by the contexts in which learning occurs.

A burgeoning literature suggests the work environment affects employees' participation in developmental activities through their learning-related attitudes and motivation. One aspect of the work environment – interpersonal support for learning and development – has been positively related to one of the most studied variables in human resource development: motivation to learn (Fecteau, Dobbins, Russell, Ladd, & Kudisch, 1995; Noe & Wilk, 1993; Switzer, Nagy, & Mullins, 2005; Tracey, et al., 2001). The work environment, including interpersonal support, is also related to employee attitudes such as perceived benefits of training and development activities (Guthrie & Schwoerer, 1994; Maurer, Lippstreu, et al., 2008; Maurer, Weiss, et al., 2003).

More recently, researchers have begun to examine the way in which employees' cognitive self-beliefs may mediate the relationship between the work environment and various affective or motivational components of the development process. The theoretical foundation for this research is based largely on social cognitive theory,

which suggests that cognition is a key source of influence on motivation and behaviour (Bandura, 1986). A specific cognitive belief that has received some attention in relation to employee development is an individual's 'self-efficacy' beliefs. Self-efficacy reflects an individual's confidence for performing certain behaviours or achieving certain outcomes (Bandura, 1997).

Empirical evidence supports the role of self-efficacy beliefs in predicting employee behaviour and performance in both work (Potosky & Ramakrishna, 2002; Stajkovic & Luthans, 1998) and learning-related situations (Colquitt, et al., 2000). Self-efficacy has also been shown to influence affective and motivational components of the development process; for example, attitudes towards learning (Maurer, Lippstreu, et al., 2008; Maurer, Weiss, et al., 2003), perceived training utility (Guthrie & Schwoerer, 1994), motivation to learn (Chiaburu & Lindsay, 2009; Chiaburu & Marinova, 2005; Tracey, et al., 2001) and transfer intentions (Machin & Fogarty, 1997). Because self-efficacy beliefs play an important role in the development process, understanding how these may be influenced is a priority for organisational researchers.

Self-efficacy beliefs are influenced by a variety of internal and external sources of information (Gist & Mitchell, 1992). One external source that has received some attention in relation to learning-related self-efficacy beliefs is the work environment (Maurer, Lippstreu, et al., 2008; Maurer, Weiss, et al., 2003; Tracey, et al., 2001). However, findings have been mixed and further research is needed to establish the existence and significance of this relationship. Moreover, these studies have examined the experiences of older, more established employees, but have not paid specific attention to younger workers' self-efficacy beliefs.

A key factor distinguishing young people from other cohorts relates to their stage of development or 'life stage'. During the late teens and early twenties – the period of 'emerging adulthood' – individual characteristics are still developing and are, therefore, malleable (Arnett, 2000; Krosnick & Alwin, 1989; Roberts & DelVecchio,

2000). While many factors play a formative role in the development of a young person's characteristics, their early experiences in their work environment are believed to be an important influence (M. K. Johnson, 2001; Loughlin & Barling, 2001; Vaughan, 2010). In fact, some researchers have suggested that younger workers may be more responsive to the influence of their work environment than older, more established employees (Lorence & Mortimer, 1985).

Despite agreement by scholars as to the importance of the work environment for young people, researchers have generally focused on the experiences of adolescents who work part-time (M. K. Johnson, 2002; Loughlin & Barling, 1998; Stern, Stone, Hopkins, & McMillan, 1990), the pathways by which young people transition from school to work (Athanasou, 2001; Ball & Lamb, 2001; McMillan & Marks, 2003; E. Smith & Green, 2005; Vaughan, 2003) and their subsequent destinations and outcomes (Boyd & McDowall, 2004; Lamb & Rumberger, 1999). As a result, little is known about the developmental experiences of those for whom work is their primary activity.

Young people who work full-time spend more time in their organisational environments and are more likely to work in occupations that are relevant to their skills or career interests than young people who are primarily engaged in education and who work part-time (Arnett, 2000; Marks, 2006). For these reasons, it is expected that the experiences of full-time younger workers would be highly relevant to the development of their beliefs and attitudes about work, about learning and about themselves as workers and as learners (Lorence & Mortimer, 1985; E. Smith & Comyn, 2004; Vaughan, 2010). However, research has not yet specifically examined the way in which the learning-related beliefs and attitudes of these employees may be influenced by their work environment and, in turn, may influence important affective and motivational aspects of the development process.

While organisational capability depends on the development of employees of all ages, because younger workers are the core of the future workforce, the

development of this group is important for a skilled, capable and flexible workforce in the future. Understanding how younger workers' beliefs, attitudes and motivation for learning interact with each other, and how they are influenced by the work environment, will provide valuable insights on how to develop the capability of this important group of employees.

## **1.2 AIM OF THE STUDY**

Adopting a human resource development perspective, the current study draws on a diverse range of literatures to develop an understanding of who younger workers are, why they are distinct from other groups of employees, and how their beliefs, attitudes and motivation for learning and development may be influenced by salient aspects of the organisation's learning environment.

The main aim of this study is to develop and test a model of employee learning and development for young workers. Specifically, the study asks:

1. *To what extent do the 'development self-efficacy' beliefs of younger workers predict their attitudes to continuous learning, motivation to learn and, in turn, their intentions to participate in development activities?*
2. *To what extent are younger workers' development self-efficacy beliefs explained by characteristics of the work environment?*
3. *To what extent are younger workers' development self-efficacy beliefs explained by salient characteristics ('self beliefs') of the individual?*

The study hypothesises that, for younger workers, self-efficacy mediates the relationship between the work environment and individual self-beliefs as antecedents of the development process and motivational components of this process: namely, younger workers' attitude to continuous learning, their motivation

to learn and their behavioural intentions. As these motivational components are expected to be influenced by development self-efficacy, they are referred to as 'outcomes' of self-efficacy.

### **1.3 THESIS STRUCTURE**

The thesis begins with a review of the literature, which is conducted in two separate but interrelated chapters. The first of these, Chapter 2, explores the literature on younger workers, beginning by defining this group and exploring how they are distinct from other older cohorts of employees and from young people who work part-time. The chapter then explores the modest literature on younger workers' experiences of learning and development. Particular attention is paid to a small number of studies that propose the work environment as being an important context in which much skill development and personal learning occurs during young people's early years in the labour market.

Chapter 3 examines the literature on employee learning and development. The chapter begins by reviewing a model of learning and development proposed by Maurer (2002). This model provides a framework for critiquing the literature focusing on aspects of the model most relevant to understanding younger workers' orientation to learn. The chapter then examines the notion of self-efficacy – proposed as a central construct of an employee learning orientation – and then addresses a particular efficacy belief: self-efficacy for learning and development. Next, three specific 'outcomes' of self-efficacy are explored: attitudes towards learning, motivation to learn and behavioural intentions; followed by an examination of a number of sources or 'antecedents' of self-efficacy beliefs relating to the work environment and characteristics of the individual. The chapter concludes by reviewing gaps identified in the literature and presents a number of specific hypotheses to be addressed by the study. Together, these hypotheses form a model of employee learning and development relevant to younger workers.

Chapter 4 presents the methods used to gather information for the study. These include the sampling design, administration of the questionnaire, measurement of the constructs and the methods selected for analysing the data. In Chapter 5, the results of the study are presented in four parts: first, the descriptive statistics for each of the constructs in the model; second, the results from the confirmatory factor analysis relating to the measures in the model; third, the results from the testing of the proposed structural models, including cross-validation of the final model; and fourth, the results relating to the moderating effects of gender.

The findings from the study are discussed in Chapter 6, including their implications for the practice and study of human resource development, limitations in interpreting the results and avenues for future research. Chapter 7 draws together a number of key conclusions from the study and highlights its contribution to the literature.



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## CHAPTER 2: YOUNGER WORKERS

### 2.1 OVERVIEW

*Every youth owes it to himself and to the world to make the most possible out of the stuff that is in him...*

Orison Swett Marden, founder of Success Magazine

Young people are the face of the future. Although they form only a small proportion of the workforce, as they mature they will progressively take up positions of responsibility in organisations, society and community. The literature suggests that while an individual's characteristics are responsive to change over their life course, they are more malleable earlier in life. In addition, the late teens and early twenties are an important period during which young people encounter a range of new environments and experiences that can influence the development of their beliefs, attitudes and values. For these reasons, there is a considerable interest and value for society, organisations and individuals in helping young people achieve their potential.

It is no surprise, then, that young people are of particular interest to scholars and policy makers, both in New Zealand and internationally. An increasing body of research now exists that has been directed towards understanding young people's school-to-work transition experiences and labour market outcomes, and improving these through social and economic policy and practice (Higgins, Vaughan, Phillips, & Dalziel, 2008). Within this broader area of scholarship, one area that has received much attention is the 'pathways' by which young people transition from school to work and the structures that assist smooth and efficient transitions (Ainley & Corrigan, 2005; Cunningham, Fitzgerald, & Stevenson, 2005; Dwyer, Tyler, & Wyn, 2001; Higgins, et al., 2008; McMillan & Marks, 2003; McMillan, Rothman, & Wernert, 2005; E. Smith, 2004; Vaughan, Roberts, & Gardiner, 2006).

Attention has also been paid to the experiences of young people at risk of economic or social exclusion (Bynner & Parsons, 2002; Curtain, 2001; Loughhead & Liu, 1995; Wiesner, Vondracek, Capaldi, & Porfeli, 2003) and the influence of various individual and socio-economic factors on young people's labour market outcomes (Gardecki & Neumark, 1998; Lamb & Rumberger, 1999; Maré & Liang, 2006; Roberts, Caspi, & Moffitt, 2003). While these studies provide important insight into young people's early employment and transition experiences, they have not addressed the way in which young people's beliefs about learning develop in response to their work-related experiences.

Younger workers' beliefs about learning are central to their engagement in learning and development now and over the course of their lives. As discussed in Chapter 1, in order to keep pace with both extant and anticipated change, organisations need employees who have higher order skills and abilities and who are willing and able to continuously learn and develop their skills, knowledge and ways of working. The need for adaptable, learning-focused employees has particular implications for the development of younger workers. As current cohorts move through the ranks of organisations and eventually out of the workforce, young people are the next group to begin stepping into key roles in the workforce, society and community (Lerner & Steinberg, 2009; Loughlin & Barling, 2001). Thus, organisations have both a vested interest and a pivotal function in helping younger workers develop the capabilities they need to succeed in the future.

In order to most effectively enhance the development of this next generation of core employees, both organisations and researchers need a sound understanding of how younger workers learn and develop in the work environment. However, HRD experts have tended to focus on the development of employees as a homogeneous group. While some attention has been paid to the developmental needs of older workers (Fuller & Unwin, 2005; Kanfer & Ackerman, 2004; Maurer, 2001; Warr & Birdi, 1998), the development of younger workers has been overlooked.

This chapter reviews the literature on younger workers and, in doing so, addresses two questions: who are younger workers and what do we know about their experiences of learning and development in the workplace? In addressing these questions, a diverse range of literatures are reviewed which provide a multi-disciplinary, yet somewhat fragmented, understanding of younger workers during this important developmental stage in their lives: the period of emerging adulthood. The first question ‘who are younger workers?’ is addressed in section 2.2 by examining a number of terms, categorisations and characteristics that define and distinguish younger workers from other developmental cohorts and from young people who work part-time.

Next, section 2.3 addresses the question ‘what do we know about younger workers’ experiences of learning and development?’ The section begins by discussing the importance of the work environment for the development of younger workers. It then reviews the limited literature on younger workers’ experiences of learning and development, focusing on a small number of studies which have examined the experiences of full-time workers during their early years in the workforce. These studies point to the significance of young people’s experiences in this environment in shaping their beliefs and attitudes about work, about learning, and about themselves.

## **2.2 WHO ARE YOUNGER WORKERS?**

### **2.2.1 Defining Younger Workers**

Work is an important activity for many young people and young workers are an important component of the labour force. Approximately 58% of all New Zealanders aged 15 to 24 are engaged in some form of paid employment. Overall, young people who work comprise 16% of the total working population and 13% of the full-time workforce (Statistics New Zealand, 2010).

Young people who work have received much attention from a diverse range of academic scholars and policy makers, both in New Zealand and internationally; however, there is little agreement amongst experts on a definition or categorisation of younger workers. This has resulted in a variety of terms and categorisations being used in the literature, many of which overlap, resulting in a lack of clarity about *who* exactly is referred to. A clearly defined population is important so that their characteristics and experiences can be understood and addressed in appropriate ways.

One term that is commonly used when discussing young people who work is *youth employment*. However, this term has been criticised as not being specific enough to accurately account for the different groups it encompasses (Barling & Kelloway, 1999; Loughlin & Barling, 1999). For instance, it can include any young person from early adolescence through to early adulthood who is involved in work, which may be paid or unpaid, formal or informal, part-time or full-time.

Researchers also refer to younger workers using terms that denote a particular stage of life, and are often accompanied by specific age parameters. Some commonly used terms are *teenagers*, *adolescents*, *youth*, *young adults*, and *emerging adults* (Arnett, 2000; Barling & Kelloway, 1999; Bynner, 2005; Leventhal, Graber, & Brooks-Gunn, 2001; Steinberg, Fegley, & Dornbusch, 1993; Wyn, 2006). However, many of these terms overlap and do not clearly distinguish between different groups of younger workers. For example, the 'teenage' years, defined as the ages of 13 to 19, which include 'adolescence' but also overlap with 'youth', which has been defined as comprising those between 15 to 24 years of age (Barling & Kelloway, 1999). This broader categorisation is then sometimes divided into older (20-24) and younger (15-19) groups (Loughlin & Barling, 2001). Researchers have also divided adolescence into two stages, defining 'middle adolescence' as the ages 16 to 18 years (Frone, 1999) or 14 to 18 years (Kroger, 2000); and 'late adolescence' as 19 to 21 years (Frone, 1999) or 18 to 22 years (Kroger, 2000).

Age parameters are also used for distinguishing between different groups of employees by public sector organisations, both in New Zealand (Department of Labour, 2009; Statistics New Zealand, 2007) and internationally (Australian Bureau of Statistics, 2010; International Labour Organization, 2001; OECD, 2002). In defining young people, these organisations commonly set 15 as the lower age parameter and 24 as the upper. Some researchers have used similar parameters but have increased the lower age limit to reflect the official minimum school leaving age of their target population (for example, E. Smith, 2003).

While these terms and age parameters broadly refer to different groups of younger people, they do not explicitly distinguish between those who work and those who do not, or between those who work part-time and those who work full-time. Moreover, defining populations by age parameters is somewhat arbitrary and can obscure important differences between individuals within groups (Barling & Kelloway, 1999). Nonetheless, the use of such parameters can be a useful way of defining and distinguishing between groups of people. Rather than focusing solely on ages, it may be more meaningful to look at factors that distinguish younger workers from other groups of employees.

### **2.2.2 Emerging Adulthood**

One factor that distinguishes younger workers (and young people more generally) from others in society and in the workforce is their life stage. Research shows that at different stages of the life course individuals encounter different life experiences and experience different levels of change to their personal characteristics; that is, their personality, beliefs, attitudes, and values (Baltes, Reese, & Lipsitt, 1980; Roberts, Walton, & Viechtbauer, 2006). The malleability of these characteristics has implications for researchers in understanding how development occurs across the life course and what factors influence such change, and also for organisations in developing the capability of their employees at different stages of life.

During the late teens and early twenties young people undergo major life and role transitions and make significant life decisions; for example, pursuing a career, starting a family and taking up positions of responsibility and influence (Krosnick & Alwin, 1989; Levinson, 1986; Wigfield, Eccles, & Pintrich, 1996). These experiences are believed to exert considerable influence on the development of an individual's beliefs, attitudes and values (Arnett, 2000; Kroger, 2000; Steinberg & Sheffield-Morris, 2001; Visser & Krosnick, 1998), making this a significant life period during which individuals are particularly open to change.

A number of theorists have argued for the need to distinguish this important life period from other stages of the life course. Some years ago, Levinson (1986) referred to the 'early adult transition' as encompassing the ages 17 to 22. More recently, Arnett (2000) proposed the term 'emerging adulthood' to capture the period of 18 to 25 years as being distinct from both adolescence and early adulthood. Emerging adulthood is seen as a developmental bridge between pre-adulthood and early adulthood and is argued to be one of the most influential periods of the life course during which an individual's characteristics are still being developed (Arnett, 2000, 2004). Thus, during their late teens and early twenties, young people can be regarded as 'emerging adults'.

'Emerging adulthood' is increasingly recognised in the literature as an important period during which much personal growth and development occurs (Arnett, 2004; Bynner, 2005; Hamilton & Hamilton, 2006). It is also supported by a number of developmental theories which acknowledge the malleability of individual characteristics during the late teens and early twenties: the period during which most young people enter the labour market.

According to the 'impressionable years' hypothesis, most attitude development occurs during childhood and adolescence (Krosnick & Alwin, 1989). Indeed, research demonstrates that young adults exhibit twice as much attitude change as older adults (see Caspi & Roberts, 2001). Another theory, the 'life stage changes' or

'U-curve' model, suggests that individual characteristics retain a dynamic quality that is most apparent during two major life course transitions: entry into the workforce and mid-life (Roberts & DelVecchio, 2000; Roberts, et al., 2006; Visser & Krosnick, 1998). This theory suggests that characteristics are more susceptible to change at younger *and* older ages with less openness during middle age (Krosnick & Alwin, 1989).

An alternative view, the 'life course' perspective, acknowledges the malleability of characteristics, but suggests that these change as a result of individuals' increased exposure to change-inducing stimuli rather than their developmental susceptibility per se (Baltes, et al., 1980; N. A. Fouad & Bynner, 2008; Roberts & DelVecchio, 2000; Roberts, et al., 2006; Visser & Krosnick, 1998). According to this view, change may occur at any stage over the life course as a result of an individual's experiences of specific events, situations or environments. Interactional and socio-cognitive theories of development also suggest that characteristics develop as a result of interaction between the person and their environment and are not necessarily fixed to a particular stage of life (Bandura, 1986; Levinson, 1986; Kogan 1990, cited in Roberts, et al., 2006).

While research supports the malleability of individual characteristics over the life course, the prevailing view of individual development suggests that the majority of personality and attitude development occurs during childhood and early adulthood (Blonigen, Carlson, Hicks, Krueger, & Iacono, 2008; Donnellan, Conger, & Burzette, 2007; Kanfer & Ackerman, 2004; Lounsbury, Hutchens, & Loveland, 2005; Roberts & DelVecchio, 2000; Roberts, et al., 2006). Moreover, the impact of socialising influences during this time are both profound and lasting (Krosnick & Alwin, 1989). Thus, not only are the late teens and early twenties a time during which characteristics are particularly malleable, young people are also exposed to life-changing events which can have profound and lasting effects on their beliefs, attitudes, and values.



One of the most significant life experiences that occurs during emerging adulthood is a person's transition into the labour market. However, rather than being a isolated event that occurs at a particular point in time, Lent and colleagues (1999) suggest that the transition to work is more appropriately viewed as a gradual process that begins during schooling and continues through into the early years in the labour market. This process exposes young people to a range of experiences, events and situations which are believed to influence an individual's beliefs, attitudes, and values about a variety of areas of life.

An individual's beliefs, attitudes and values about different aspects of life can be broadly regarded as their 'identity' (Arnett, 2000; Kroger, 2000; Steinberg & Sheffield-Morris, 2001; Stokes & Wyn, 2007). People hold multiple identities which may be more or less important to an individual at different times over the life course (Higgins, et al., 2008). Two aspects of identity that are particularly relevant as young people transition into the workforce relate to work and learning. As young people are exposed to the world of work, their beliefs, attitudes and values about the importance of work as a central life activity (their 'work identity'), the relative importance of intrinsic and extrinsic work-related values, and the importance of their job as a meaningful and relevant occupation (their 'vocational identity') are significantly developed (Barling & Kelloway, 1999; Frese, 1982; M. K. Johnson, 2002; Mortimer & Lorence, 1979; Stokes & Wyn, 2007; Zimmer-Gembeck & Mortimer, 2006). An individual's learner identity – that is, their beliefs about themselves as a learner, their confidence for learning and their motivation to engage in learning – also develops as they transition into the workforce (Burden, 1998; Burnett, Pillay, & Dart, 2003; Vaughan, et al., 2006).

A number of recent longitudinal studies conducted in the United Kingdom (Bloomer, 2001; Bloomer & Hodkinson, 2000), Switzerland (Elfering, Semmer, Tschan, Kälin, & Bucher, 2007) and New Zealand (Vaughan, 2010; Vaughan, et al., 2006) confirm the early years in the labour market as significant periods of personal change. These studies found that the learning-related attitudes, values and

interests of young people both developed and changed during the first five years following compulsory schooling and were part of broader transformations to their identity.

Emerging adulthood is now recognised as being conceptually and empirically distinct from other developmental life stages (Hamilton & Hamilton, 2006). The distinction between younger workers and other older cohorts of employees has implications for both organisations and researchers in understanding how employees learn and may be most effectively developed in the work environment. However, young people who work are not homogenous; rather, they differ in a number of important ways. These differences relate primarily to young people's level of engagement in work.

### **2.2.3 Part-Time versus Full-Time Workers**

Young people who work have at least two fundamental things in common: their relative age and their engagement in work. Besides these, they are far from being a homogenous group or from having homogenous experiences (Barling & Kelloway, 1999; Marks, 2006). For instance, young people work in different capacities (some work part-time, some full-time), they take different routes into the labour market (some straight from school, others after further study or training), they work for different reasons (some work primarily for extra money, others work for personal fulfilment or career advancement) and in different occupations and organisational environments (some as builders and others as administrators).

One of the most important characteristics that distinguish young people from each other is their level of engagement in work. An individual's participation in work is expected to have different effects on their experiences of work, and the impact of these experiences on the development of their beliefs and attitudes. Two important activities that young people are increasingly and simultaneously engaged in are work and study. The extent to which individuals are engaged in each varies,

thus their 'primary' activity is the one in which they spend the majority of their time (Lamb & Rumberger, 1999).

An increasing number of young people worldwide are involved in work while undertaking secondary or tertiary study, often in a part-time capacity up to 20 hours per week (Barling & Kelloway, 1999; E. Smith & Green, 2001). In New Zealand, approximately 58% of those aged 15 to 24 work in some capacity, of whom 37% are engaged in part-time work (Statistics New Zealand, 2010). In the United States, it has been reported that 43% of first-year college students studying full-time were also engaged in some form of part-time work (Hamilton & Hamilton, 2006). For this group of young people who work, education is their primary activity. For others, work is their primary activity. In New Zealand, 63% of young New Zealanders' who are engaged in work do so full-time (Statistics New Zealand, 2010), many of whom are also engaged in vocational training, tertiary education or professional development in a part-time capacity (Boyd, Chalmers, & Kumekawa, 2001; Ministry of Education, 2010).

Despite work being an important activity for many young people, there is no specific term that distinguishes young people for whom work is their primary activity from those for whom it is a secondary activity; that is, students who work part-time. Neither is there any term that distinguishes young people who work full-time from adults who work full-time. Rather, once young people become full-time workers they tend to be subsumed within the broader adult workforce, particularly by organisational researchers (e.g. Maurer, Weiss, et al., 2003). This group of employees, referred to in the current study simply as 'younger workers', have received relatively little attention in the literature and are of most interest in this study. By contrast, young people who work part-time have received considerable attention in the literature, focusing on the experiences and implications of the quality and quantity of part-time work on the development of work-beliefs, attitudes and values (Loughlin & Barling, 1998; Mortimer, Pimentel, Ryu, Nash, &

Lee, 1996; Stern, et al., 1990), and educational, social and labour market outcomes (Gardecki & Neumark, 1998; Steinberg, et al., 1993).

Although work is a significant activity for both part-time and full-time employees, the impact of young people's experiences on their beliefs, attitudes and values may differ according to their level of engagement in work, their motivation for working and the types of jobs they do. For instance, research indicates that while some students work in order to gain experience for future employment the primary motivation of students is to earn extra money for discretionary activities or for financial independence (Barling & Kelloway, 1999; E. Smith & Green, 2001; Stokes & Wyn, 2007). By contrast, young people who work full-time are more likely to view work as a primary life interest and responsibility. Further, they are more motivated to pursue jobs that have opportunities for skill development, career advancement and intrinsic rewards (Arnett, 2000; Marks, 2006). As Arnett (2004) notes, work becomes "a central part of life, the other pillar on which adult life is built" (p.144).

Research also shows that the jobs of part-time employees are often not related to their educational pursuits, occupational interests or goals and are less likely to be regarded as a 'real' job (Arnett, 2000; Marks, 2006; Stokes & Wyn, 2007). Moreover, the part-time jobs held by young people tend to be of poor quality, requiring levels of skill, knowledge or experience that may be well below their abilities and provide few opportunities to develop career-related knowledge or skills (Loughlin & Barling, 1999). These jobs also tend to be concentrated within a small number of industries, for example, retail and hospitality (E. Smith & Green, 2001; Statistics New Zealand, 2003), limiting young people's exposure to occupationally-relevant work environments. Jobs that are of low quality, uninvolved and unrelated to young people's longer-term interests or goals – jobs which tend to be held by part-time employees – may have a negative influence on their work-related beliefs, attitudes and values (Loughlin & Barling, 1998).

By contrast, full-time workers are more likely to pursue and be engaged in jobs which are relevant to their skills and training, and provide opportunities for developing a career (Arnett, 2000; Boyd, et al., 2001; M. K. Johnson, 2002). As work becomes a major part of an individual's life their vocational pursuits become more serious, which can lead to a refinement of the types of jobs that they are interested or believe they would be good at (McMillan & Marks, 2003; Vondracek & Porfeli, 2003). Over time, full-time workers report holding 'better' jobs that are more congruent with their skills and interests (Arnett, 2004; Marks, 2006).

Some researchers have argued that the development of vocational identity is most prominent during adolescence as young people explore different possibilities and opportunities (Vondracek & Porfeli, 2003). However, as many part-time jobs and work environments are of little relevance to young people's longer-term interests, these experiences may have little impact on the development of positive work beliefs. Rather, because full-time workers tend to work in roles and environments that are more relevant to their skills, qualifications and career goals, their experiences may be more significant in shaping their work-related beliefs and attitudes.

Importantly, studies show that young people who work full-time and in jobs that are congruent with their skills and interests place a high value on activities and interactions that provide opportunities for learning and growth. These individuals seek out deeper learning, gain more from learning activities and expect to continue learning over the course of their lives (E. Smith, 2003, 2004; Tresize-Brown, 2004; Vaughan, 2010). Thus, while opportunities for learning are important for part-time workers (Stern, et al., 1990), they may be particularly important for full-time employees as they increase their occupational skills, and as they refine and pursue their career interests and goals.

Overall, it can be said that young people who work full-time spend more time in the work environment, are more likely to work in jobs and organisational environments

that are relevant to their skills, knowledge and career interests, and are more motivated by jobs that have opportunities for learning, development and career advancement than part-time employees. The experiences of full-time workers are, therefore, expected to be highly relevant in the development not only of their work-related skills and knowledge, but also their beliefs and attitudes about learning (Daehlen, 2005; Frese, 1982; M. K. Johnson, 2001, 2002; Ng & Feldman, 2007). However, the experiences of these employees have been overlooked by organisational researchers. Consequently, little is known about how those cognitive and affective evaluations develop in the work environment. Understanding what influences these characteristics in organisational settings is especially important because of their impact on an individual's choices, goals and behaviours (Bandura, 1997, 2009).

The following section addresses the question 'what is known about younger worker's experiences of learning and development?' The section begins by examining the work environment as an important context in which an individual's beliefs about learning are shaped and then reviews the limited literature on younger workers' experiences of learning and development during their early years in the labour market. The majority of studies in this area have focused on the development of work-related beliefs and values of part-time employees, although a small number of studies have recently examined the experiences of full-time workers. These studies highlight the way in which younger workers' beliefs and attitudes about learning develop in response to their early experiences of work and their work environment; however, further research is needed to develop a more complete understanding of how their learning-related beliefs may be enhanced both within and through their work environment.

## **2.3 YOUNGER WORKERS' EXPERIENCES OF LEARNING AND DEVELOPMENT**

### **2.3.1 The Work Environment**

That individual characteristics are malleable during the late teens and early twenties, and develop as a result of the dynamic interactions between the individual and their environment (Bandura, 1986), has led researchers to examine the impact of different environments on young people's characteristics and behaviours. Research shows that the environments young people encounter early in life can have profound effects on the development of different aspects of their identity; that is, their beliefs, attitudes and values in relation to different areas of life (Kroger, 2000; Schunk & Meece, 2006).

Some of the most influential contexts in which the early development of individual beliefs, attitudes and values occur are one's family, social and educational environments. These contexts are the primary setting in which young people begin to develop work-related values, occupational aspirations and interests (Kelloway & Harvey, 1999; Levine & Hoffner, 2006; Loughlin & Barling, 1998; Schunk & Meece, 2006). They are also important contexts in which young people's beliefs about their competence as a learner and their learning-related values are initially developed (Bandura, 2006a; Burden, 1998; Burnett, et al., 2003; Dart, Burnett, Boulton-Lewis, Campbell, Smith & McCrindle, 1999; Eccles & Roeser, 2003; Schunk & Meece, 2006).

As an individual moves into the workforce, the work environment becomes an important context for the development of various beliefs, attitudes and values (Billett, 2001; Bloomer, 2001). This context is one in which young people explore their vocational interests, develop their work-related skills and knowledge and acquire social capital (Zimmer-Gembeck & Mortimer, 2006). The work environment is also important for the formation of work values, attitudes and vocational identity (Mortimer, et al., 1996; Vondracek & Porfeli, 2003; Zimmer-Gembeck & Mortimer,

2006). As work becomes a primary life activity, young people assess the importance of work as a major and important life role and begin to develop their 'work identity' (Ng & Feldman, 2007). In addition, as they become more engaged in a particular role or type of work individuals begin to develop their 'vocational identity' (Lorence & Mortimer, 1985; Vondracek & Porfeli, 2003).

The work environment is also an important context for the development of one's identity as a learner; that is, their beliefs and attitudes about learning and about themselves as a learner (Bloomer, 2001; Kroger, 2000; Vaughan, 2010). Although much development in these areas of identity occurs during childhood and through schooling, Vaughan (2010) suggests that as young people transition into work they become not just workers, but *learning*-workers. In becoming a learning-worker, individuals assess what it means to be a worker who is continually learning and developing their skills.

Organisations play an important role in helping young people adjust to the world of work and their work role through providing opportunities for workplace learning and interactions with supportive adults (Ng & Feldman, 2007; Steinberg, Greenberger, Vaux, & Ruggiero, 1981). Managers and co-workers also help young people adjust to work, and help develop their occupational interests and identity as an 'adult' worker (Zimmer-Gembeck & Mortimer, 2006). However, the effects of these relationships on young people's beliefs and attitudes may differ for part-time and full-time workers. While the work environment provides adolescents with exposure to adults, because they only spend limited time at work, there are little opportunities to develop meaningful relationships with work colleagues (Zimmer-Gembeck & Mortimer, 2006).

By contrast, full-time workers spend more time in their work environment and have greater opportunities to develop such relationships. As a result, managers and co-workers are likely to be important sources of learning and development for these employees. Some researchers have suggested that work relationships do not



appear to be particularly important for adolescents who may be more influenced by relationships in their family, social and educational environments (Loughlin & Barling, 1998).

Studies of older, more established employees show that desirable beliefs and attitudes about work and about learning may be enhanced by organisations having an emphasis on employee learning and development and by supportive interpersonal relationships in the work environment (Fecteau, et al., 1995; Maurer, Weiss, et al., 2003; Tracey, et al., 2001). Significantly for the purposes of this study, because individual characteristics are more malleable earlier in life, young people may be more influenced by their work environment than adults (Lorence & Mortimer, 1985). Vondracek and Porfeli (2003) also support the importance of the work context for young people, advocating a developmental-contextual approach to understanding how young people develop in relation to work. Although their focus is primarily on adolescents and their experiences of part-time work, this contextual approach acknowledges the developmental nature of emerging adulthood, encompassing both adolescent and full-time workers, and pays attention to the importance of differences in the contexts in which development occurs.

While scholars agree that the work environment plays a key role in the development of young people's skills, knowledge and identity development, there has been little examination of which aspects have the most influence on young peoples' beliefs about learning. Rather, researchers have tended to focus on the impact of early work experiences on work-related values (M. K. Johnson, 2001, 2002), or the relationship between characteristics of the work itself (for example, opportunities for skill use, autonomy, and role stressors) and work-related beliefs and attitudes (Loughlin & Barling, 1998; Stern, et al., 1990). What is more, most studies have examined the experiences of part-time workers with less attention having been paid to those who work full-time.

Findings from studies of part-time adolescent workers do, however, illustrate the important role of different aspects of the work environment in providing positive experiences of work and in influencing various work-related beliefs, attitudes and behaviours. Given the central role cognitive and affective evaluations have in the development of employee capability, understanding how young people's beliefs and attitudes about learning are influenced by aspects of the work environment is of great importance.

### **2.3.2 The Experiences of Part-Time & Full-Time Workers**

An increasing body of literature suggests that the quality of work (such as opportunities for skill use, autonomy and role clarity) are more important than the quantity of work (that is, the number of hours worked) in shaping young people's work-related attitudes and behaviours (Loughlin & Barling, 1998; Mortimer, et al., 1996; Steinberg, et al., 1993; Stern, et al., 1990). Research also shows that part-time younger workers who have opportunities to use their skills and to learn and develop new skills also have desirable work values, higher levels of work motivation and lower levels of cynicism (Mortimer, et al., 1996; O'Brien & Feather, 1990; Stern, et al., 1990). The opportunity to do challenging work has also been associated with increases to an individual's sense of competence and confidence through opportunities for innovative thought and decision making (Mortimer & Lorence, 1979).

Studies of part-time adolescent workers also indicate the importance of interpersonal relationships for younger workers (Loughlin & Barling, 1998; Zimmer-Gembeck & Mortimer, 2006). Part-time workers who are satisfied with support and feedback from interpersonal relationships at work have lower levels of work cynicism (Loughlin & Barling, 1998) and higher levels of vocational self-efficacy and self-concept crystallisation (Brooks et al, 1995 cited in Stone & Mortimer, 1998). Supportive adults, such as peers and managers, are also important in helping

facilitate smooth transitions to the workplace (S. D. Phillips, Blustein, Jobin-Davis, & White, 2002).

These studies provide a number of insights into the early work experiences of young people who work part-time. In particular, they indicate the importance of the work environment and related interpersonal relationships in helping young people adjust to work and in developing their work-related attitudes, skills, knowledge and self-beliefs. However, some researchers have suggested that because the social networks of part-time workers are largely based outside the work environment, work relationships may be less important for these employees than previously thought (Loughlin & Barling, 1998).

As previously discussed, the experiences of full-time employees are expected to be more relevant in the development of their beliefs and attitudes about work and learning. A number of recent studies of full-time workers confirm an individual's work experiences and work environment as important sources of personal and work-related learning and development, but also highlight the need for further research in this area.

One area that has received some attention in relation to full-time workers is the development of and change in work values. Research shows that work values change during an individual's early years in the full-time labour market (M. K. Johnson, 2001, 2002) and in response to specific experiences such as the opportunity to learn skills at work (Mortimer, et al., 1996). Studies have also found that young people's job satisfaction increases during their early experiences of full-time work (Elfering, et al., 2007; E. Smith, 2003; A. Taylor, 2002). These studies support the malleability of characteristics in response to an individual's early experiences of work and in relation to aspects of the work environment. However, the development of young people's learning-related beliefs and attitudes in organisational contexts has been relatively overlooked.

Recently, a small number of predominately qualitative-based studies have examined the experiences of full-time workers in their early years of employment. While these have not specifically examined the way in which learning-related beliefs and attitudes develop in response to aspects of the work environment, they do provide a better, although far from complete, understanding of the interactive and dynamic nature of the learning and development process. In particular, they illustrate the importance of interpersonal relationships in the development of younger workers' interest and engagement in learning and development.

One study conducted in Australia examined the experiences of a small group of young people ( $n = 11$ ) in their first year of full-time work (E. Smith, 2002, 2003). The study looked specifically at *what* these employees learnt and *how* they learnt it, using a case-study method of enquiry with a variety of semi-structured interview techniques (for example, story-telling and critical incident analysis). In regards to *what* was learnt, ten domains of learning were identified that broadly related to learning technical and occupational skills and knowledge; learning about one's occupation, organisation, industry and working-life more generally; learning about oneself (for example, becoming aware of one's personal capabilities and future potential); and learning about learning (for example, the availability and appropriateness of various methods of learning). These findings confirm the work environment as an important source of learning and development for younger workers. Not only did employees develop work-related skills, they also learnt about themselves as learners by becoming aware of their strengths, abilities and potential. These findings support Vaughan's (2010) suggestions that the early years of work are a time when novice employees become learning-workers.

The study also examined *how* these younger workers learnt across these different domains of learning. Participants reported they learned through a mix of formal and informal activities including training, coaching, watching and copying others, being shown how to do tasks, asking questions, 'having a go', being given specific tasks to do and learning from mistakes (E. Smith, 2003). These employees

attributed much of their learning to supervisors and workmates, although the importance of these sources varied for individuals. For instance, some employees reported that supervisors were more helpful sources of training and learning, while others indicated that workmates were more helpful. In larger organisations other people such as trainers, consultants and other line managers were also important sources of learning opportunities through providing role modelling and career advice (ibid). The study further indicated that young people's interest in and capacity for learning was affected by their colleagues' support for their learning and development. This study supports the importance of interpersonal relationships in developing younger workers' work-related skills and knowledge as well as their beliefs about their capacity to learn, their interest in learning and their engagement in learning.

The importance of interpersonal relationships for young workers' beliefs about learning and their motivation to participate in learning are also supported by Taylor (2002). Taylor's study examined the attitudes and experiences of a small group ( $n = 29$ ) of young Australian males who had participated in a vocational training programme during high school and were now working in trades-based occupations. The study focused specifically on these workers' reasons for leaving school early, their enjoyment of their current job and longer-term aspirations, using face-to-face and telephone-based interviews as the primary method of enquiry.

Of most interest to the current study were the findings regarding the importance of the work environment and interpersonal relationships in shaping these younger workers' overall experiences of work, their level of satisfaction with their jobs, and in helping them adjust to work and to learn about their jobs. The employees reported that they enjoyed and appreciated personal relationships particularly with workmates who made them feel included and 'taught them things'.

Taylor's (2002) findings also suggested that the attitudes held by managers and co-workers towards learning facilitated or hindered the learning and development of

these employees. While most thought their organisations were supportive of their off-site study, three employees reported that their worksites and older workers in particular were not supportive of their study which they deemed irrelevant to the younger workers' job. While Taylor's study did not determine the extent to which young people's beliefs and attitudes about learning and their engagement in learning were influenced by supervisors and workmates, it does support work relationships as being important sources of developmental support for younger workers.

A recent study by Elfering and colleagues' (2007) also supports the importance of interpersonal relationships and confirms the early years in the workforce as being particularly formative for younger workers. This four-year study examined the experiences of a larger cohort ( $n = 423$ ) of young people employed as apprentices following vocational training. Using a qualitative approach, employees were asked to indicate their three most notable changes as well as the three most positive and most negative experiences for each year over the four-year period. The study found that employees experienced most change and adjustment during their first year in the workforce in relation to work generally, to their role in their work group and to social relationships. The employees reported becoming more self-confident, particularly in their first year, and placed increasing importance on continuing education, which was mentioned five times more in the fourth year of employment than in the first.

Collectively, these studies illustrate the work environment as a key context in which young people develop their identity both as workers and as learning-workers (Vaughan, 2010). In particular, supervisors and co-workers appear to play an important role in helping younger workers' adjust to work and establish themselves as a worker, and in facilitating and supporting the development of work-related skills as well as their beliefs and attitudes about work, about learning and about themselves (Elfering, et al., 2007; A. Taylor, 2002).

Further support for the importance of interpersonal relationships for young people's learning and work-socialisation, and for the development of their beliefs about their ability to succeed in learning situations, can be found in the education literature (Burnett, et al., 2003; Juang & Silbereisen, 2002; Kelloway & Harvey, 1999; Levine & Hoffner, 2006; Schunk & Meece, 2006). As work becomes a person's primary activity, supervisors and colleagues at work may become increasingly important sources of learning and development for younger workers. In particular, work peers may help one another learn by providing examples of successful or unsuccessful learning strategies, behaviours and outcomes thereby acting as role models (Schunk & Meece, 2006). Workmates may also contribute to a young person's beliefs about their ability to successfully learn and develop new skills and knowledge, just as social peers influence young people's confidence for successfully achieving vocational and educational pursuits (Ali, McWhirter, & Chronister, 2005).

There is widespread agreement that the work environment is an important context in which young people learn and develop (Kroger, 2000; Loughlin & Barling, 2001; Vaughan, 2010). There is also evidence confirming the role of interpersonal relationships in the development of desirable work-related beliefs, attitudes and values (M. K. Johnson, 2001; E. Smith, 2003; A. Taylor, 2002). However, one area research has not yet specifically explored with either part-time or full-time younger workers is the way in which young people's *learning-related* beliefs and evaluations develop in response to the work environment.

Beliefs about learning are fundamental to an individual's engagement in learning and development and, therefore, the development of vocational skills, knowledge and abilities (Maurer, 2002; Noe & Wilk, 1993; Tharenou, 2001). Specifically, an individual's beliefs about the improvability of skills, knowledge and abilities, their confidence for developing new skills or knowledge, and their attitudes towards learning influence the extent to which they are ready, willing and able to learn (Carr & Claxton, 2002; Claxton, 2007). Given the importance of learning-related beliefs in the development of individual capability (Maurer, 2002), a challenge for

organisational researchers is to develop a more complete understanding of how learning-related beliefs and attitudes may be influenced by an individual's experiences in the work environment.

## **2.4 CONCLUSION**

This chapter examined the literature relating to younger workers in order to understand who these employees are and what is known about their experiences of learning and development in the workplace. While younger workers and young people more generally have received much interest by a variety of scholars and policy makers, there is little agreement on a definition of this group of employees. This study defines 'younger workers' as those aged 16-24 who are engaged in work as their primary activity; that is, who work full-time.

A number of important distinctions were made in understanding why young people merit specific attention by researchers. One of the fundamental factors that distinguish younger workers (and young people more generally) from other cohorts is their developmental life stage. A strong body of research shows that during the late teens and through into the twenties many individual characteristics are still being developed and are malleable. In addition, this period of the life course, referred to as 'emerging adulthood', is one in which young people encounter a host of new experiences, environments and events that are believed to be particularly influential in developing an individual's characteristics. One of the most significant events that occurs during this period is their transition into the workforce. However, rather than being an isolated event, the transition to work is best seen as a gradual process that occurs over a period of time (Lent, et al., 1999).

As work becomes a primary life activity for young people, the work environment becomes particularly important in the development of their occupational skills and knowledge, as well as their beliefs, attitudes and values about work and about learning (Loughlin & Barling, 2001; Vaughan, 2008). However, the literature also



suggests that the influence of work experiences on young people's attributes may vary depending on their level of engagement in work. In particular, young people who work full-time are more likely than part-time workers to be engaged in jobs that are related to their skills, knowledge and vocational interests, and in jobs that offer opportunities for skill development and career advancement (Arnett, 2000; Boyd, et al., 2001; McMillan & Marks, 2003). Moreover, as work becomes a person's main activity, the work environment becomes an increasingly important context in which they develop their work-related skills and knowledge. For these reasons, the work experiences and environments of full-time workers may be particularly relevant in the formation of their beliefs and attitudes about work and about learning.

While increasing attention has been paid to young people's early work experiences and environments, researchers have predominately focused on the work-related beliefs, attitudes and outcomes of adolescents who work part-time (e.g. Gardecki & Neumark, 1998; Loughlin & Barling, 1998; Marks, 2006; Mortimer, et al., 1996). By contrast, the experiences of young people who work full-time have been relatively neglected. The neglect of this group of employees is surprising given the malleability of individual characteristics during the late teens and mid-twenties (Krosnick & Alwin, 1989; Roberts, et al., 2006) and the importance of the work environment in the development of employees' work-related skills, knowledge and abilities (Billett, 2001; Stokes & Wyn, 2007; Stone & Mortimer, 1998; Zimmer-Gembeck & Mortimer, 2006).

A small number of researchers have begun to examine the experiences of full-time workers (Elfering, et al., 2007; E. Smith, 2003; A. Taylor, 2002), but these studies have not examined the way in which their learning-related attributes are responsive to specific aspects of this environment. Given the malleability of attributes during emerging adulthood and the importance of the work environment for younger workers, these relationships merit further exploration. In addition, as most studies in this area have been conducted using qualitative analytical methods and small

population samples, there is a need for a larger, quantitative-based study that contributes further to our understanding of the experiences of younger workers. Given the potential the work environment has in influencing both the processes and outcomes of learning and development, particularly for younger workers (Frone, 1999; Vaughan, 2008), these relationships merit further investigation.

The following chapter examines the literature on employee learning and development, drawing on existing theory and evidence in developing a model of development relevant to younger workers to be tested in the current study.

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## **CHAPTER 3: LITERATURE REVIEW – EMPLOYEE LEARNING & DEVELOPMENT**

### **3.1 OVERVIEW**

As discussed in Chapter 1, organisational growth and capability depends largely on employees possessing a range of higher-order skills and qualities, and having both the willingness and ability to learn over the course of their lives. A key goal for researchers is to identify how organisations can most effectively enhance employee engagement in continuous learning and development. As younger workers are the core source of the future workforce, the development of these employees is critical for the long-term capability of organisations. Understanding how organisations may enhance this group's engagement in learning is, therefore, important for both individual and organisational capability.

This chapter reviews the literature on employee learning and development, focusing on cognitive, attitudinal and motivational aspects of this process and the factors that influence these. The chapter is presented in four parts. First, section 3.2 examines a model of employee development recently proposed in the HRD literature. This model provides a broad theoretical framework for examining the development of younger workers in the current study. Specific aspects of the development process proposed by the model are then examined in more detail in the remainder of the chapter.

Section 3.3 examines the literature relating the concept of self-efficacy and focuses on a particular domain-level efficacy belief: self-efficacy for learning and development (or 'development self-efficacy'). Next, section 3.4 examines a number of variables directly and indirectly related to self-efficacy: attitudes to learning, motivation to learn, and intentions to participate in development activities. Section 3.5 addresses two important sources of efficacy information relating to the work

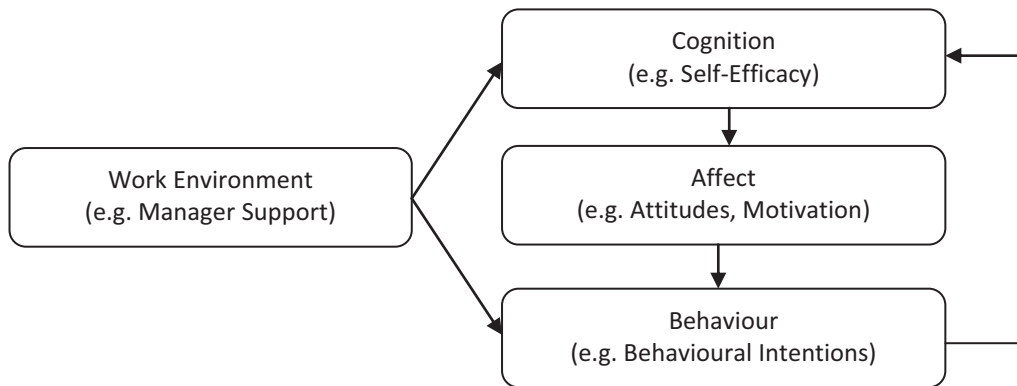
environment and individual characteristics, referred to as ‘antecedents’ of self-efficacy. The final section of the chapter (section 3.6) reviews the main gaps identified from the review of the literature and proposes a number of specific hypotheses to be tested in the study. Together, these hypotheses form a model of employee development for younger workers.

### **3.2 A THEORETICAL FRAMEWORK OF EMPLOYEE LEARNING & DEVELOPMENT**

A model of employee learning and development recently proposed in the HRD literature (Maurer, 2002) provides a framework for examining the learning and development process for younger workers in the current study. The model encompasses three broad components of the self – cognition, affect and behaviour – which interact with and influence each other in a dynamic way (Maurer, 2002). Together, these components reflect an individual’s tendency to engage in continuous learning, referred to as an ‘employee learning and development orientation’.

A simplified diagram of the model is presented in Figure 1 (page 41). This shows the interactive nature of the relationships between an individual’s beliefs (that is, the cognitive self), their attitudes and motivation for learning and development activities, and their intentions and participation in developmental behaviours (Maurer, 2002). A feature of the model is the identification of the work environment as a source of influence on the development process. This relationship is consistent with contextual theories of development (Bandura, 1986; Levinson, 1986), but has received little attention in the HRD literature.

**FIGURE 1: SIMPLIFIED MODEL OF AN 'EMPLOYEE LEARNING & DEVELOPMENT ORIENTATION'**



Adapted from Maurer, T.J. (2002). Employee learning and development orientation: toward an integrative model of involvement in continuous learning. *Human Resource Development Review*, 1(1), 9-44.

The model integrates extant theory and empirical evidence in a comprehensive manner, and extends existing models of employee development by proposing a number of new relationships (Maurer, 2002). While it is not feasible to examine all aspects of the model in a single study, the model provides a framework for examining the interactions between younger workers' learning-related beliefs, attitudes and motivation as important components of the development process. The model also suggests how the work environment may influence these important dimensions of the self. Two aspects of the model are of particular interest in the current study: first, the role of self-efficacy for development as a central component of the learning and development process; and second, the work environment as an antecedent of self-efficacy.

Consistent with social cognitive theory (Bandura, 1986), Maurer's model identifies the cognitive dimension of the self as playing a central role in activating motivation and behaviour in the context of employee learning and development. According to Maurer (2002), an employee learning and development orientation "begins with a state of mind" (p.16). One aspect of the cognitive self that is suggested as being particularly salient in activating an individual's orientation to learn are their beliefs of personal efficacy, or 'self-efficacy'. Self-efficacy has been shown to predict

employee motivation and outcomes in various learning and training situations (see Colquitt, et al., 2000). However, these studies have tended to focus on a person's confidence in specific training or learning situations. By contrast, Maurer's model focuses on a self-efficacy at a domain-level of specificity, an area that has been relatively overlooked. At this level, 'self-efficacy for development' is defined as "self-confidence for one's capacity to develop, enhance, or increase one's personal characteristics given his or her current and anticipated situation" (Maurer, 2002, p. 20). These ideas will be explored further in section 3.3.

The second area of Maurer's model that is relevant in the current study relates to the work environment as a source of development self-efficacy beliefs. Previously, researchers have tended to examine the work environment as a source of employee attitudes, motivation and behaviour (Facteau, et al., 1995; Switzer, et al., 2005; Tharenou, 2001). Following suggestions that self-efficacy may mediate these relationships (Bandura, 1997; Maurer, 2002), a small number of recent studies have investigated these effects (Maurer, Lippstreu, et al., 2008; Maurer, Weiss, et al., 2003; Tracey, et al., 2001); however, findings have been mixed.

Tracey and colleagues (2001), for example, found work support (as an aggregated construct comprising organisational, managerial and job support for development) predicted variance in employee learning-related self-efficacy beliefs, but they did not examine co-worker support for development. Maurer and colleagues (2008; 2003) also examined the work environment (comprising organisational, manager and co-worker support for development) as a determinant of self-efficacy but did not find support for this relationship. As discussed in Chapter 2, work colleagues are important sources of learning and development for younger workers and may therefore influence their development self-efficacy beliefs.

Maurer's (2002) model has received general support in subsequent studies (Maurer, Lippstreu, et al., 2008; Maurer, Weiss, et al., 2003), confirming its validity as a theoretical framework of employee development and its appropriateness for

the current study. However, a number of relationships are yet to be established and merit further investigation. For instance, as previously mentioned, there has been mixed support for the work environment as a source of efficacy information. This may be a result of the approach taken by researchers in aggregating different aspects of this context into a global construct, rather than examining these as distinct sources of efficacy beliefs. In addition, while there is some support for a number of individual characteristics as sources of self-efficacy beliefs (for example, goal orientation) (Maurer, Lippstreu, et al., 2008; Potosky & Ramakrishna, 2002), two potentially important self-beliefs have not yet been established as antecedents of development self-efficacy; namely, general self-efficacy and learning anxiety (Maurer, Weiss, et al., 2003). In addition, while research shows that development self-efficacy is predictive of attitudes to learning (Maurer, Weiss, et al., 2003) and, in other studies, motivation to learn (Tracey, et al., 2001), the triadic relationship between these variables has not yet been fully explored or supported.

The current study draws on Maurer's model as a general framework of employee development, but focuses on a number of specific aspects of this process in understanding the development of younger workers. A primary focus of the study is investigating the mediating role of development self-efficacy beliefs in relation to a number of important components and antecedents of the development process for younger workers. Specifically, it examines the relationship between development self-efficacy with learning-related attitudes, motivation and behavioural intentions, and the relationship between aspects of the work environment and individual self-beliefs with development self-efficacy.

### **3.3 SELF-EFFICACY**

#### **3.3.1 Overview**

Self-efficacy reflects an individual's confidence in their capabilities for successfully performing a certain behaviour, or achieving a particular outcome or level of attainment. Self-efficacy has been defined as an individual's belief in their



capabilities “to organize and execute the courses of action required to produce given attainments” (Bandura, 1997, p. 3), and to “mobilize the motivation, cognitive resources, and courses of action needed to meet situational demands” (Wood & Bandura, 1989a, p. 408). Thus, beliefs of personal efficacy reflect what an individual thinks they ‘can do’ in regards to a given task or behaviour (Mitchell, Hopper, Daniels, George-Falvy, & James, 1994).

Although an individual’s perceptions of ability are central to the formation of efficacy beliefs, self-efficacy is not simply an assessment of ability; that is, how good one thinks one is at a certain task or behaviour. Neither is self-efficacy a judgment of self-worth (e.g. self-esteem), nor a reflection of an individual’s general belief about them self (e.g. self-concept) (Bandura, 1997; Bong & Skaalvik, 2003; Chen, Gully, & Eden, 2004). Rather, self-efficacy reflects an individual’s beliefs about their ability to successfully perform an anticipated task or activity or set of interrelated tasks in a specific context or domain of functioning (Bandura, 1997, 2006b). In other words, self-efficacy is an individual’s confidence *for* something. When efficacy beliefs are assessed in relation to a task or domain of functioning, self-efficacy is referred to as a self-referenced or ‘absolute’ belief (Maurer, Weiss, et al., 2003).

Much of the work on self-efficacy is rooted in Bandura’s (1977b, 1986, 1997) social cognitive theory. According to social cognitive theory, cognitive appraisals are fundamental in influencing and guiding behaviour. As a cognitive appraisal, self-efficacy forms a central component of this theory. Self-efficacy is therefore an important part of regulating much human behaviour through its effect on other cognitive, affective and motivational processes (Bandura, 1997, 2006c; Zimmerman, 2000). Beliefs of personal efficacy enable individuals to exercise control over other beliefs and thought processes, including the choice of goals and self-regulating strategies that ultimately influence behaviour. An individual’s ability to control their actions and achieve desired outcomes through cognitive processes provides them with the incentive to act and the impetus to persevere in the face of difficulty

(Bandura, 1997). For this reason, self-efficacy is recognised as a central component of an individual's orientation and motivation for learning (Maurer, 2002; Zimmerman, 2000). However, in order for efficacy beliefs to motivate and regulate behaviour, the behaviour must contain some element of unfamiliarity or challenge (Bandura, 2006b). Without this, there is little need for individuals to exert effort or to persevere in the face of difficulty.

Another feature of social cognitive theory is the malleability of cognitive appraisals. The theory suggests that an individual's appraisals change in response to their interactions with their environment and their interpretations of those interactions (Bandura, 1986; Lent, Brown, & Hackett, 1994). As a cognitive appraisal, self-efficacy is therefore believed and indeed has been shown to be malleable (Bandura, 1997; Eden & Aviram, 1993; Gist & Mitchell, 1992). The responsiveness of self-efficacy to different sources of influence is explored further in section 3.5.

### **3.3.2 Levels of Specificity**

Self-efficacy was initially conceptualised as relating to the performance of a specific task or behaviour (Bandura, 1977a); however, more recent definitions reflect a broader perspective relating to the performance of interrelated tasks or domains of functioning (Bandura, 1997; Gibbons & Weingart, 2001; Maurer, 2002) and as a global belief (Chen, Gully, & Eden, 2001; Sherer, Maddux, Mercandante, Prentice-Dunn, Jacobs & Rogers, 1982). Thus, self-efficacy is commonly conceptualised at three levels: specific, domain and global. The level of specificity at which self-efficacy is treated has implications for: its ability to predict behaviour in particular situations, its responsiveness to influence and its empirical measurement.

At the greatest level of specificity, self-efficacy reflects an individual's expectancy for the performance of a specific task or behaviour (Bandura, 1977a). At this level, self-efficacy is referred to as *specific* or *task-specific self-efficacy* (Tipton & Worthington, 1984). Specific self-efficacy is assessed in relation to the performance

of a particular behaviour or task, commonly in training situations and has found to be a strong predictor of an individual's performance in these settings (K. G. Brown, 2001; Gressard & Loyd, 1986; Kozlowski, Gully, Brown, Salas, Smith & Nason, 2001; Martocchio, 1994; Martocchio & Hertenstein, 2003; Saks, 1995; Schwoerer, May, Hollensbe, & Mencl, 2005).

Task-specific self-efficacy is predominately measured using a traditional strength-magnitude format. This approach asks individuals to indicate whether they are able to perform the behaviour (yes/no). Then, for each positive response, to indicate their level of confidence for successfully performing at increasingly difficult levels of behaviour (for example, 'I can solve 10%... 20%... 30% of the academic problems') or under different conditions (for example, 'I can exercise three or more times a week... when I am feeling tired; after a vacation') on a scale from 0 (not confident) to 100 (totally confident) (Bandura, 2006b). Scores for each level are then added together to form an overall self-efficacy score.

This method of assessing self-efficacy provides a detailed indication of an individual's confidence for performing specific tasks; however, it becomes problematic when assessing efficacy beliefs for a domain of functioning which encompasses a variety of interrelated tasks or behaviours that may be performed in different but related contexts. Task-specific beliefs have been shown to increase over time as one becomes more familiar with a task (Bandura, 1997; Pond III & Hay, 1989). These beliefs can also be enhanced through direct inducements using cognitive and behavioural modelling strategies and didactic instruction (Eden & Aviram, 1993; George-Falvy, Mitchell, Daniels, & Hopper, 1993; Wolfe, Nordstrom, & Williams, 1998).

Self-efficacy has also been conceptualised as a global trait. At this level, *global* or *general self-efficacy* reflects an individual's confidence regarding their ability to succeed or function effectively in a range of life activities or for attaining broader life outcomes (Eden & Zuk, 1995; Sherer, et al., 1982). For instance, general self-

efficacy reflects an individual's confidence for achieving most of the goals they set for themselves in life, for performing effectively on a variety of different tasks and/or for performing well even when things are difficult (Chen, et al., 2001). As these general beliefs are believed to exhibit trait-like characteristics (such as temporal and context stability) they should, theoretically, generalise across different situations and contexts (Eden, 1988 cited in Schwoerer, et al., 2005; Shelton, 1990).

General self-efficacy was first measured by Sherer and colleagues (1982) in the early 1980s. Despite criticisms about the treatment of self-efficacy as a generalised construct (Bandura, 1997, 2006b; Betz & Hackett, 2006; Stajkovic & Luthans, 1998), it has gained increasing theoretical and empirical support for its ability to explain and predict a variety of behaviours in organisational (Saks & Ashforth, 2000) and related settings (Eden & Aviram, 1993). Despite the popularity of general self-efficacy, the reliability (internal consistency) of many early measures was dubious. To address these issues, a number of new instruments were developed, many of which have used a simplified Likert-type format (Bosscher & Smit, 1998; Chen, et al., 2001; Scherbaum, Cohen-Charash, & Kern, 2006; Schwarzer & Jerusalem, 1995). This approach has been demonstrated to be psychometrically sound and, indeed, superior to traditional strength-magnitude measures of self-efficacy particularly when assessing global and domain self-efficacy beliefs (Maurer & Andrews, 2000; Maurer & Pierce, 1998; Scherbaum, et al., 2006).

Although specific and general self-efficacy beliefs have both been shown to predict behaviour in different situations, both have limitations when it comes to understanding aspects of the employee development process. Although specific self-efficacy beliefs are a strong predictor of behaviour or performance in unambiguous situations, they are not readily generalised to other contexts (Bandura, 1997; Stajkovic & Luthans, 1998). Moreover, the way in which they are measured becomes problematic when attempting to assess efficacy beliefs for interrelated tasks or more generalised contexts. For example, in assessing an

individual's confidence for learning new work-related skills using a traditional task-specific approach, researchers would need to identify and assess a vast and possibly infinite number of skills, tasks and knowledge relevant to a particular job or occupation; which are likely to vary in terms of content, complexity and process, and may differ across organisational environments. Conversely, while general self-efficacy is more readily measured (Chen, et al., 2001), it has been criticised as being less predictive of specific variables that may be of interest (Bandura, 1997). For these reasons, researchers have paid increasing attention to the utility of domain-level beliefs in understanding motivation and behaviour as it relates to learning and development.

At the *domain* level, self-efficacy reflects an individual's confidence for the performance of interrelated tasks or their anticipated level of achievement within a specific context or domain of functioning (Bandura, 1997, 2006b; Woodruff & Cashman, 1993). In other words, domain self-efficacy relates to a particular area of functioning within which actual tasks or behaviours may vary greatly. For instance, within the domain of academic performance, circular areas may range from mathematics to spelling and from history to science, while academic tasks may vary from verbal to quantitative, and from creative writing to problem-solving (Bandura, Barbaranelli, Caprara, & Pastorelli, 1996; Pastorelli, Caprara, Barbaranelli, Rola, Rozsa & Bandura 2001). An individual's confidence for successfully performing interrelated tasks or behaviours is believed to reflect their performance across a variety of tasks, which may vary in terms of their content, complexity, processes and context.

Although less studied than other levels of self-efficacy, a number of studies have illustrated the utility of domain self-efficacy beliefs for understanding behaviour in different situations (Chiaburu & Lindsay, 2009; Gibbons & Weingart, 2001; Maurer, Lippstreu, et al., 2008). They are also readily measured by way of a simplified Likert-based format, increasing their accessibility to researchers. For example, in assessing verbal self-efficacy, Gibbons & Weignart (2001) asked participants to rate

their confidence for completing verbal tasks on 7-point scale (“do you feel confidence when working with words; do you expect to succeed when you undertake a verbal task”). Similarly, when assessing occupational self-efficacy, Schyns and von Collani (2002) asked participants to indicate their level of confidence in relation to 19 questions relating to their job using a 6-point Likert-scale (1 = completely true, 6 = not at all true) (“when I am confronted by a problem in my job, I can usually find several solutions; I feel prepared to meet most of the demands in my job”).

Domain self-efficacy is viewed as a cumulative belief that can change over time as a result of experience, new information or inducements (Bandura, 1997; Gibbons & Weingart, 2001), and is more responsive to contextual influences than generalised beliefs (Bandura, 1997). However, few researchers have examined different contextual sources of information that may influence domain-level beliefs, particularly in relation to employee learning and development.

A focus on domain-level self-efficacy beliefs has a number of advantages in understanding the employee development process. First, because these beliefs are related to a domain of functioning, they are more indicative of behaviour than generalised beliefs (Valentine, DuBois, & Cooper, 2004). Second, because domain beliefs are relevant to a particular context they should, theoretically, generalise across similar situations and contexts. Moreover, any improvements to these beliefs may have wider implications to other related situations (Pajares, 1996). Third, because these beliefs are more readily measured than specific beliefs, they provide a more accessible way for researchers to examine their role in the development process. Finally, because domain-level beliefs are believed to be malleable, they may be more amenable to influence in organisational settings than global beliefs.

Despite the espoused utility of domain-level beliefs over both specific and general beliefs, comparatively little attention has been paid to these in relation to employee

learning and development. A specific domain-level belief that may be advantageous in understanding the development of younger workers, and employees more generally, is discussed next: self-efficacy for learning and development.

### **3.3.3 Self-Efficacy for Learning and Development**

In examining self-efficacy in relation to the employee development process, researchers have distinguished between self-efficacy for ‘learning’ and self-efficacy for ‘performance’. *Self-efficacy for performance* refers to an individual’s judgment of their ability to successfully perform a certain task or behaviour with which they may be familiar; for example, performing the tasks of an entry-level accountant (Saks, 1995). In these situations, efficacy judgments are based primarily on past performance of that behaviour (Mitchell, et al., 1994; Pajares, 1996). In contrast, *self-efficacy for learning* broadly refers to an individual’s assessment of their ability to develop new skills or knowledge (Maurer, 2002; Pajares, 1996). Because the task or behaviour is unfamiliar, individuals rely on a greater number of sources to make such efficacy judgments; for example, their overall level of confidence, anxiety in unfamiliar situations. While learning new skills may be necessary for performing an unfamiliar task or behaviour, the primary focus is on learning, not performance.

This distinction is important when examining self-efficacy’s role in the employee development process as the focus is on an individual’s confidence for learning new skills or knowledge, not on performing a task or work-related behaviour. Thus, the ‘behaviour’ about which one is required to make an efficacy judgment is learning, not performance. Accordingly, in the context of employee learning and development, self-efficacy reflects an individual’s confidence in their ability to develop or enhance their work-related characteristics, or to succeed in a learning situation (Maurer, 2001, 2002).

Self-efficacy for learning has been conceptualised by human resource scholars as both a specific and domain-level belief, which has caused some confusion in the literature. As a specific belief, the term *training* or *pre-training self-efficacy* is often used, describing an individual's confidence for successfully mastering skills in a training situation or learning the content of a training programme (that is, new knowledge) (Colquitt, et al., 2000; Tracey, et al., 2001). Pre-training self-efficacy is commonly (although not always) assessed prior to a specific training course (e.g. Guthrie & Schwoerer, 1994; Machin & Fogarty, 1997; Schwoerer, et al., 2005; Switzer, et al., 2005).

As a domain-level belief, *learning* or *development self-efficacy* relates to an individual's confidence for learning or developing new work-related skills, knowledge or abilities within a particular context or through a variety of interconnected activities (Birdi, et al., 1997; Maurer, 2001, 2002; Potosky & Ramakrishna, 2002). Maurer and colleagues (Maurer, Weiss, et al, 2003) define *development self-efficacy* as “the belief that one is capable of improving and developing his or her career-relevant competencies” (p.709). Because domain-level self-efficacy is not linked to a specific activity, such as a training course, it can be measured at any point in time in relation to a broader set of activities or behaviours. Moreover, because domain-level beliefs can be readily measured, they are more accessible to researchers and allow them to better understand self-efficacy's role in the development process: a process which involves a large number of interrelated but varied tasks, situations and methods.

Because self-efficacy beliefs provide individuals with the power to achieve to certain outcomes through its effects on behavioural motivation and self-regulation, they are an important part of the capability development process. Specifically, an individual's confidence in their ability to successfully learn new skills or knowledge provides both the motivation to learn and the basis for persevering in the face of difficulty (Maurer, Weiss, et al., 2003). This may be particularly important for younger workers who, during their early years in the workforce, develop a range of



new skills, knowledge and behaviours in an environment which may be markedly different from previous learning contexts. An individual who is confident in their ability to develop new skills in this environment is expected to have higher motivation for learning and be more likely to participate in development activities (Maurer, 2002). Conversely, someone who doubts their ability to successfully learn new or challenging skills for their job is likely to be less interested in learning and less likely to take up opportunities for learning.

The following section explores the way in which development self-efficacy influences a number of important attitudinal and motivational components of the learning and development process. Referred to as ‘outcomes’ of self-efficacy, these are: attitudes to continuous learning, motivation to learn and intentions to participate in development activities.

### **3.4 ATTITUDINAL & MOTIVATIONAL OUTCOMES**

#### **3.4.1 Overview**

As discussed, self-efficacy influences behaviour through cognitive, attitudinal and motivational evaluations. The impact of self-efficacy on human behaviour challenges HRD scholars to develop a more comprehensive understanding of self-efficacy’s relationship with specific aspects of the employee development process (Gist, 1987; Gist & Mitchell, 1992; Noe, 1986). A growing body of research demonstrates the role of both specific and domain-level self-efficacy beliefs in predicting a number of learning-related attitudes, affective evaluations and behaviours (Gist, Stevens, & Bavetta, 1991; Maurer & Tarulli, 1994; Potosky, 2002; Simmering, Posey, & Piccoli, 2009; Stajkovic & Luthans, 1998). These studies confirm the role of self-efficacy in the employee development process. However, as a learning-related domain-level belief, self-efficacy’s relationship with a number of dependent variables is unclear (Birdi, et al., 1997; Carlson, Bozeman, Kacmar, Wright, & McMahan, 2000; Warr & Bunce, 1995).

This section examines a number of these relationships in order to clarify self-efficacy's role in the development of younger workers. In particular, this section examines two directly dependent variables of development self-efficacy: attitude to continuous learning and motivation to learn, and one indirectly dependent variable: intentions to participate in development activities.

### **3.4.2 Attitudes & Motivation**

A small but growing body of research supports the important role of domain-level self-efficacy in the employee development process through its effects on attitudes, motivation (Chiaburu & Lindsay, 2009; Maurer, Lippstreu, et al., 2008; Maurer, Weiss, et al., 2003; Tracey, et al., 2001) and behaviour (Maurer & Tarulli, 1994; Potosky & Ramakrishna, 2002). While self-efficacy has been found to be directly related to behaviour, a number of experts suggest this relationship is mediated by affective and motivational aspects of the self (Bandura, 1997; Gist & Mitchell, 1992; Zimmerman, 2000). For this reason, this part of the literature review focuses specifically on self-efficacy's role as a determinant of attitudes and motivation, and the interrelationship of attitudes and motivation.

A comprehensive literature shows that attitudes and motivation predict developmental intentions and participation (Birdi, et al., 1997; Hurtz & Williams, 2009; Noe & Wilk, 1993; Tharenou, 2001) as well as a variety of training outcomes, including affective reactions (Klein, Noe, & Wang, 2006), knowledge and skill acquisition (Colquitt, et al., 2000; Noe & Schmitt, 1986; Tracey, et al., 2001), training performance (Tziner, Fisher, Senior, & Weisberg, 2007) and the transfer of training (Chiaburu & Marinova, 2005; Fecteau, et al., 1995; Seyler, Holton, Bates, Burnett, & Carvalho, 1998). These studies illustrate the impact of attitudes and motivation on desirable processes and outcomes of employee development. However, less is known about the relationship between learning attitudes and motivation or the way in which these variables are influenced by development self-efficacy as a domain-level belief.

While scholars agree that attitudes and motivation are interrelated but distinct constructs (Naquin & Holton, 2003; Warr & Bunce, 1995), few studies have examined these simultaneously, paying attention instead to one or the other. As a result, the way in which attitudes and motivation interact with each other and with self-efficacy is not well understood. Disentangling the relationships between self-efficacy, attitudes and motivation will bring greater clarity to the role these constructs play in the development process. In particular, it will shed light on how young people's engagement in skill development can be enhanced through these malleable beliefs and affective states.

Broadly defined, an attitude is a subjective cognitively-based affective belief that is temporally and situationally stable (Rowold, 2007). Attitudes have received much attention from human resource scholars for their effects on a variety of work-related (e.g. Ajzen, 2001; Harrison, Newman, & Roth, 2006) and developmental behaviours (e.g. Hertz & Williams, 2009; Noe, 1986). One particular attitude that is relevant to employee participation in development activities is attitude to learning (Maurer, Weiss, et al., 2003). However, because researchers have conceptualised this type of attitude in a variety of ways, there is little agreement about their definition.

For instance, attitude towards learning has been defined as: the extent to which an individual is *interested* in participating in learning and development activities and the degree to which an individual *feels favourably* towards the development of career-related skills (Maurer, Weiss, et al., 2003); how much an individual believes learning and development activities are *important, worthwhile* or *valuable* (Carlson, et al., 2000; Rowold, 2007; Seyler, et al., 1998); and whether an individual is *motivated* to participate in development activities in the future (Rowold, 2007) or feels *anxious* about training (Carlson, et al., 2000). The term 'attitude towards learning' has been used to reflect a variety of affective and value-laden beliefs.

Other researchers have focused specifically on employee attitudes regarding the importance of *continuous* learning and development activities (Deakin-Crick, Broadfoot, & Claxton, 2004; Harlen & Deakin Crick, 2003). This conceptualisation reflects the fairly recent recognition of individuals as lifelong learners, particularly by educational scholars (Gorard & Selwyn, 2005; Pendergast, Flanagan, Land, Bahr, Mitchell & Weir, 2005), but it has received little attention in relation to the employee development process generally or the development of younger workers specifically.

As jobs become increasingly reliant on technology, team-working and creativity, employees need to be able to adapt to different ways of working (Patterson, 2001). As a result, skill acquisition is no longer something that occurs early in one's working life but rather continues over the course of one's life. Many employees, particularly younger workers, view change as inevitable and expect to continue learning throughout their working lives (Vaughan, 2010; Vaughan, et al., 2006). For these reasons, younger workers' attitude to continuous learning is expected to be an important part of their engagement in learning, both now and in the future.

Motivation is a situation-specific affective desire that is directed towards a particular behaviour and may therefore vary across activities and contexts or over time (Rowold, 2007). 'Motivation to learn' has been conceptualised as both a general and a specific desire. As a general desire, motivation reflects an individual's attitudes towards training more broadly, for example, the belief that training is important (Rowold, 2007; Warr & Bunce, 1995). In this way, motivation can be regarded as tantamount to attitude. As a specific desire, motivation to learn reflects an individual's interest, enthusiasm and/or desire to engage in training, learning or development activities, or to learn the content of a specific training programme (Birdi, et al., 1997; Noe, 1986; Noe & Schmitt, 1986; Warr & Bunce, 1995). A key feature of motivation to learn as a specific state is that it is intentional and purposeful and thus is indicative of a person's "tendency to act" (Birdi, et al.,

1997, p. 854). A person's motivation to learn is therefore an important predictor of their developmental intentions and subsequent behaviours.

As Warr and Bunce (1995) note, an individual's general attitudes towards training may be different from their motivation for a specific activity or behaviour. Because attitudes are more stable and underlying, they are suggested as influencing an individual's level of motivation. However, despite agreement by scholars regarding the distinction between attitudes and motivation, their empirical relationship in the employee development process has not been fully explored. Indeed, only a small number of studies have examined the relationship between attitudes to learning and motivation to learn, and results have been mixed. In three studies, attitudes and motivation were found to be modestly correlated between  $r = .20$  to  $.51$  (Carlson, et al., 2000; Rowold, 2007; Warr & Bunce, 1995); however, only one study found that attitudes predicted motivation ( $\beta = .31$ ) (Carlson, et al., 2000).

Self-efficacy's relationship with both attitudes and motivation also merits further investigation. As a domain-level construct, self-efficacy has been found to predict motivation (pre-training motivation and motivation to learn) (Chiaburu & Lindsay, 2009; Chiaburu & Marinova, 2005; Colquitt, et al., 2000; Switzer, et al., 2005; Tracey, et al., 2001) and, in other studies, attitudes to learning (Maurer, Lippstreu, et al., 2008; Maurer & Tarulli, 1994; Maurer, Weiss, et al., 2003). However, despite suggestions that attitudes to learning may partially mediate the relationship between self-efficacy and motivation (Carlson, et al., 2000), few studies have examined all three constructs simultaneously. Carlson and colleagues (2000) found that while self-efficacy was related to both attitudes and motivation, it was not predictive of either. Because the lack of support for these relationships may have been due to the relatively small sample size ( $n = 158$ ), investigation with a larger sample seems warranted.

As illustrated, an individual's self-efficacy beliefs, learning-related attitudes and motivation to learn have each been shown to play an important part in the

development process. However, the nature of their relationships with each other is unclear, and further investigation will contribute to a better understanding of the role each has in younger workers' learning and development.

### **3.4.3 Intentions to Participate**

One of the fundamental goals of an organisation's investment in learning and development is the improvement of an employee's skills, knowledge and abilities. Self-efficacy plays a role in this process through its effects on various affective and motivational states. Although researchers have paid much attention to the role of employee motivation in influencing development behaviours, motivation does not always result in these desirable behaviours. Rather, a key factor that links an individual's motivation to learn to their actual participation in development activities is their behavioural intentions.

According to the theory of planned behaviour, intentions have two levels: general desires and self-predictions (Ajzen, 1991). General desires reflect what the individual *wants* to do, while self-predictions reflect an individual's beliefs about what they will actually do in the future. Defined in this way, general desires reflect an individual's motivation to learn which in turn influences their behavioural self-predictions. These behavioural predictions are commonly referred to as behavioural 'intentions' (Machin & Fogarty, 1997; Maurer, Weiss, et al., 2003). While evidence supports motivation as a determinant of developmental behaviours (Colquitt, et al., 2000; Tharenou, 2001), the theory of planned behaviour suggests that employees are more likely to engage in development activities when they have formed specific intentions (Ajzen, 1991).

Research shows that the more specific and planned one's intentions are, and the more proximal they are to the intended behaviour, the more predictive they are of that behaviour (Ajzen, 1991; Armitage & Conner, 2001; Orbell, Hodgkins, & Sheeran, 1997). Studies have also demonstrated that intentions are reliable

predictors of participation when assessed up to 12 months prior to the actual behaviour (Hurtz & Williams, 2009; Maurer, Weiss, et al., 2003). For these reasons, intentions are highly indicative of subsequent behaviour and are, therefore, useful in understanding the development process.

Despite the suggestion that motivation influences behaviour through its effect on intentions, these relationships have received little attention in the human resource literature. Previously, researchers have examined motivation as an antecedent of participation in development activities (Birdi, et al., 1997; Noe & Wilk, 1993; Warr & Bunce, 1995) but not as an antecedent of intentions. Other studies have supported attitude to learning as an antecedent of developmental intentions (Hurtz & Williams, 2009; Maurer, Lippstreu, et al., 2008; Maurer, Weiss, et al., 2003). However, because attitudes are believed to influence motivation (Ajzen, 2002; Carlson, et al., 2000), their relationship with intentions is likely to be mediated through motivation to learn. Examining the relationships between learning attitude, motivation and intentions will clarify how these motivational variables interact to influence younger workers' participation in development activities.

Although motivation to learn is believed to be an important determinant of behavioural intentions, other factors may also influence intentions. One factor that may be particularly relevant in understanding the developmental intentions of younger workers is their level of 'career-job congruence'. Career-job congruence reflects an individual's perceptions regarding the extent to which their current job is relevant to or compatible with their longer-term occupational interests or career goals. The notion of career-job congruence has received some attention in the area of school-to-work transitions (Dockery & Strathdee, 2003; Pinquart, Juang, & Silbereisen, 2003; Stern, et al., 1990). These studies suggest that career-job beliefs may be highly relevant for understanding the work-related attitudes and behaviours of younger workers; however, this has not been examined by HRD scholars.

Instead, researchers have examined work centrality, job involvement and person-job fit as predictors of job satisfaction (Kristof-Brown, Zimmerman, & Johnson,

2005), self-efficacy for learning, perceived benefits of development activities (Maurer, Weiss, et al., 2003), motivation to learn (Noe & Schmitt, 1986) and career-related continuous learning (Rowold & Schilling, 2006). These studies confirm the relevance of job beliefs to the learning process; however, as many younger workers are still in the process of developing their career interests and goals, their desire to learn may be informed more by how relevant their job is to their career than the importance of work generally.

As young people move into the labour market, it can often take time for individuals to acquire jobs that are congruent with their skills or area of study (Schneider & Stevenson, 1999 cited in Hamilton & Hamilton, 2006). The gap between the type of job a young person is qualified to do or desires and the jobs that are actually available means many may have to compromise on their choice of job until they can secure more suitable work (Arnett, 2004; Stern, et al., 1990). An individual who does not perceive their job as being congruent with their career goals is less likely to make the most of the developmental opportunities available to them, or to seek out and participate in further activities. Conversely, young people who do view their job as being relevant to their interests and goals are more likely to be motivated to learn and to engage in the skill development activities (Pinquart, et al., 2003). In sum, career-job congruence beliefs are proposed as being highly relevant to understanding younger workers' desire to learn and to participate in development activities.

### **3.5 EXTERNAL & INTERNAL SOURCES OF SELF-EFFICACY BELIEFS**

#### **3.5.1 Overview**

While scholars have paid much attention to understanding the way in which self-efficacy influences attitudes, motivation and developmental behaviours, less is known about the factors that influence self-efficacy beliefs, particularly in organisational contexts. Research indicates that self-efficacy beliefs are informed



from an individual's experiences gained in different contexts and their interpretations of those experiences (Bandura, 1997; Gist & Mitchell, 1992). While many efficacy beliefs are formed early in life, they retain a dynamic quality and change over time in response to new information from subsequent experiences and contexts.

A number of scholars have pointed to the need for a better understanding of the responsiveness of self-efficacy to a variety of external and internal sources of information (Carlson, et al., 2000; Eden, 2001; Gist & Mitchell, 1992; Guthrie & Schwoerer, 1994; Maurer, 2002; Schwoerer, et al., 2005; Usher & Pajares, 2006); however, these relationships remain relatively unexamined, particularly in the context of employee learning and development. Understanding how self-efficacy beliefs are formed and may be influenced in organisational settings would enable organisations to maximise employee development through this central self-belief.

This section explores how an employee's development self-efficacy beliefs may be informed by external and internal sources of information. The review begins by examining the formation of self-efficacy beliefs, including the malleability and responsiveness of those beliefs to different sources of information. Different approaches taken to examining the responsiveness of efficacy beliefs to primary and secondary sources of information are also discussed. Finally, the section examines three aspects of the work environment and three individual self-beliefs as significant external and internal sources of development self-efficacy information.

### **3.5.2 The Formation of Efficacy Beliefs**

#### ***3.5.2.1 Sources of Efficacy Information***

Efficacy beliefs are formed early in life through four types of personal experiences that occur within one's family, social and educational environments. These experiences – being personal mastery, vicarious learning, social persuasion and physiological/affective arousal – are widely acknowledged as the primary sources of

efficacy information (Bandura, 1977a, 1997; Maddux, 1995; Wood & Bandura, 1989b). The most significant source of learning occurs through personal mastery (or performance) experiences which provide individuals with direct exposure to tasks and behaviours. Through these experiences, individuals are able to identify and practice relevant performance-enabling strategies and gain feedback about their behaviour, strategies and outcomes (Bandura, 1995).

Vicarious experiences, such as observational learning and role modelling, provide individuals with indirect opportunities to learn. These experiences provide important information about the task or situation in which a task is to be performed. They also provide information about expected and effective behaviours and relevant performance-enhancing strategies which individuals can apply in subsequent situations (Maddux, 1995; Wood & Bandura, 1989b).

Efficacy beliefs are also influenced through social or verbal persuasion. While the primary goal of persuasion is to strengthen an individual's beliefs about their ability to perform a task, negative comments may diminish efficacy beliefs (Gist, 1987). Finally, an individual's experience of physiological and affective states, such as the experience of physical sensations or emotions, also inform their beliefs about the successful performance of a task or behaviour (Bandura, 1997; Maddux, 1995). For instance, the anticipation of pain or anxiety, whether perceived or previously experienced in similar situations, may reduce an individual's confidence for performance. Conversely, a positive mood or happiness may enhance efficacy beliefs.

Of these four types of experiences, mastery (or performance) experiences have the greatest direct influence on efficacy beliefs (Bandura, 1977a, 1995; Gist & Mitchell, 1992; Maddux, 1995; Usher & Pajares, 2006; Zimmerman, 2000). However, some experts have suggested that a combination of different experiences may be more influential than any one particular type of experience (S. L. Anderson & Betz, 2001; Bandura, 2006a; Schaub & Tokar, 2005). According to Bandura (1986, 1995), a

resilient sense of efficacy is built most effectively through repeated experiences of success which are performed under a variety of conditions and degrees of challenge. In addition, failure is ideally both delayed and infrequent and is overcome through sustained effort and perseverance.

The way in which these experiences influence self-efficacy beliefs is not, however, straightforward. Efficacy judgments are believed to be formed through a complex process of interpretation, evaluation and assimilation of information from these experiences as well as a range of other secondary sources of information (Bandura, 1997; Gist & Mitchell, 1992). According to Gist and Mitchell (1992), individuals interpret information from their personal experiences through a number of secondary cues relating to the task or behaviour to be performed, the environment in which this occurs as well as an individual's own characteristics and resources. These 'secondary' cues are then assessed for their availability and utility in enabling successful performance. For example, in judging their ability to perform a certain task, a person may perceive that support is readily available, but may not see this as being particularly useful. It is the confluence and assessment of this information which informs an individual's judgment of personal efficacy for a task, behaviour or domain of functioning (Maddux, 1995).

Research also shows that in forming specific efficacy beliefs, different sources of information appear to be weighted differently in relation to a number of factors such as the importance of the experience (Lent & Brown, 2006; Shelton, 1990), the conditions under which the task was performed, the consequences of task performance (Lent, et al., 1994), and the extent to which the persuader or model is esteemed or perceived to be similar (Bandura, 1977a). Other researchers (Eden, 2001; Gist & Mitchell, 1992) have suggested that some individuals may place more weight on internal cues (such as their natural ability) while others may place more weight on external resources (such as the availability and utility of support) in forming their efficacy beliefs. When an individual is unfamiliar with a task or behaviour, they rely more heavily on task and contextual factors and on a larger

number of cues in forming efficacy beliefs; however, as task familiarity increases, individuals require fewer cues and place greater weight on their experiences and feelings than on contextual factors (Mitchell, et al., 1994).

#### **3.5.2.2     *Malleability & Responsiveness of Efficacy Beliefs***

Although efficacy beliefs are primarily formed early in life, they retain a dynamic quality (Bandura, 1997; Betz & Hackett, 2006; Gist & Mitchell, 1992; Saks, 1995). A burgeoning literature shows that self-efficacy beliefs are malleable and can change as a result of direct inducements as well as over time; although, the more specific the efficacy belief the more responsive it is (Creed, Bloxsome, & Johnston, 2001; Eden & Aviram, 1993; George-Falvy, et al., 1993; Pond III & Hay, 1989; Schwoerer, et al., 2005; R. E. Smith, 1989; Zimmerman, 2000).

There is also evidence to suggest that different types of efficacy beliefs may be more responsive to certain sources of information than others. For instance, in studying the self-efficacy beliefs of children, Anderson and Betz (2001) found that past performance (mastery experiences) and emotional arousal predicted ‘social self-efficacy’ (self-efficacy in general social situations) for both males and females, but vicarious learning and social persuasion did not. By contrast, performance experiences and social persuasion were important sources of ‘social confidence’ (self-efficacy in occupationally-relevant social situations) for boys, but only emotional arousal was significant for girls. A study by Usher and Pajares (2006) found that social persuasion was an important predictor of both academic and social self-efficacy beliefs for girls but not for boys, and that vicarious learning was significant for boys’ efficacy beliefs, but not for girls. These studies suggest that males and females may weight various sources of information differently in forming their efficacy beliefs, and that this may differ depending on the efficacy belief in question.

Usher and Pajares' (2006) study also found that adults and peers appeared to be distinct sources of vicarious learning: a distinction that had not been made in previous studies. Unfortunately, the effects of these different sources could not be examined due to the poor reliability of the 'adults' measure following their exploratory analysis of the data. Nonetheless, this finding suggests it may be important to distinguish between different sources of interpersonal support in examining the development self-efficacy beliefs of younger workers.

These studies illustrate the complex process by which efficacy judgments are made and the variety of cues that are instrumental in making these judgments. Given the complexity of the efficacy formation process, a challenge for researchers is identifying appropriate ways of understanding how different sources of information influence different types of efficacy beliefs in different settings.

### **3.5.2.3      *Approaches to Examining the Sources of Efficacy Beliefs***

A common approach taken by researchers is to examine the impact of the four primary sources of efficacy information (for example, mastery experiences, vicarious learning) on the efficacy belief of interest (e.g. S. L. Anderson & Betz, 2001; Usher & Pajares, 2006). Researchers ascertain an individual's perceptions regarding each of the sources of efficacy information and the efficacy belief of interest then, using an appropriate statistical approach (for example, regression analyses), identify the amount of variance in the efficacy belief explained by each source. A similar approach has been taken when examining changes to self-efficacy as a result of manipulations or efficacy-enhancing interventions, often in relation to skills-based training (e.g. George-Falvy, et al., 1993; Pond III & Hay, 1989; Wolfe, et al., 1998). In these situations, the influence of specific experiential techniques (such as behavioural modelling or verbal persuasion) is determined by comparing post-test measures with pre-test measures of self-efficacy.

Although the four types of individual experiences form the primary source of efficacy information, these experiences do not occur in isolation. Rather, they take place in interactive, dynamic and often complex environments. Accordingly, an alternative approach taken by some researchers is to examine the context in which these experiences occur and in which efficacy beliefs are formed. One important context in which efficacy beliefs are developed is the work environment (Bandura, 2009; Gist, 1987; Maurer, 2001, 2002). Recently a small number studies have examined the work environment as an antecedent of employee self-efficacy beliefs for learning and development (Maurer, Lippstreu, et al., 2008; Maurer, Weiss, et al., 2003; Tracey, et al., 2001). In these studies, statistical techniques, such as multiple regression or structural equation modelling, are used to determine the amount of variance in the efficacy belief that is explained by different contextual factors (for example, organisational support) and other sources of information that may be of interest (for example, individual characteristics). Under this approach, the primary types of learning are embedded within the particular context rather than being examined specifically.

This latter approach is also consistent with other organisational research that has examined the work environment as a source of affective, motivational and behavioural outcomes of the employee development process (e.g. Fecteau, et al., 1995; Noe & Wilk, 1993). Consistent with these studies, a contextual/individual approach is appropriate for examining the work environment and individual characteristics as external and internal sources of younger workers' development self-efficacy beliefs.

### **3.5.3 The Work Environment**

There is wide agreement amongst scholars that the context within which learning occurs plays a key role in individual learning and development (Billett, 2004; Ellinger & Cseh, 2007; Fuller & Unwin, 2003; Vaughan, 2008). The work environment is a particularly rich source of learning experiences and is the primary context in which

employees develop their occupational skills and abilities (Maurer, 2002; Maurer, Weiss, et al., 2003; Tharenou, 2001). An essential part of capability development is identifying which aspects of this context have the most influence on various affective, motivational and behavioural components of the development process. Employee development is facilitated by a variety of characteristics, mechanisms and structures that exist at different levels of the organisation (Maurer, 2002; Rainbird, 2000). Three aspects of the work environment that are of most interest in the current study are the organisation's support for employee learning and development, manager support for learning, and co-worker support for learning.

As discussed next, the literature demonstrates that organisations, managers and co-workers each have an important role in the development of employee capability through their effects on employees' attitudes, motivation and behaviours. These sources of developmental support have also been suggested as influencing a specific belief: self-efficacy (Gist & Mitchell, 1992; Maurer, 2001, 2002). However, few studies have examined these relationships and some findings from these studies have been mixed.

### ***3.5.3.1 Organisational Support for Employee Development***

At the highest level, an organisation's policies provide employees with important information about the extent to which learning and development is valued, emphasised and supported by the organisation (Maurer, 2002). Organisational strategies, such as high performance work systems and total quality management, also influence how work is structured which affects employee engagement in organisational life, decision making and learning (Eden, 2001; Hackman & Wageman, 1995). Organisational strategy also determines the extent to which managers are expected to be involved in, and responsible for, facilitating individual and workforce development (Fuller & Unwin, 2003, 2004; Tannenbaum, 1997).

The organisation's expectations regarding employee development as well as the opportunities and resources it makes available for employees to use new skills, and providing favourable consequences for the transfer of skills are also important forms of support (Holton, Bates, Seyler, & Carvalho, 1997; Rouiller & Goldstein, 1993; Tracey, et al., 1995). However, because access to developmental resources can vary for employees across different levels of the organisation (Bryson, Pajo, Ward, & Mallon, 2006), an important part of an organisation's support for learning is ensuring that *all* employees have access to such opportunities and are able to develop their skills, knowledge and abilities (Fuller & Unwin, 2003, 2004). Indeed, research shows that employees who perceive their organisation as supporting learning and development are more motivated to learn (Tharenou, 2001) and to transfer that learning to the workplace (Pajo, et al., 2005). Perceived organisational support is also associated with higher rates of employee participation in development activities (Pajo, et al., 2005).

At a more tangible level, organisations control the provision of important resources, such as money, time, equipment and technology enable employees to participate in both formal and informal development activities which are crucial for the development of an individual's skills, knowledge and career (Birdi, et al., 1997; Eden, 2001; Fecteau, et al., 1995; Maurer, 2002; Maurer, Weiss, et al., 2003; Noe & Wilk, 1993).

Despite suggestions that organisational support is important for employee learning and development, few researchers have specifically examined its relationship with cognitive, attitudinal or motivational aspects of this process. Rather, researchers have tended to focus on the extent to which environmental constraints inhibit learning (Fecteau, et al., 1995; Machin & Fogarty, 1997; Mathieu, Martineau, & Tannenbaum, 1993; Noe & Wilk, 1993). Others have found that the organisation's training reputation had a positive effect on employee pre-training motivation, task constraints had a minimal effect, and support from senior management had a negative effect (Fecteau, et al., 1995). There is also some evidence that



organisational support for employee development is positively related to voluntary participation in development activities (Maurer & Tarulli, 1994).

An organisation's influence on these affective and motivational evaluations may be mediated through the role of self-efficacy. An organisation's support for learning and development enables employees to participate in a variety of formal and informal developmental activities, and to learn through a range of indirect experiences and interactions with other organisational members (Maurer, 2001, 2002). In particular, guided mastery experiences, supportive and positive role models, and feedback on learning and performance can increase employees' confidence, as well as their personal wellbeing, job satisfaction and productivity (Saks, 1994, 1995 cited in Bandura, 2009). Consequently, organisational support may positively impact an employee's confidence for learning new skills or knowledge.

Organisational support is also believed to be an important source of self-efficacy information (Maurer, 2002); however there has been little empirical examination of this suggestion. What is more, a number of recent studies that have examined organisational support have aggregated these together with other aspects of support (for example, manager, co-worker and job support) (Maurer, Weiss, et al., 2003; Tracey, et al., 2001). This approach means little is known about which sources have the greatest impact on self-efficacy beliefs. Organisational support for employee development formed a part of Tracey and colleagues' (2001) 'training climate' scale which predicted both learning self-efficacy and pre-training motivation. By contrast, studies by Maurer and colleagues (Maurer, Lippstreu, et al., 2008; Maurer, Weiss, et al., 2003) did not find aggregate 'work support' predicted development self-efficacy beliefs. These studies illustrate the importance of disaggregating aspects of the work environment to develop a better understanding of the specific role organisations play in the development process for employees generally, as well as for younger novice workers.

### **3.5.3.2     *Manager Support for Employee Development***

Members of the organisation, such as managers and co-workers, also play an important role in the learning and development process. Managers and supervisors are powerful sources (or ‘gatekeepers’) of developmental opportunities, resources and support needed for learning and development; for example, by providing funding and allowing time away from work to attend training courses (Maurer & Tarulli, 1994; Tharenou, 2001; Tracey & Tews, 2005). In addition, managers directly facilitate learning by providing training, guidance and feedback to employees (Coetzer, 2006b; Hughes, 2004), and supporting the transfer of learning to the workplace (Ashton, 2004; Noe, 1986; Switzer, et al., 2005; Tharenou, 2001). Another key way managers facilitate learning is by supporting and encouraging employees to participate in activities that develop not only their work skills and knowledge, but also their personal growth and development (Maurer, 2002; Maurer & Tarulli, 1994; Tannenbaum, 1997). Similarly, managers can be important sources of social influence by encouraging employees to believe they can learn new skills and abilities, to recognise the utility of training and development, and to persevere in the face of difficulty (Guthrie & Schwoerer, 1994; Maurer, 2002).

Manager support for employee development has been found to explain differences in a range of employee attitudes and behaviours including: attitudes and motivation for learning (Chiaburu & Marinova, 2005; Colquitt, et al., 2000; Fecteau, et al., 1995; Maurer & Tarulli, 1994; Switzer, et al., 2005), perceived benefits of development activities (Guthrie & Schwoerer, 1994; Tannenbaum, 1997), intentions to participate in development activities (Maurer & Tarulli, 1994), participation in development activities (Fecteau, et al., 1995; Tharenou, 2001), declarative knowledge, and transfer of learning (Colquitt, et al., 2000). A recent study also found that managers who perceived their organisation as being supportive of their own development were more likely to develop their subordinates (Tansky & Cohen, 2001). However, support from managers has been scarcely studied in relation to employee self-efficacy beliefs.

Managers are believed to be important sources of efficacy information by providing training, coaching and feedback, and by encouraging employees to take up developmental opportunities and to try out new skills at work (Maurer, 2001, 2002). In addition, by participating in learning and development activities themselves, managers act as role models of learning behaviours, strategies and outcomes (Maurer, Mitchell, & Barbeite, 2002; Maurer, Wrenn, Pierce, Tross, & Collins, 2003). Watching others engage in learning and development provides individuals with information about the availability and utility of various behavioural, analytical and psychological strategies that may be relevant for their own performance in similar situations (Bandura, 1997). Observation can also stimulate an individual's imagined experiences, through which they can mentally 'practice' various behaviours and strategies, imagine their reactions to these experiences, and anticipate consequences of various scenarios or situations which can increase their confidence for task performance (London & Smither, 1999; Maddux, 1995; Wood & Bandura, 1989b).

Managers may also influence efficacy beliefs through the use of social and verbal persuasion; for example, by encouraging employees to believe they are capable of learning and developing new skills, and by encouraging them to attribute their successes and failures to appropriate causes such as the application of effort rather than innate ability (Carlson, et al., 2000; Gist & Mitchell, 1992; Maurer, 2001).

There is some evidence to suggest managers influence employee motivation, transfer of learning and development behaviours (Faction, et al., 1995; Noe & Wilk, 1993; Tharenou, 2001); however, there has been little attention paid to the effect of managers on self-efficacy beliefs for learning and development. In addition, as some researchers have aggregated aspects of the work environment together (Maurer, Lippstreu, et al., 2008; Maurer, Weiss, et al., 2003; Tracey, et al., 2001), the influence of support from managers on development self-efficacy beliefs has not yet been established.

### **3.5.3.3     *Co-Worker Support for Employee Development***

Co-workers, too, play an important role in the learning and development process and may be particularly important sources of support for younger workers. Research shows that co-workers primarily support learning by informally sharing information, helping others learn new processes or techniques, and by encouraging their colleagues to participate in development activities and practice new skills at work (Hughes, 2004; Skule, 2004; Svensson, Ellstrom, & Aberg, 2004). Thus, through their own attitudes and behaviours, co-workers act as informal role models of developmental behaviours (Facteau, et al., 1995; Maurer, 2002; Noe & Wilk, 1993; Tracey, et al., 1995).

Interpersonal relationships are particularly important for the learning and development of younger workers (Elfering, et al., 2007; Loughlin & Barling, 1998; E. Smith, 2002, 2003; E. Smith & Green, 2001; A. Taylor, 2002). According to these studies, work colleagues provide important support for development by encouraging employees to participate in development activities and by modelling developmental behaviours. One study found that colleagues who were interested in, and supportive of, learning affected the individual's own beliefs and attitudes towards learning (E. Smith, 2002), while another study found colleagues who were not perceived to be supportive of learning had an adverse effect on younger workers' interest and engagement in learning (A. Taylor, 2002).

Research shows that, for more established employees, developmental support from co-workers influences an individual's motivation to learn, participation in development activities and transfer of training to the workplace (Birdi, et al., 1997; Chiaburu & Marinova, 2005; Colquitt, et al., 2000; Facteau, et al., 1995; Noe & Wilk, 1993; Tracey, et al., 1995). Support and guidance from peers has also been related to higher levels of employee performance and organisational commitment (Liden, Wayne, & Sparrowe, 2000). However, few studies have examined co-workers as a source of development self-efficacy beliefs with either adult or younger employees.

As with managers, co-workers are suggested as influencing efficacy beliefs by encouraging employees to participate in development activities; by providing informal training, guidance and advice; and by acting as role models of positive development behaviours and effective learning strategies (Maurer, 2002). Thus co-workers are important sources of direct mastery experiences as well as observational (vicarious) learning. Work colleagues may also enhance efficacy beliefs through the use of verbal or social persuasion, whether intentional or not; for example, by providing feedback during the learning process, by encouraging a person to believe they are capable of learning new skills or knowledge and encouraging them to persevere in difficult situations (Maurer, 2001).

As illustrated, organisations, managers and co-workers each play an important role in the development process for their effects not only on motivation, but also self-efficacy beliefs. However, some studies indicate that these sources of support exert different levels of influence on aspects of the employee development process. For example, Fecteau and colleagues (1995) found that manager support predicted employee motivation to learn ( $\beta = .12$ ), but co-worker support did not. Conversely, Chiaburu and Marinova's (2005) study found that peer support was a stronger predictor of motivation than supervisor support ( $\beta = .11$  versus  $\beta = .04$  respectively). Other studies also indicate that the importance of support from organisations, managers and co-workers varies in relation to learning-related attitudes, motivation and behaviours (Birdi, et al., 1997; Hughes, 2004; Maurer & Tarulli, 1994; Tharenou, 2001).

These findings suggest the importance of examining organisations, managers and co-workers as distinct sources of developmental support. What is more, sources of efficacy information may be differentially important, meaning that organisations, managers and co-workers may have different effects on self-efficacy beliefs. This may explain why previous studies have reported mixed findings regarding the work environment as a determinant of development self-efficacy beliefs. For example, a study by Tracey et al (2001) supported a relationship, while two studies by Maurer

et al (Maurer, Lippstreu, et al., 2008; Maurer, Weiss, & Barbeite, 2003) did not. One study by Maurer et al (2003) examined employees' perceptions of three aspects of the work environment – organisational, manager, and co-worker support for employee development – in relation to development self-efficacy beliefs. These aspects of support were combined to form an overall 'work support' construct. The study found that while work support was modestly correlated to both absolute (task-referenced) and relative (peer-referenced) development self-efficacy beliefs ( $r = .22, .24$  respectively), it did not predict either efficacy belief. A later study by Maurer, Lippstreu, et al (2008) also examined work support as an antecedent of development self-efficacy beliefs (combining relative and absolute efficacy dimensions), but did not support these relationships.

By contrast, Tracey et al (2001) found that aggregate training climate (comprising organisational, manager and job support) predicted employee pre-training self efficacy ( $\beta = .22$ ); however, as these facets of support were aggregated, the contribution of each was not determined. While Tracey et al (2001) provide initial support for the work environment as source of learning-related self-efficacy beliefs, support from co-workers was not included in their measure of work support. Given the importance of co-workers for employee learning and development found in other studies, particularly for younger workers, examining their influence on self-efficacy beliefs is important.

Although aggregating dimensions of support provides more parsimonious models, this approach may conceal potentially important information about their relationships with self-efficacy. For this reason, examining these aspects of the work environment as distinct sources of developmental support is expected to clarify the influence of each on the development self-efficacy beliefs of younger workers.

### **3.5.4 Individual Self-Beliefs**

In addition to external sources of information, such as the work environment, efficacy beliefs are also informed by a number of internal cues. These internal cues include an individual's personal resources, characteristics, beliefs and attitudes that may be relevant to an anticipated task or domain of functioning (Bandura, 1997; Eden, 2001; Gist & Mitchell, 1992; Maddux, 1995). Personal resources may include a person's perceptions regarding their existing level of ability, or their ability to draw on internal cognitive and behavioural strategies that may assist learning or performance. For instance, a person's beliefs about the utility of effort are believed to increase their efficacy beliefs for task performance, while a physical impairment may reduce these (Eden, 2001; Gist & Mitchell, 1992).

Individual characteristics, such as personality traits, have also been found to predict self-efficacy beliefs, particularly at the task-specific level. Colquitt and colleagues' (2000) meta-analysis showed that conscientiousness, locus of control and anxiety each predicted employees' pre-training (specific) self-efficacy. Recent studies have also demonstrated relationships between positive emotional temperament and vocational self-efficacy (Larson & Borgen, 2006), and achievement motivation, locus of control and learning goal orientation and pre-training self-efficacy in specific work-based and simulated training situations (Bell & Kozlowski, 2002; Martocchio & Hertenstein, 2003; Mathieu, et al., 1993; J. Phillips & Gully, 1997). While fewer studies have examined traits in relation to domain-level self-efficacy beliefs, there is some evidence for learning goal orientation as a determinant of learning-related self-efficacy (Maurer, Lippstreu, et al., 2008; Potosky & Ramakrishna, 2002).

A number of more malleable characteristics have also been proposed as internal sources of efficacy information. This study examines three individual characteristics (or 'self-beliefs') as sources of younger workers' development self-efficacy beliefs: general self-efficacy, personal improvability beliefs and learning anxiety. The literature suggests these beliefs are important in preparing an individual for

learning and development through their effects on self-efficacy beliefs, attitudes and motivation; however, a number of relationships are yet to be empirically supported and merit further investigation (Maurer, Weiss, et al., 2003).

#### **3.5.4.1     *General Self-Efficacy***

One of the primary sources of domain and specific self-efficacy beliefs is suggested as being an individual's global efficacy beliefs (Gibbons & Weingart, 2001). As discussed in section 3.3, general self-efficacy reflects an individual's global beliefs about their ability to succeed across a range of life activities and is not tied to a specific behaviour or domain of functioning (Chen, Gully, et al., 2004; Sherer, et al., 1982).

Its trait-like nature means that general self-efficacy should explain much of the variance in a variety of individual beliefs, attitudes and behaviours (Woodruff & Cashman, 1993); however, support for this proposition has been mixed. For example, general self-efficacy has been found to predict motivation to learn (Switzer, et al., 2005), but was not predictive of perceived benefits of development activity (Maurer, Weiss, et al., 2003). Some have suggested that the effects of general self-efficacy on these attitudinal and motivational variables may be mediated through its effect on domain and specific self-efficacy beliefs (Gibbons & Weingart, 2001; Gist, 1987; Maurer, Weiss, et al., 2003; Pond III & Hay, 1989; Shelton, 1990).

A limited number of studies provide some support for general efficacy as a determinant of different domain and specific self-efficacy beliefs. For example, general self-efficacy has been found to uniquely predict specific self-efficacy beliefs in training situations, such as aviation and telemarketing training (Davis, Fedor, Parsons, & Herold, 2000; Wolfe, et al., 1998). General self-efficacy has also explained differences in a variety of domain-level beliefs; for instance, children's self-efficacy beliefs for verbal tasks ( $\beta = .58$ ) (Gibbons & Weingart, 2001) and exam



performance (Chen, Gully, Whiteman, & Kilcullen, 2000), as well as employees' job self-efficacy beliefs ( $b = .77$ ) (Chen, Goddard, & Casper, 2004).

In the context of employee development, organisational researchers believe that general self-efficacy primarily influences the development process through its effects on domain-level self-efficacy beliefs (Schyns & von Collani, 2002; Warr & Bunce, 1995). Despite these suggestions, few studies have examined this relationship. A longitudinal study by Schowerer and colleagues (2005) found that both general and domain ('training') self-efficacy uniquely predicted specific self-efficacy beliefs (post-training work-specific self-efficacy) ( $\beta = .29$ ,  $\beta = .16$  respectively). However, while general self-efficacy and training self-efficacy were correlated ( $r = .31$ ), their predictive relationship was not reported. Only one study (Maurer, Weiss, et al., 2003) has explicitly examined general self-efficacy as a determinant of development self-efficacy as a domain-level construct. In that study, general efficacy beliefs were correlated with both absolute (task-referenced) and relative (peer-referenced) self-efficacy beliefs ( $r = .25$  and  $.49$ ), but only predicted relative self-efficacy ( $\beta = .20$ ).

Notwithstanding suggestions that general self-efficacy is an important source of domain-level self-efficacy beliefs, the relationship between general self-efficacy and 'absolute' development self-efficacy has yet to be empirically established. Determining the influence of global beliefs on domain-level beliefs will help identify the most important sources of development self-efficacy beliefs and the attributes that make the greatest contribution to the development of employee capability.

### **3.5.4.2    *Personal Improvability Beliefs***

Another internal source of efficacy information is an individual's beliefs about the improvability of skills, knowledge and abilities. 'Implicit theory of ability' suggests that individuals hold particular beliefs regarding the malleability of their skills, knowledge and abilities (Dweck, 1999, 2002). Those holding an 'incremental' view

believe that individual characteristics are able to be improved, while those holding an 'entity' view believe that characteristics are generally stable once formed (Dweck, 1999). Interestingly, incremental theorists tend to regard characteristics as 'skills, abilities and knowledge', while entity theorists tend to regard characteristics as 'intelligence' (ibid).

Research suggests that an individual's beliefs regarding the improvability of their skills and abilities play a key role in employee motivation and behaviour, particularly through their effects on goal setting and self-regulation. For example, individuals who believe ability can be improved through effort and persistence tend to hold learning goals. By contrast, those who believe ability (or intelligence) is fixed are oriented towards performance goals and believe that the requirement for a high level of effort is indicative of low ability (Bouffard, Bouchard, Goulet, Denoncourt, & Couture, 2005; Button, Mathieu, & Zajac, 1996; Dweck, 1999; Leondari & Gialamas, 2002).

Improvability beliefs may also influence motivation and behaviour through an individual's self-efficacy beliefs (Bandura, 1997; Maurer, 2002). Viewing ability as being improvable is thought to increase an individual's confidence for task performance and their actual performance (Bandura, 1997). According to Wood and Bandura (1989a), "construing ability as an acquirable skill fostered a highly resilient sense of personal efficacy" (p.412). Accordingly, an individual's improvability beliefs are expected to enhance an individual's interest, motivation and participation in development activities through their effects on their development self-efficacy beliefs.

A small number of studies have examined improvability beliefs as a source of efficacy beliefs and have generally supported this relationship. In the context of a computer training programme, Martocchio (1994) found that individuals who believed skills were acquirable experienced increases to their efficacy beliefs, while the opposite was true for those who held entity beliefs. Similarly, in a simulated

organisational setting, Wood and Bandura (1989a) found that ‘managers’ who believed abilities were fixed experienced reductions to their self-efficacy beliefs, while those who believed skills were acquirable sustained their level of self-efficacy, set more challenging goals, and used analytical strategies more effectively.

Findings from two studies by Maurer and colleagues (Maurer, Lippstreu, et al., 2008; Maurer, Weiss, et al., 2003) also show that an individual’s beliefs about their ‘learning qualities’ within their careers are related to their development self-efficacy beliefs. These learning-related beliefs, defined as “people’s beliefs about themselves as someone possessing the characteristics or qualities needed to learn, improve, and grow” (Maurer, Weiss, et al., 2003, p. 714) predicted both absolute and relative dimensions of development self-efficacy ( $\beta = .30, .24$  respectively) in one study (Maurer, Weiss, et al., 2003), and development self-efficacy as a composite construct ( $\beta = .27$ ) in the other (Maurer, Lippstreu, et al., 2008).

The literature suggests that an individual’s belief regarding the improvability of skills and abilities is an important source of learning-related self efficacy beliefs for adults. While this relationship has not been examined for younger workers, improvability beliefs are expected to be an important source of self-efficacy information for this group of employees.

### **3.5.4.3     *Learning Anxiety***

Another self-belief that has been shown to be a key source of efficacy information is an individual’s level of emotional arousal. Anxiety is a specific type of emotional arousal and is broadly defined as “a state of anticipatory apprehension over possible deleterious happenings” (Bandura, 1997, p. 137). Anxiety is commonly experienced through physical sensations such as restlessness, shaking, a racing heart, or shortness of breath (Maddux, 1995; Maurer, Weiss, et al., 2003). As a ‘state’ or situation-specific belief, anxiety is closely associated with a particular task or environment and, when measured in relation to a particular context or

behaviour, should be highly informative of an individual's behaviour in that situation (Gist & Mitchell, 1992).

In the context of learning and development, 'learning anxiety' relates to an individual's anticipated level of negative arousal in learning or training situations (Maurer, Weiss, et al., 2003; Warr & Bunce, 1995). Learning anxiety has been found to exhibit modest bivariate relationships with attitudes to learning, motivation to learn and perceived learning qualities ( $r = -.10$  to  $-.35$ ) (Maurer, Weiss, et al., 2003; Warr & Bunce, 1995). Studies have also demonstrated anxiety uniquely predicts pre-training motivation, reactions to training, skill acquisition and declarative knowledge (Colquitt, et al., 2000; Martocchio, 1994).

Although anxiety has been able to predict motivation and behaviour in development situations, its effects on these outcomes may be mediated through self-efficacy. Individuals make efficacy judgments based in part on their level of positive or negative arousal in relation to the performance of an anticipated task (Bandura, 1977a, 1997; Maddux, 1995). Individuals are more likely to be confident about their performance expectations when they are not overwhelmed by negative arousal (Bandura, 1977a). Conversely, a high level of anxiety is expected to have inhibiting effects on self-efficacy and, subsequently, behaviour (Williams, 1995). Thus, anxiety is recognised as a primary source of self-efficacy information (Bandura, 1997).

Research supports anxiety as a source of task-specific self-efficacy beliefs; however, less is known about the way in which anxiety influences domain-level self-efficacy beliefs. Anxiety has been found to predict employee pre-training self-efficacy (Barbeite & Weiss, 2004; Brosnan, 1998; Colquitt, et al., 2000; Thatcher & Perrew, 2002) and the examination, academic and social self-efficacy beliefs of children and adolescents (S. L. Anderson & Betz, 2001; Chen, et al., 2000; Usher & Pajares, 2006; Zimmerman, 1995).

Only one study appears to have examined anxiety as a source of development self-efficacy beliefs, but did not find support for this relationship (Maurer, Weiss, et al., 2003). The authors suggested it may be that feeling anxious in learning situations does not negatively affect confidence for learning and development. However, this suggestion contradicts empirical evidence which demonstrates the significant debilitating affect of anxiety on self-efficacy beliefs in specific learning situations for adults and adolescents (discussed above). Reducing anxiety in learning situations is, therefore, an important way organisations can enhance the learning and development process.

There is also some indication that the influence of anxiety on self-efficacy may differ for males and females. For example, Anderson and Betz (2001) found that emotional arousal was significantly predictive of social confidence beliefs for girls but not for boys. By contrast, Usher and Pajares' (2006) study found that emotional arousal was significant for boys' academic and self-regulatory self-efficacy beliefs, but was not significant for girls' self-efficacy beliefs. These findings suggest that the influence of anxiety on self-efficacy beliefs may be moderated by gender, but may also differ according to the efficacy belief of interest. Understanding anxiety's relationship with the development self-efficacy beliefs of younger workers will provide an important contribution to the literature, and will also provide organisations with insights into how they may most effectively enhance the development of young males and young females.

In summary, the literature suggests that self-efficacy beliefs are informed not only by external sources of information, but also by a number of internal cues. One type of internal source of efficacy information that has received little attention to date is an individual's self-beliefs. Three self-beliefs that may be important sources of younger workers' development self-efficacy beliefs are their general confidence for successfully achieving across a variety of life situations (that is, their general self-efficacy beliefs), their beliefs about the improvability of their skills, knowledge and abilities (their personal improvability beliefs), and their anticipated level of negative

arousal in learning situations (learning anxiety). The influence of these beliefs on development self-efficacy as a domain-level construct has received little attention in the literature and, given the mixed findings in some studies, merit further investigation. Determining the role these individual variables play in the development process will provide a more complete understanding of the ways in which organisations may effectively enhance the capability development of younger workers.

### **3.6 CONCLUSION**

#### **3.6.1 A Model of Learning & Development for Younger Workers**

##### ***3.6.1.1 The Mediating Role of Development Self-Efficacy***

As discussed in this chapter, self-efficacy has been suggested being central to an employee's orientation to learn, mediating the influence of the work environment and individual self beliefs on a person's learning-related attitudes, motivation and behaviours. However, a number of specific relationships have not yet been supported and merit further investigation.

For example, as a domain-level construct, self-efficacy for learning and development has been found by a number of studies to predict motivation to learn (e.g. Chiaburu & Lindsay, 2009; Tracey, et al., 2001) and, in other studies, to predict attitudes to learning (e.g. Maurer, Lippstreu, et al., 2008; Maurer, Weiss, et al., 2003). The interrelationships between these three constructs, however, are not well understood. Moreover, with increasing importance on the need for employees to be engaged in ongoing learning, few studies have paid specific attention to employees' attitudes towards continuous learning. The current study proposes that self-efficacy for development will uniquely predict both attitudes to continuous learning and motivation to learn, and that attitudes also have a direct effect on motivation.

*Hypothesis #1: Attitudes to continuous learning will be positively related to motivation to learn for younger workers (H1)*

*Hypothesis #2: Development self-efficacy will be positively related to both attitudes to continuous learning (H2a) and motivation to learn for younger workers (H2b)*

A fundamental outcome of the development process is an individual's engagement in learning and development activities. The literature shows that behavioural intentions are reliable predictors of behaviour, even up to 12 months after they are assessed (Hurtz & Williams, 2009; Maurer, Weiss, et al., 2003). Despite the role of intentions in the development process these have not received much attention by HRD experts, meaning the motivational and attitudinal factors that predict intentions are not well understood. More commonly, researchers have examined attitudes as an antecedent of developmental intentions; however, because attitudes are more stable underlying cognitive beliefs, their relationship with intentions is expected to be mediated through the role of proximal motivation.

*Hypothesis #3: Motivation to learn will be directly and positively related to younger workers' intentions to participate in development activities (H3)*

The literature suggests that a person's level of engagement in their job or work (for example, job involvement) influences their motivation to learn and participate in development activities (Noe & Schmitt, 1986; Tracey, et al., 2001). Employee development may also be influenced by the extent to which a person sees their job as being relevant to their career goals and interests. A small number of studies in the school-to-work transition literature suggest that career-job perceptions may influence young people's work-related attitudes and behaviours (Pinquart, et al., 2003; Stern, et al., 1990), but this has not yet been examined in relation to the employee development process. Consequently, this study proposes that younger

workers' career-job congruence perceptions will directly influence their motivation to learn and intentions to engage in learning and development activities.

*Hypothesis #4: Career-job congruence will be related to younger workers' intentions to participate directly (H4a) and indirectly via motivation to learn (H4b)*

Self-efficacy's influence on important motivational and behavioural outcomes raises a fundamental issue for researchers; that is, to identify how efficacy beliefs may be influenced to enhance the employee development process through this central aspect of the cognitive self. Efficacy beliefs are formed through a complex process of appraisal, evaluation and assimilation of information gained from a number of primary and intermediary sources of information which can be broadly grouped as external or internal sources of efficacy information.

One important external source of efficacy information is the work environment. Within the work environment, organisations, managers and co-workers play a key role in facilitating employee development by providing a variety of direct and indirect learning opportunities, and critical resources needed for development. In addition, managers and co-workers act as role models of developmental behaviours, strategies and outcomes, and through social and verbal persuasion may also enhance employee's beliefs about their capabilities and confidence for learning new skills.

Despite widespread agreement about the work environment being an important context in which younger workers learn and develop, there has been little examination of the relationship between this environment and younger workers' learning-related beliefs, attitudes and motivation. The literature suggests that the work environment may influence the development process through its effects on an individual's self-efficacy beliefs for learning and development. Accordingly, the study proposes that:



*Hypothesis #5: Perceptions of organisational support for employee learning and development will be positively related to the development self-efficacy beliefs of younger workers (H5)*

*Hypothesis #6: Perceptions of manager support for employee learning and development will be positively related to the development self-efficacy beliefs of younger workers (H6)*

*Hypothesis #7: Perceptions of co-worker support for employee learning and development will be positively related to the development self-efficacy beliefs of younger workers (H7)*

Self-efficacy beliefs are also formed from the appraisal of information gained from internal cues; that is, characteristics and resources of the individual. Three individual characteristics or 'self-beliefs' have been suggested as important sources of development self-efficacy beliefs; namely, general self-efficacy, personal improvability beliefs and learning-related anxiety. While these relationships have received some attention for more established employees, some have not yet been empirically established. Moreover, younger workers may weight self-beliefs differently to older workers in forming their efficacy beliefs. Consequently, it is proposed that:

*Hypothesis #8: General self-efficacy will be positively related to the development self-efficacy beliefs of younger workers (H8)*

*Hypothesis #9: Personal improvability beliefs will be positively related to the development self-efficacy beliefs of younger workers (H9)*

*Hypothesis #10: Learning-related anxiety will be negatively related to the development self-efficacy beliefs of younger workers (H10)*

Together, these hypothesised relationships suggest a model of employee development relevant to younger workers which proposes self-efficacy as a central variable that mediates the influence of the work environment and individual characteristics on attitudes, motivation and behavioural intentions. This fully-mediated model is depicted in Figure 2 (page 86).

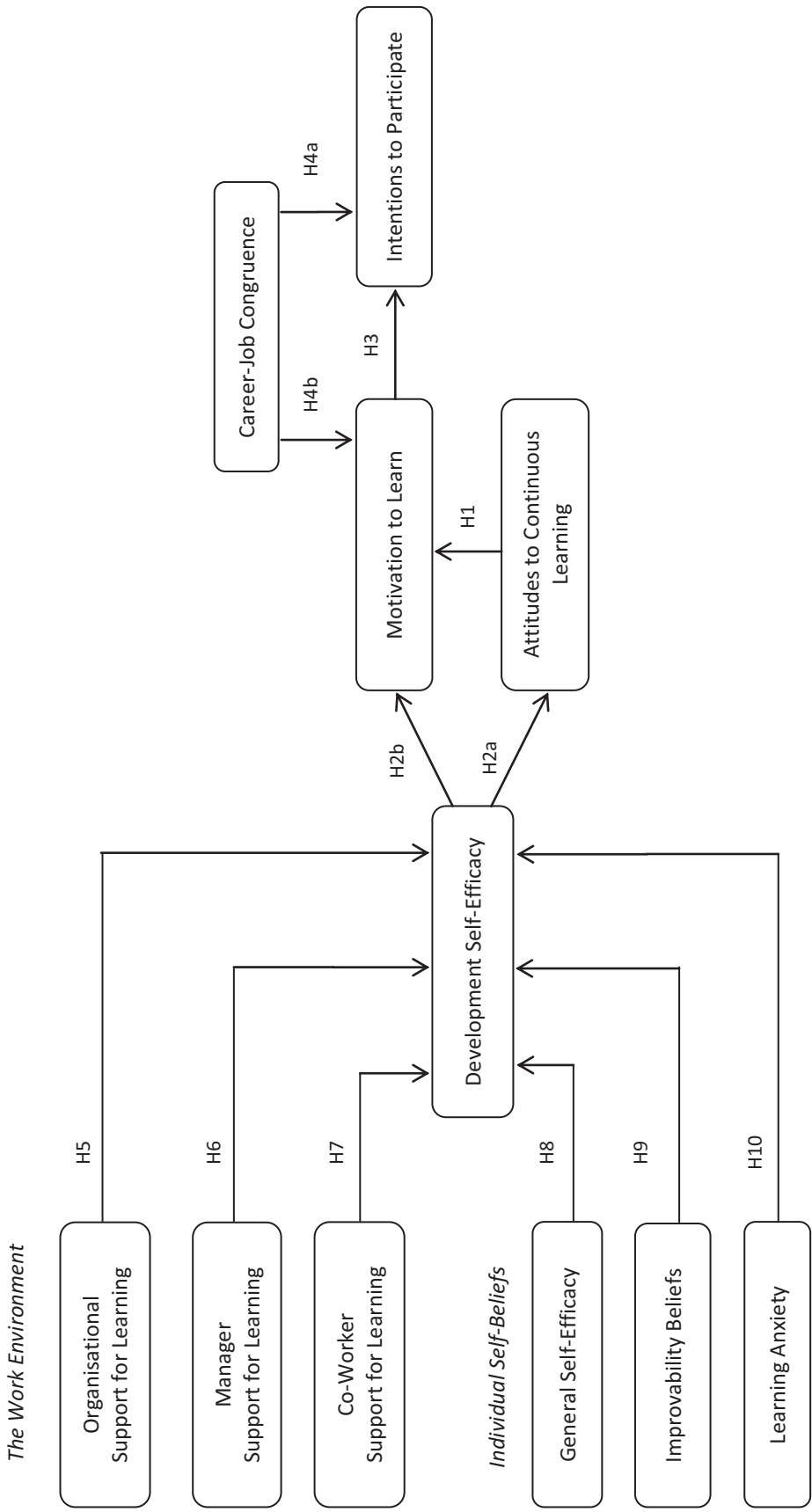
#### **3.6.1.2    *Alternative Hypotheses***

In contrast to the direct relationships proposed, it is possible that some relationships may only be partially-mediated by development self-efficacy. For example, as discussed in section three, the work environment has been commonly examined and supported as a direct antecedent of motivation to learn (Facteau, et al., 1995; Switzer, et al., 2005). Others have demonstrated the work environment influences motivation both directly and indirectly through development self-efficacy (Tracey, et al., 2001). Consequently, a partially-mediated model is proposed whereby:

*Hypotheses #11, 12, 13: Perceptions of organisational support (H11), manager support (H12) and co-worker support for employee learning and development (H13) will be directly and positively related to younger workers' motivation to learn (Model 2)*

It is also possible that personal improvability beliefs may be directly related to attitudes to continuous learning. According to Bandura (1997), the extent to which an individual believes skills are able to be improved enhances not only their self-efficacy for performance, but also their interest in a particular activity. Thus, an employee who believes they have the skills and capability to learn and develop is more likely to have stronger and more positive attitudes towards continued learning. Findings from a recent study also indicate that an employee's beliefs about their learning qualities are strongly related to their attitudes to learning

FIGURE 2: HYPOTHESED FULLY-MEDIATED STRUCTURAL MODEL



Note: All hypothesised relationships are positive (+), except H10 (learning anxiety to development self-efficacy) which is negative (-).

(Maurer, Weiss, et al., 2003) and may directly enhance these beliefs. It is therefore proposed that:

*Hypothesis #14: Personal improvability beliefs will be directly and positively related to younger workers' attitudes to continuous learning (Model 3)*

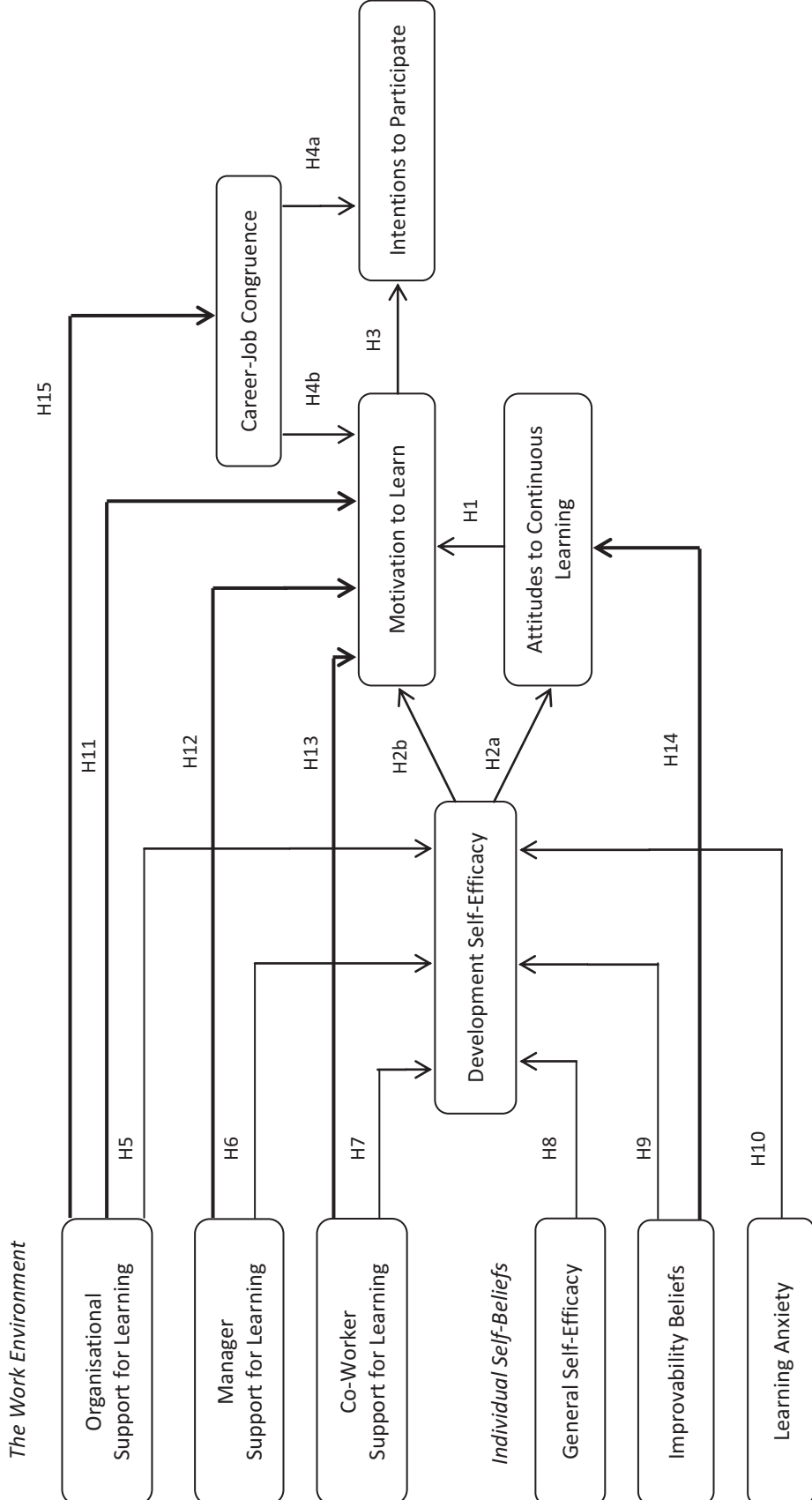
The literature indicates there is substantial instability of occupational aspirations during the late teens and early twenties (Rindfuss, Cooksey, & Sutterlin, 1999). Prior to entering the labour market, only half of young people, including both school and university students, have well defined vocational interests or are decided about their career goals (Boyd, et al., 2001; Gordon, 1981; Lounsbury, et al., 2005; Rogers, Creed, & Glendon, 2008). Research also shows that the gap between a young person's skills or interests and their ability to secure relevant work can lead to a readjustment of their occupational expectations and interests (M. K. Johnson, 2002; Rindfuss, et al., 1999). As young people establish themselves in the labour market, their occupational interests and goals may change.

Given the instability of vocational interests during the late teens and early twenties, a person's interest in their job may increase over time and as they engage in learning and development activities. These developmental activities may also increase a person's awareness of opportunities for improving their work skills and knowledge and advancing their career, and their perceptions regarding their job as being a 'career-job'. An important source of developmental opportunities is an organisation's support for employee learning and development. Consequently, the study hypothesises that:

*Hypothesis #15: Perceptions of organisational support for learning and development will be directly and positively related to younger workers' career-job congruence beliefs (Model 4)*

These alternative paths are shown (in bold) in Figure 3 (page 88).

FIGURE 3: ALTERNATIVE HYPOTHESES: PARTIALLY-MEDIATED STRUCTURAL MODEL



Note: All hypothesised paths are positive (+), except H10 (learning anxiety to development self-efficacy) which is negative (-).

### **3.6.1.3 Moderator Differences**

Finally, there is evidence to suggest that some structural relationships may differ for males and females. Two recent studies found that the importance of different sources of children's academic and social self-efficacy beliefs varied for boys and girls (S. L. Anderson & Betz, 2001; Usher & Pajares, 2006). One study found that social persuasion was a powerful predictor of both academic and self-regulatory self-efficacy for girls but not for boys, while vicarious experiences were important predictors of boys' self-efficacy beliefs but not for girls (Usher & Pajares, 2006). The other study found that social persuasion predicted the social confidence beliefs of boys but not for girls, while anxiety predicted of social confidence beliefs for girls but not for boys (S. L. Anderson & Betz, 2001).

In addition, a number of recent organisational-based studies suggest that managers and co-workers may differ in terms of their support and perceived importance in the learning and development of younger workers (Elfering, et al., 2007; E. Smith, 2003; A. Taylor, 2002). Usher and Pajares' (2006) study also found that adults and peers were distinct sources of vicarious learning for these younger individuals, illustrating the importance of distinguishing between different sources of developmental support. While these studies did not identify differences in these relationships for males and females, other studies show that sources of efficacy information are weighted differently by individuals (Gist & Mitchell, 1992; Mitchell, et al., 1994). Consequently is plausible that males and females may place greater importance on some sources of support than others.

*Hypothesis #16: Gender may moderate the relationship between external and internal sources of efficacy information and younger workers' development self-efficacy beliefs*

The following chapter (Chapter 4) presents the methods used for collecting data for the study and analysing the proposed structural models.

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## CHAPTER 4: RESEARCH DESIGN

### 4.1 OVERVIEW

This chapter presents the methods used in the design, implementation and analysis of study, which are addressed in three parts. First, section 4.2 presents the methods used in the sampling of the population and administration of the survey; second, section 4.3 presents the measures used in the study; and section 4.4 presents the methods used in the screening and analysis of the data. An overview of the research design is presented below.

A multi-stage stratified random sampling method was used to sample a diverse and comprehensive sample of younger workers via their organisations. Surveys were distributed to over 4300 employees from small, medium and large organisations across four industries and six geographical regions using a combination of site-visit and mail distribution methods. Employees were asked to respond to a series of questions about their learning-related beliefs and attitudes, their intentions to participate in development activities, and their perceptions regarding support received from their organisation, manager and co-workers for their learning and development.

In total, 1758 employees from 709 organisational worksites participated in the study. Following data screening, a final sample of  $N = 1732$  was achieved; a net response rate of 40%. The sample was then split into three randomly selected sub-samples for different stages of the planned analyses (Mulaik & Millsap, 2000). A series of exploratory factor analyses were conducted using the first sample to explore the structure of the data and select a smaller number of suitable indicators for the structural model. The second and third samples were used for analysis and cross-validation of the structural model using structural equation modelling techniques. These approaches are described in more detail in the following



sections, and the results from the analysis of the structural model are presented in Chapter 5.

## **4.2 SAMPLING & ADMINISTRATION**

### **4.2.1 Sampling**

The current study defines the target population, referred to as ‘younger workers’, as those aged 16-24 employed full-time (>30 hours per week). These age parameters are based on current practice (e.g. Statistics NZ, the Department of Labour) although the lower age was increased from 15 to 16 to reflect the official minimum school leaving age in New Zealand, and thus the age at which young people begin to enter the full-time workforce.

An important part of the study was identifying an appropriate sampling frame that would enable a diverse and comprehensive sample of younger workers to be attained. In deciding the most appropriate method for sampling, a number of factors were given consideration; namely, the characteristics of the target population, accessibility to the population, feasibility of the method of data collection, and the types of analysis to be conducted (Zikmund, 2000). A multi-stage stratified sampling technique was selected as an effective way of maximising coverage of the population whilst enabling the research to be conducted in an efficient and feasible manner (Treiman, 2009; Zikmund, 2000). This method of sampling divides a population into mutually exclusive subgroups (‘strata’) on the basis of a particular characteristic in a series of steps, with a sample drawn from each stratum (Bryman & Bell, 2007; Dattalo, 2008; Zikmund, 2000). In addition, as the exact characteristics of the target population were unknown (e.g. population size, location), the population was geographically dispersed, and were unable to be contacted directly, organisations served as the primary unit for sampling through whom employees could be invited to participate.

The sampling frame was established in a series of steps. First, the employment characteristics of the target population were examined to identify relevant and appropriate strata for the study that would reflect industries and geographical locations where young, full-time workers were concentrated. Four industries were selected that captured a high proportion (49%) of the target population being: business, construction, manufacturing, and retail. In addition, six geographical locations were selected reflecting the majority of employment within these industries (61%). Next, the number and size of organisations to sample, and the allocation of sampling units across strata, were determined. Together, these strata enabled an efficient and pragmatic approach to data collection using site-visits as the primary method of survey administration. This process is described in more detail following.

Data used to inform the sampling decisions was accessed from a range of sources including the 2001 and 2006 census (Statistics New Zealand, 2003, 2007), the Household Labour Force Survey (Statistics New Zealand, 2004), the NZ Business Demographic Statistics (Statistics New Zealand, 2005), and the Statistics New Zealand web-based table-builder database ([http://stats.govt.nz/tools\\_and\\_services/tools/TableBuilder](http://stats.govt.nz/tools_and_services/tools/TableBuilder)). Examination of this data resulted in the selection of three strata: industry, geographical location and organisational size.

According to the 2001 Census, employees aged 15-24 comprise approximately 12% of the full-time labour market. Of the nine major industries, four industries accounted for approximately 49% of all employment (full-time and part-time) for this age group, being: business (9%), construction (5%), manufacturing (11%) and retail (24%). Within the four industries selected, 62% of employees worked full-time, representing the target population for the study. Of the remaining industries, two (agriculture, 8% and hospitality, 11%) also accounted for a significant proportion of employment of this age group; however, these were not included because of the nature of employment in these industries, organisational size, and geographical dispersion of these, making coverage of the target population and

administration of the survey problematic. For example, hospitality has a high level of part-time employment and low levels of full-time employment, while both hospitality and agriculture have high numbers of small and micro-sized organisations, for which many (particularly agriculture) are geographically dispersed making data collection using a site-visit approach unwieldy. Thus, four industries were selected for sampling, and comprised the first strata.

Next, the geographical distribution of younger workers within these four industries was examined to determine the number and location of geographical areas to sample. Six major geographical areas (representing 24 of 74 territorial authorities) accounted for the large majority (61%) of all full-time workers aged < 25 within the four selected industries. These were: Auckland, Central Districts (Hamilton, Tauranga and Rotorua), Hawke's Bay (Hastings and Napier), Wellington, Christchurch and Dunedin/Invercargill (referred to as 'Lower South Island'). These areas represent a selection of New Zealand's large urban cities as well as smaller urban regions (e.g. Hastings, Invercargill), and maximised coverage of the target population whilst enabling survey administration to be conducted in a feasible manner.

After identifying appropriate geographical locations, the number and size of organisations to sample was considered. In establishing sampling parameters, consideration was given to suggestions that employee attitudes regarding learning and development may vary by organisational size (Curson, 2004; A. Smith, Oczkowski, Noble, & Macklin, 2002). As data on the distribution of younger workers by organisational size was unavailable, business data accessed from the Statistics New Zealand table-builder ([http://stats.govt.nz/tools\\_and\\_services/tools/TableBuilder](http://stats.govt.nz/tools_and_services/tools/TableBuilder)) was examined to inform the selection and allocation of sampling units by organisational size. This analysis revealed that while the total number of larger organisational units (e.g. worksites; > 20 employees) was significantly fewer than small and micro organisations (< 20 employees), they accounted for the majority of employment across most sectors. For example, only 2% of registered enterprises in

the Business sector employ > 20 employees, but account for 62% of employment in this sector. Including small and micro organisations in the sample would have necessitated many extra site visits and imposed considerable additional costs. Accordingly, in order to maximise coverage of the population whilst enabling the survey to be administered in a practical manner, the sample included only organisations with >20 employees.

Having selected three strata for sampling, the next step was to determine the number of sampling units (or organisational worksites), and how these would be distributed across strata, to ensure a sufficient population sample was drawn. To ensure the final sample was sufficient for splitting into three sub-samples for the planned analyses, consideration was given to the sample size required for each of the planned analyses. One sample was required for analysis of the measurement instrument using exploratory factor analysis, while two samples were required for the confirmatory factor analyses procedures related to testing and validation of the structural model.

While there is no agreement regarding the minimum sample size required for structural equation modelling techniques, large, carefully constructed samples increase the power and stability of parameter estimates and standard errors, as well as the generalisability of one's findings (Murphy, Myors, & Wolach, 2009; Schumacker & Lomax, 2004). Accordingly, following recommended sample sizes for exploratory factor analysis (Hair, Anderson, Tatham, & Black, 1998; Tabachnick & Fidell, 2007) and for confirmatory factor analyses techniques using structural equation modelling (J. C. Anderson & Gerbing, 1988; Jackson, 2001; Kline, 2005), three samples of at least 400 were judged desirable for each phase of the analysis, requiring a final sample of  $n = 1200$ . Next, in determining how many surveys would need to be distributed to achieve this sample, the participation rates of both organisations and individuals were estimated. In total, approximately 5000 surveys needed to be distributed across 2500 worksites to achieve the desired sample size, allowing for 25% response rates from both organisations and employees.

After identifying the total number of organisational units to sample, these were allocated across strata to form the final sampling frame. As previous analysis of employment data revealed notable differences in the composition of small, medium and large organisations across industries, sampling units were disproportionately allocated to increase the variability of the sample and ensure sufficient units within strata (for example, for analysis of group invariance) as recommended by research experts (Zikmund, 2000). This resulted in smaller organisations (20-49 employees) being over-sampled (forming approximately 55% of the sample), medium organisations (50-99 employees) forming 24% of the sample, and larger organisations (> 100 employees) being under-sampled (21%).

This process resulted in a final sample of 2588 organisational units (or ‘worksites’) comprising small, medium and large organisations, across four industries (business, construction, manufacturing, and retail), and six geographical locations (Auckland, Central Districts (Hamilton, Tauranga, Rotorua), Hawke’s Bay (Napier, Hastings), Wellington, Christchurch, and Lower South Island (Dunedin, Invercargill). After the final sampling frame was established, this was checked against the business directory database being used for sampling (Universal Business Directory, UBD, now ‘Finda’) to ensure adequacy of the database before drawing a sample. In some instances, insufficient numbers of units were available for sampling which required some minor adjustments to the sampling frame. The sample was then randomly generated by the database provider.

### **4.2.2 Survey Administration**

#### **4.2.2.1 Survey Design & Testing**

In order to increase the reliability of responses and enhance individual response rates, particularly with current concerns about low levels of basic skills in the labour force (Department of Labour, 1999; A. H. Johnson, 2000; New Zealand Government, 2001), specific attention was paid to the design, testing and administration of the survey. To enhance conceptual and visual clarity, the survey was divided into

sections which were ordered to 'ease' respondents into the survey by responding to less-sensitive questions initially (e.g. organisational membership characteristics), with more challenging or sensitive questions as the questionnaire progressed (De Vaus, 2002).

In addition, a number of factors were incorporated into the design of the administration process to enhance both organisational and individual participation rates. These included: providing advance notice to organisations regarding the study, personalisation of correspondence, using a site-visit approach to survey distribution and collection, follow-up during the completion process, assurance of organisational and participant confidentiality and anonymity in the dissemination of results, the use of a participant prize draw, giving participants the option to receive summary results (Anseel, Lievens, Schollaert, & Choragwicka, 2010; Dillman, Smyth, & Christian, 2009; P. L. Roth & BeVier, 1998; Yammarino, Skinner, & Childers, 1991; Zikmund, 2000). Ethical approval was also sought and granted by the Massey University Human Ethics Committee #07/049.

As recommended by experts in the survey methodology literature (Colton & Covert, 2007; De Vaus, 2002; DeVellis, 2003), a preliminary study was conducted to check and refine the survey design, measures and administration method before proceeding to the main study. Thirty two employees from eight organisations in Palmerston North participated in a pilot study. Respondents were invited to comment on the format of the questionnaire, evaluate the time taken to complete the study, make recommendations for the prize draw, and to provide general comments regarding the study. Most participants took approximately 20 minutes to complete the questionnaire, and indicated they found this to be 'about right'. Following feedback from participants and examination of scale reliabilities, a number of scales were shortened and some negatively worded items were removed as these appeared to be problematic to participants as recommended by research method experts (e.g. DeVellis, 2003; Kottke & Sharafinski, 1988; Pond III & Hay, 1989).

#### **4.2.2.2     *Administration Procedure***

For feasibility of survey administration, the organisational sample was divided into 14 regional clusters, each comprising between 100-300 organisations. Surveys were administered in the following manner for each of the regional clusters over an 11-month period from February to December 2008. First, organisations were telephoned by the researcher to identify the appropriate person to contact regarding the study. Next, personalised letters accompanied by a detailed information sheet (Appendix A, page 225) were sent to organisations requesting their support for the study. Organisations were telephoned one to two weeks later to find out whether they were willing to be involved. Where support was given, survey packs were provided to a nominated representative (e.g. a manager) for distribution to eligible employees using a site-visit by the researcher, along with instructions for the distribution and return of the surveys (Appendix B, page 231). Each participant survey pack contained an information sheet (Appendix C, page 235), questionnaire (Appendix D, page 239) and freepost return envelope. Employees were requested to place their completed survey in a drop-box for collection by the researcher on a specified date. In some instances, surveys were returned by the organisation in a pre-paid courier bag. Additionally, all participants were able to return their survey directly to the researcher using a freepost envelope provided.

After surveys were administered to seven of the 14 regional groups using site-visits as the primary approach, it became apparent there was insufficient time to complete the process by the end of the calendar year in this manner. To complete administration of the study in a timely manner, a mail-based distribution and return method was used for the remaining seven groups.

In changing to a mail-based method, consideration was given to the effect of the distribution method on organisational and individual participation rates (P. L. Roth & BeVier, 1998); however, as discussed shortly, subsequent analysis of response

rates showed no notable effect from this change. In total, 4302 surveys were distributed to eligible participants across 706 worksites.

#### **4.2.2.3     *Response Rates***

Of the 4302 surveys distributed, 1758 surveys were returned. Following initial data screening, a small number of surveys ( $n = 26$ , 1.5% of the sample) were identified as missing key variables (e.g. age), or substantial amounts of data (>10% per respondent). These were removed from the data set, resulting in a final sample of  $N = 1732$ ; a response rate of 40%. The sample was then split into three sub-samples for the planned analyses. The data screening and data splitting processes are described in more detail in section 4.5.

During the initial stage of survey administration a number of worksites were identified as belonging to a national body, and their head office was contacted in the first instance to seek their support or gain permission to contact individual worksites. Unfortunately, a number of head offices (predominately in the retail sector) did not give their approval, and meant approximately 10% of the target worksites were unable to participate. Inspection of survey distribution rates indicated that while a smaller number of retail organisations participated in the study, this did not have any adverse effect on the total number of surveys distributed in this sector. In addition, during administration a number of organisations in the manufacturing and construction sectors indicated that their employees may not be interested in participating, or may struggle to complete the survey. However, despite these concerns, most organisations were happy to distribute surveys to employees, and the number of surveys distributed in these sectors was not adversely affected.

As discussed previously, a site-visit approach had been selected as a way of increasing organisational participation in the study. An analysis of worksite participation and individual responses across the 14 geographical administration



clusters indicated this change did not appear to have any effect on either organisational participation or individual response rates; rather, the most important part of establishing an organisation's commitment to participate in the study appeared to be the personalised and proactive approach in ascertaining the most appropriate person to contact in the first instance (Anseel, et al., 2010; Yammarino, et al., 1991).

### 4.2.3 Participant Characteristics

As indicated above, data screening resulted in the removal of a small number of surveys from the data set. The characteristics of the final sample ( $N = 1732$ ) are presented in Table 1 below.

**TABLE 1: PARTICIPANT CHARACTERISTICS FROM FINAL SAMPLE**

	Final Sample	
	#	%
<i>Gender</i>		
Males	953	55%
Females	779	45%
<i>Age</i>		
16-18	150	9%
19-21	595	34%
22-24	987	57%
<i>Highest Secondary Qualification</i>		
No formal qualification	209	12%
NCEA Level 1 / School Certificate	265	15%
NCEA Level 2 / 6th Form Certificate	461	27%
NCEA Level 3 / Bursary	694	40%
Other / Not Stated	103	6%
<i>Ethnicity</i> <sup>1</sup>		
NZ European / Pakeha	1355	78%
NZ Maori	188	11%
Other	293	17%
<i>Occupation</i>		
Customer Service, Clerical or Administration Worker	638	37%
Qualified Technician or Trades Worker	151	9%
Apprentice, Labourer or Machinery Operator	441	25%
Manager / Supervisor	64	4%
Professional	315	18%
Other / Not Stated	125	7%

*(TABLE 1 CONTINUED)*

	Final Sample	
	#	%
<i>Organisational Tenure</i>		
< 1 yr	699	40%
1-2 yrs	639	37%
3-4 yrs	303	17%
5+ yrs	88	5%
Not stated	3	0%
<i>Industry</i>		
Business	695	40%
Construction	306	18%
Manufacturing	412	24%
Retail	319	18%
<i>Organisational Size</i>		
20-49 employees	515	30%
50-99 employees	448	26%
>100 employees	618	36%
Other <sup>2</sup>	153	9%
<i>Geographical Location</i>		
Auckland	642	37%
Hamilton / Rotorua / Tauranga	274	16%
Napier / Hastings	131	8%
Wellington	286	17%
Christchurch	210	12%
Dunedin / Invercargill	158	9%
Other	31	2%

<sup>1</sup> Participants were able to choose more than one Ethnicity

<sup>2</sup> In some instances, organisations requested additional worksites be included in the study. This category includes those where worksites had <20 employees ( $n = 117$ ), and a small number of cases where the worksite size was not stated by the organisation.

Experts recommend that data be analysed for measurement invariance before proceeding with testing of structural models (Byrne, 2010; Schumacker & Lomax, 2004; Wilderom, Glunk, & Maslowski, 2000). In addition, there is some indication in the literature that employee perceptions and attitudes may differ by organisational and individual characteristics; for example, industry, organisational size, gender or qualification level (Curson, 2004; McMillan & Marks, 2003; A. Smith, et al., 2002; Vaughan, et al., 2006). Accordingly, a series of tests (t-tests and one-way analyses

of variance (ANOVAs)) were conducted using sample #2 ( $n = 817$ ) to establish invariance for each of the 11 constructs in the structural model; a total of 66 analyses.

When multiple analyses with large samples are conducted, however, the chance of finding statistically significant differences increases. To address this, a Bonferroni adjustment to the  $p$ -value was made. This adjustment sets a more stringent  $p$ -value for each of the planned analyses and controls for Type I error (Hair, et al., 1998; Tabachnick & Fidell, 2007). Accordingly, the alpha was set at  $p < .001$  ( $p < .05 \div 66 = p < .001$ ). Of the 66 tests, six differences were detected. To establish the practical significance of these, the effect size for each was inspected. For five of the six occurrences the effect size was small ( $< 0.03$ ), meaning the differences could be regarded as being insubstantial (Pallant, 2007; Tabachnick & Fidell, 2007). The remaining occurrence related to differences in intentions to participate for employees according to their highest school qualification, which had a medium effect size (0.05). To check whether this effect was of practical significance in terms of the overall fit of the structural model, a multi-group comparison was conducted. This showed no substantive difference to the model fit ( $\Delta CFI \leq .01$ ), and the sample was therefore combined for subsequent analyses.

### 4.3 MEASURES

This section begins by describing the methods used to analyse the measures and to inform selection of a smaller number of indicators for the structural model. A summary of the results of these analyses are also presented. Next, the measures used in the study are described, including a table summarising the number of items, reliabilities and example items for each construct (see Table 2, page 104).

### 4.3.1 Analysis of Measures

Using a sub-sample of data (sample 1,  $n = 500$ ), a series of exploratory factor analyses (EFAs) were conducted to explore the structure of the data and guide the selection of a smaller number of indicators for each of the measure for inclusion in the structural model (Conway & Huffcutt, 2003; Gorsuch, 1997). A reduced number of indicators were selected to represent latent constructs in the structural model to allow the data to be adequately represented while maintaining fidelity to the individual's responses and achieving statistical simplicity (Little, Cunningham, Shahar, & Widaman, 2002). This is important as using all available items can make fitting a structural model extremely difficult. While there is no absolute agreement regarding the number of indicators to be selected in such instances, experts suggest that latent variables are best represented by four or more indicators (J. C. Anderson & Gerbing, 1988; Kline, 2005; Mulaik & Millsap, 2000; Schumacker & Lomax, 2004). The selection of four indicators allows constructs to be over-identified, maintains reasonable degrees of freedom, improves parameter estimates (Mulaik & Millsap, 2000), as well as increasing the reliability, validity and stability of a latent variable (Floyd & Widaman, 1995; Kline, 2005; Schumacker & Lomax, 2004).

When selecting specific items for each latent construct, consideration was given to a range of statistical and qualitative indicators. Items were selected that had moderate to high factor loadings, and which contributed to the intent and breadth of the construct, and scale reliability (preferably  $\alpha \geq .8$ ) (Boyle, 1991; Gorsuch, 1997; Henson, 2001; Mulaik & Millsap, 2000; Schumacker & Lomax, 2004). In most instances, four items were selected to represent the latent construct.

Analyses were conducted using principal factor analysis (also known as principal axis factoring, 'PAF') as the method of extraction. Although the data was within the bounds of acceptable univariate normality, it did exhibit some level of negative skew ( $< 1$ ) (Tabachnick & Fidell, 2007). In such cases, PAF is more robust to departures from normality and less prone to producing improper solutions than

other methods of extraction (such as principal components analysis and maximum likelihood), and was therefore selected as a conservative approach to the analysis (T. A. Brown, 2006; Costello & Osborne, 2005; Fabrigar, Wegener, MacCallum, & Strahan, 1999). Due to the complexity of the structural model and expected bivariate correlations of the latent constructs (e.g. Carlson, et al., 2000; Maurer, Weiss, et al., 2003), items were also analysed in groups to enable the most appropriate method of rotation to be selected (Leech, Barrett, & Morgan, 2005; Tabachnick & Fidell, 2007). In general, items loaded onto their intended latent constructs. Post-hoc indicators of data and sampling adequacy (Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of Sphericity) supported appropriateness of the analyses (Pallant, 2007). The results of these analyses are presented in Table 2 below.

**TABLE 2: EFA RESULTS (BY MEASUREMENT CLUSTER)**

Measurement Cluster	# Items	# Factors Retained	% Variance Explained	KMO	Bartlett's Test of Sphericity $p <$
Perceptions of Work Support	31	3	58.4%	.94	.001
Individual Attributes	19	3	59.3%	.92	.001
Development Self-Efficacy	11	1	46.5%	.90	.001
Attitudes & Motivation	16	2	59.4%	.94	.001
Career-Job Congruence	5	1	76.2%	.89	.001
Intentions	13	1	35.5%	.84	.001

### 4.3.2 Psychological Constructs

The following describes the measures used in the study. A full list of measures, including items retained for the analyses of the structural models indicated with an asterisk (\*), are presented in Appendix D (page 235). A summary of the measures (latent constructs) are presented in Table 3 (page 109). Unless otherwise stated, items were measured using a 5-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = strongly agree, 5 = strongly agree).

#### **4.3.2.1     *The Work Environment***

Three aspects of organisational learning environments (together referred to as 'perceptions of work support') were measured: perceptions of organisational support, manager support and co-worker support for learning and development.

*Perceived organisational support for learning and development* (POSL) was measured using nine items taken from existing measures (Coetzer, 2006a; Lee & Bruvold, 2003; Maurer, Weiss, et al., 2003; Tracey & Tews, 2005). Four items were retained for the structural model ( $\alpha = .89$ ). A sample item is "my organisation offers excellent training opportunities".

*Perceived manager support for learning and development* (PMSL) was assessed using 12 items drawn from a variety of measures used in previous research (Coetzer, 2006a; Maddux, 1995; Maurer, Weiss, et al., 2003; E. Smith & Comyn, 2004). Four items were selected for the structural model ( $\alpha = .89$ ). A sample item is "my manager encourages me to believe I can improve my skills and abilities".

*Perceived co-worker support for learning and development* (PCWSL) was measured using 10 items based on previous research (Maurer, Weiss, et al., 2003; Tharenou, 2001; Tracey, et al., 1995). Five items were selected for the structural model ( $\alpha = .72$ ). A sample item is "my workmates encourage me to practice skills I've learned".

#### **4.3.2.2     *Individual Characteristics***

Three individual characteristics were measured: general self-efficacy, personal improvability beliefs, and learning-related anxiety.

*General self-efficacy* (GSE) was measured using Chen and colleagues' (Chen, et al., 2001) 8-item New General Self Efficacy Scale (NGSES). Although relatively new, the NGSES has received positive theoretical and empirical support (Chen, Goddard, et al., 2004; Scherbaum, et al., 2006). To reduce complexity and improve clarity of the

measure for the target population, a number of items were shortened (DeVellis, 2003). All items performed well, and four were retained for the structural model ( $\alpha = .82$ ). A sample item is “I believe I can succeed at almost any thing to which I set my mind”.

*Personal improvability beliefs* (PIB) were assessed using six items based on Maurer *et al's* (2003) measure of ‘personal learning qualities’. Four items were retained for the structural model ( $\alpha = .92$ ). A sample item is “I have what it takes to keep learning new things”.

*Learning-related anxiety* (ANX) was measured using five items adapted from the Emotional Arousal subscale of Anderson and Betz’s (2001) ‘Social Sources Scale’. Four items were selected for the structural model ( $\alpha = .80$ ). A sample item is “I feel anxious about learning new things”.

### **4.3.2.3      *Development Self-Efficacy***

*Development self-efficacy* (DSE) reflects an individual’s confidence for successfully learning new and challenging occupationally-relevant skills, tasks and activities, conceptualised as a self-referenced or ‘absolute’ belief. Development self-efficacy was measured using 11 items adapted from previous measures (Maurer, Weiss, et al., 2003; Potosky, 2002). Four items were selected for the structural model ( $\alpha = .73$ ). A sample item is “when I’m given new work to do, I’m usually confident I can do it”.

### **4.3.2.4      *Attitudes & Motivation***

*Attitudes to continuous learning* (ATCL) were measured using nine items adapted from previous measures (Carlson, et al., 2000; Deakin-Crick, et al., 2004; Maurer, Weiss, et al., 2003; Seyler, et al., 1998), reflecting an individual’s desire to continue learning over the course of their lives. Four were retained for the structural model

( $\alpha = .88$ ). A sample item is “improving my skills and abilities is something I want to do over the rest of my life”.

*Motivation to learn* (MTL) reflects an individual’s proximal desire to pursue and participate in learning and development activities in their work environment, and was measured using seven items from previous measures (Birdi, et al., 1997; Fecteau, et al., 1995; Noe & Wilk, 1993; Warr, Allan, & Birdi, 1999). Four items were retained for the structural model ( $\alpha = .80$ ). A sample item is “I look for opportunities to develop new skills”.

#### **4.3.2.5 Career-Job Congruence**

*Career-job congruence* (CJC) was measured using five items adapted from previous measures (Dockery & Strathdee, 2003; Pinquart, et al., 2003; Stern, et al., 1990). Four indicators were retained ( $\alpha = .92$ ). A sample item is “my job/occupation is the type of job I’d like as a career-job”.

#### **4.3.2.6 Intentions to Participate**

*Intentions to participate* (INT) reflect an individual’s intentions to engage in occupationally-relevant developmental activities. A measure of intentions was adapted from a previous measure of behavioural intentions (Maurer, Weiss, et al., 2003). Respondents were asked how *likely* they were to participate in the activities stated, in contrast to the sourced measure that asked respondents to identify the *number of times* they anticipated participating in each activity. This response format was intended to reflect respondents’ general developmental intentions, rather than an anticipated frequency of participation, and to enable items to be combined into a general ‘intentions’ scale for analysis using structural equation modelling techniques. Respondents were asked to indicate how likely they were, given the opportunity, to participate in each activity in the next three months, using a 5-point response continua (1 = not at all likely, 2 = probably not; 3 = possibly; 4 = probably; 5 = very likely). Four items reflecting intentions to participate in



commonly-occurring and informal on-the-job activities were retained ( $\alpha = .73$ ). A sample question is: “if you had the opportunity in the next three months, how likely are you to ask your manager for feedback, coaching or advice?”.

#### **4.3.3 Demographic & Organisational Information**

A number of demographic and organisational membership variables were included to determine the eligibility of the respondents for inclusion in the research, the characteristics and heterogeneity of the sample (De Vaus, 2002), and to enable analysis of group invariance (Schumacker & Lomax, 2004). These included gender, age, ethnicity, organisational tenure, current occupation, and highest school qualification.

TABLE 3: SUMMARY OF MEASURES

Construct Name	Abbreviation	# Items Retained	Reliability $\alpha =$	Example Item
<i>Work Environment:</i>				
Perceived Organisational Support for Learning & Development	POSL	4	0.89	My organisation offers excellent training opportunities
Perceived Manager Support for Learning & Development	PMSL	4	0.89	My manager encourages me to believe I can improve my skills and abilities
Perceived Co-Worker Support for Learning & Development	PCWSL	5	0.72	My workmates encourage me to practice skills I've learned
<i>Individual Characteristics:</i>				
General Self-Efficacy	GSE	4	0.82	I believe I can succeed at almost any thing to which I set my mind
Personal Improvability Beliefs	PIB	4	0.92	I have what it takes to keep learning new things
Learning-Related Anxiety	ANX	4	0.80	I feel anxious about learning new things
Development Self-Efficacy	DSE	4	0.73	When I'm given new work to do, I'm usually confident I can do it
Attitudes Towards Continuous Learning	ATCL	4	0.88	improving my skills and abilities is something I want to do over the rest of my life
Motivation to Learn	MTL	4	0.80	I try to learn as much as I can from training courses; I look for opportunities to develop new skills
Career-Job Congruence	CJC	4	0.92	My job/occupation is the type of job I'd like as a career-job
Intentions to Participate in Learning & Development Activities	INT	4	0.73	If you had the opportunity in the next three months, how likely are you to ask your manager for feedback, coaching or advice?

## **4.4 DATA SCREENING & ANALYSIS**

### **4.4.1 Data Screening**

Before undertaking the analyses, the data was checked to ensure the accuracy of its inputting and its suitability for analysis (Pallant, 2007; Tabachnick & Fidell, 2007). Ten percent of surveys were randomly selected and re-entered by a different imputer, confirming a very high level of data entry accuracy (99.95%). Where detected, errors were corrected. The data was also inspected for univariate outliers, normality, homoscedasticity, and multicollinearity, and was found to be suitable for the planned analyses (Field, 2009; Leech, et al., 2005; Pallant, 2007).

A small amount of missing data was detected in the screening process (<0.5% of items). Inspection of patterns indicated this was missing at random and, as the occurrence increased in the later sections of the survey, was indicative of mild response fatigue (McKnight, McKnight, Figueredo, & Sidani, 2007). Although the total amount of missing data was small, 15% of the sample ( $n=268$ ) was affected by at least one missing value. To maximise the size, usability and statistical power of the sample (Schafer & Graham, 2002), two methods were selected as a conservative approach to addressing missing data, being: imputation of missing values and removal of cases.

First, single imputation using person-mean substitution was undertaken where missing data was minimal (i.e. one or two indicators) and were 'missing completely at random' (McKnight, et al., 2007; Tabachnick & Fidell, 2007). This enabled the majority of cases affected by missing data – 208 of the 268 affected cases, amounting to 12% of the sample – to be retained and included in the analysis. Person- or horizontal-mean imputation estimates the missing value by computing a mean from the other completed items in a uni-dimensional scale for the respondent (Hawthorne & Elliott, 2005; Switzer III & Roth, 2002). This method is appropriate for multi-item uni-dimensional scales and, importantly, retains the integrity of the

individual's responses by estimating a value based on their own responses for conceptually similar and highly correlated items rather than other respondents from whom they may differ greatly (known as a 'vertical mean' approach) (Downey & King, 1998; P. L. Roth, Switzer, & Switzer, 1999; Shrive, Stuart, Quan, & Ghali, 2006).

Second, a total of 49 cases were removed from the data set in a series of steps. As indicated previously, 26 cases were removed during initial screening of the full sample: 20 cases contained substantial amounts of missing data (>10% per respondent), and six cases were missing critical variables (e.g. age). This resulted in a final sample of N=1732. After the sample was split into three sub-samples (described in more detail shortly), a further 20 cases containing a small amount of missing data ( $\geq 3$  items) were removed from samples 2 and 3. The removal of these cases was necessary as AMOS requires complete data to compute post-hoc statistics (e.g. multivariate outliers and modification indices), the inspection of which is an important part of structural equation modelling techniques (Byrne, 2010; Schumacker & Lomax, 2004). Additionally, three cases were identified as multivariate outliers and, as these were found to have an undue effect on the model, they were removed (Field, 2009; Kline, 2005; Tabachnick & Fidell, 2007).

#### **4.4.2 Analytical Strategies**

##### **4.4.2.1 Overview**

The study used both exploratory and confirmatory techniques to analyse the data. Although exploratory and confirmatory approaches differ fundamentally in their goals, many believe these can be regarded as complementary (Velicer & Jackson, 1990) and that the use of both procedures is appropriate in certain situations (Conway & Huffcutt, 2003; Hurley et al., 1997; Velicer & Jackson, 1990). As Velicer and Jackson (1990) note, few studies are either purely one or the other but tend to combine a mixture of both approaches. Exploratory analysis is especially useful for examining the structure of the data and for selection of a smaller number of

indicator variables before proceeding to analysis of a structural model using confirmatory procedures (T. A. Brown, 2006; Gerbing & Hamilton, 1996; Gorsuch, 1997). This approach was followed in the current study.

First, a series of EFAs were performed to inspect the structure of the data and inform selection of a smaller number of indicator variables for the structural model. Next, the hypothesised structural model was tested and cross-validated using structural equation modelling techniques (SEM). Although SEM techniques enable researchers to test measurement and path models simultaneously, experts recommend these be conducted in distinct phases (Byrne, 2010; Schumacker & Lomax, 2004). This two-step approach enables the adequacy of the measurement component to be verified before proceeding to testing of a full structural model (J. C. Anderson & Gerbing, 1988; Byrne, 2010; Mulaik & Millsap, 2000; Schumacker & Lomax, 2004). Accordingly, and consistent with recent practice (Maurer, Lippstreu, et al., 2008), the data was analysed in a series of steps. These are explained in more detail shortly.

When both exploratory and confirmatory procedures are conducted in a study, experts recommend that analyses be conducted on separate samples (Henson & Roberts, 2006; Kline, 2005). While obtaining independent samples is ideal, this is often impractical, and an alternative approach is to randomly split a data file into separate sub-samples (Schumacker & Lomax, 2004). As mentioned previously, three sub-samples were randomly generated from the full sample. The details and use of each sample in the analysis are presented in Table 4 (on page 113).

**TABLE 4: DATA SAMPLES**

<b>Sample</b>	<b><i>n</i> =</b>	<b>Intended Analysis</b>	<b>Method of Analysis</b>
Sample #1	500	Inspection of the data structure and selection of indicator variables	Exploratory Factor Analysis
Sample #2	817	Inspection of the measurement component and structural model/s	Confirmatory Factor Analysis / Structural Equation Modelling
Sample #3	393	Cross-validation of the model	Confirmatory Factor Analysis / Structural Equation Modelling

The exploratory analyses were conducted using Statistical Package for the Social Sciences (SPSS) v16.0 (Pallant, 2007), and the confirmatory analysis were performed using the SEM programme Analysis of Moment Structures (AMOS) v16.0 with SPSS and maximum likelihood estimation (Arbuckle, 2007; Byrne, 2010).

#### **4.4.2.2     *Measurement Invariance***

As previously mentioned, organisational characteristics, such as size and industry, may affect individual perceptions of organisational support for learning and development. For example, large organisations are suggested as having more comprehensive employee development frameworks, greater financial resources and work flexibility, thereby enabling employees' greater participation in development activities (Curson, 2004). While some have found that small organisations are less inclined to offer training to employees (Matlay, 2000 cited in Webster, Walker, & Barrett, 2005), others suggest they tend to invest in innovative methods of training such as team working rather than formal internal training structures (A. Smith, et al., 2002). For similar reasons, employees in some sectors may have more access to developmental opportunities than those in others (ibid). Accordingly, an important preliminary step in the analysis of the data was to establish equivalence of the data (that is, measurement invariance) with respect to organisational size and industry to determine the most appropriate method for proceeding to testing of the structural models (Byrne, 2010; Schumacker & Lomax, 2004).

#### **4.4.2.3     *Analysis of the Structural Model***

As indicated above, the structural model was analysed in a series of steps. First, a series of CFAs were conducted to verify the adequacy of the measures for inclusion in the structural model. Although measurement invariance had already been established in preliminary screening of the data, as a precautionary measure the data was also inspected to verify structural invariance with respect to industry and organisational size. The results of these are presented in section 5.3 (the ‘measurement model’) of the Chapter 5.

Next, the fully mediated structural model was tested. A number of alternative paths were added to the model and were tested in a sequence of nested models (Schumacker & Lomax, 2004). Testing alternative models allows researchers to develop a better understanding of complex relationships, and is a popular and indeed recommended alternative to the otherwise restrictive confirmatory model evaluation approach (MacCallum & Austin, 2000). The adequacy of competing models was assessed by examining the change in chi-square ( $\Delta\chi^2$ ) test of statistical significance ( $p < .01$ ) using a series of nested model comparisons (J. C. Anderson & Gerbing, 1988; Tomarken & Waller, 2003; Tracey, et al., 2001). In addition, the changes to the comparative fit index ( $\Delta CFI$ ) and the Akaike information criterion index (AIC) were also considered in determining the superiority of competing models (Byrne, 2010; Raykov & Marcoulides, 2006). Post-hoc fit statistics (for example, modification indices, multivariate outliers) were also inspected for each of the models.

After a final model was reached, all non-significant paths were removed, and the model was then cross-validated using the third sample. Cross-validation is recommended as a way of increasing confidence in the adequacy of a particular model (Schumacker & Lomax, 2004); however, this is not commonly reported in published studies. While the use of an independent sample for such analyses is ideal, this is often challenging for researchers. As indicated earlier, and as adopted

in the current study, an alternative approach is to randomly split a sample, using one sample to develop and refine a model, and the remaining sample to validate the solution (J. C. Anderson & Gerbing, 1988; Byrne, 2010; Schumacker & Lomax, 2004). To confirm the robustness of the cross-validation procedure, a multi-group analysis was conducted to determine whether samples used for testing and validation of the model were equivalent. These results are reported in section 5.4 (the 'structural model') of Chapter 5.

A further and final step in the analysis involved testing for the moderating effects of gender. Although measurement equivalence (i.e. perceptions) had been confirmed during preliminary analysis of the data, as described previously, the literature suggests there may be important differences in a number of structural relationships, particularly in relation to the antecedents of development self-efficacy (S. L. Anderson & Betz, 2001; Usher & Pajares, 2006). Accordingly, a multi-group analysis was conducted to test for structural invariance of the model (Byrne, 2010; Schumacker & Lomax, 2004). This procedure performs an omnibus test which identifies an unrestricted 'configural' model (for the all groups), with no equality constraints imposed. Simultaneously, fit statistics are calculated for increasingly restrictive models which enable identification of any statistically significant differences between groups at different levels; for example, at the measurement or structural level. Invariance is determined by inspecting changes to chi-square ( $\Delta\chi^2$ ), as well as changes to the comparative fit index ( $\Delta CFI$ ). The results from this analysis are reported in section 5.4 (the 'multi-group analysis') of Chapter 5.



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## CHAPTER 5: RESULTS

### 5.1 OVERVIEW

This chapter presents the results of the study in four sections. First, section 5.2 presents the descriptive statistics including the correlations, means, standard deviations and reliabilities for each of the latent constructs. An overview of the reported goodness-of-fit statistics relating to the measurement and structural models are also presented in this section. Second, section 5.3 presents the results from the analyses of the measures used in the structural model (the 'measurement component'). The results from the testing and cross-validation of the hypothesised structural model (the 'structural model') are presented in the section 5.4, and results from the multi-group analysis that examined specific differences in the model for males and females are presented in section 5.5 (the 'multi-group analyses'). The findings from the study relating to the hypothesised structural model and its implications for researchers and practitioners in the field of human resource development are discussed in Chapter 6.

### 5.2 DESCRIPTIVE STATISTICS

The means, standard deviations, correlations and internal consistency reliability estimates for each of the latent constructs are presented in Table 5 (page 118). Preliminary analyses were performed to ensure assumptions of normality, linearity and homoscedasticity were met. Relationships between constructs were investigated using Pearson product-moment correlation coefficient ( $r$ ). As previously demonstrated in the literature, the majority of constructs exhibited modest to strong bivariate correlations ( $p < .05$ ). The three individual attributes (general self-efficacy, personal improvability beliefs and learning-related anxiety) were moderately correlated with each other ( $-0.22$  to  $0.55$ ,  $p < .001$ ), and were moderately to strongly related to development self-efficacy ( $0.35$  to  $0.67$ ,  $p < .001$ ).

TABLE 5: MEANS, STANDARD DEVIATIONS, AND INTER-CORRELATIONS AMONGST LATENT CONSTRUCTS IN THE STRUCTURAL MODEL

	M	SD	GSE	PIB	ANX	POSL	PMSL	PCWS	DSE	ATCL	MTL	CJC	INT
General Self-Efficacy (GSE)	4.01	0.54	(0.85)										
Personal Improvability Beliefs (PIB)	4.40	0.52	0.55	(0.81)									
Learning-related Anxiety (ANX)	2.62	0.82	-0.35	0.22	(0.90)								
Perceived Organisational Support for Learning & Development (POSL)	3.75	0.80	0.12	0.15	0.00ns	(0.87)							
Perceived Manager Support for Learning & Development (PMSL)	3.84	0.74	0.22	0.19	-0.06ns	0.54	(0.88)						
Perceived Co-worker Support for Learning & Development (PCWS)	3.89	0.64	0.17	0.16	-0.03ns	0.39	0.52	(0.86)					
Development Self-Efficacy (DSE)	4.00	0.52	0.67	0.50	-0.35	0.13	0.26	0.24	(0.78)				
Attitudes to Continuous Learning (ATCL)	4.52	0.51	0.37	0.44	-0.13	0.16	0.22	0.22	0.38	(0.82)			
Motivation to Learn (MTL)	4.05	0.56	0.50	0.41	-0.24	0.21	0.27	0.22	0.53	0.51	(0.87)		
Career-Job Congruence (CJC)	3.73	0.98	0.07*	0.09**	-0.07ns	0.38	0.34	0.28	0.15	0.16	0.20	(0.92)	
Intentions to Participate (INT)	3.90	0.81	0.15	0.17	-0.03ns	0.32	0.34	0.31	0.18	0.23	0.27	0.35	(0.76)

Note: All correlations (2-tailed) are significant at  $p < 0.001$  except: \*\* significant at  $p < 0.01$ , \* $p < 0.05$  level, and 'ns' (non-significant,  $p > .05$ ). Alpha reliabilities are presented along the diagonal (in parentheses). Means for all scales: 1=minimum (low), 5=maximum (high).  $n = 817$ .

General self-efficacy had weak to moderate relationships with the remaining seven constructs in the model ( $0.07, p < .05$ , to  $0.50, p < .001$ ), as did improvability beliefs ( $0.09, p < .01$  to  $0.44, p < .001$ ). As expected, learning-related anxiety was negatively correlated with the other constructs, exhibiting a modest relationship with both development self-efficacy ( $-0.35, p < .001$ ) and motivation to learn ( $-0.24, p < .001$ ), a weak relationship with attitudes to continuous learning ( $-0.13, p < .001$ ), and weak non-significant relationships ( $p > .05$ ) with the remaining seven constructs.

As expected, the three dimensions of the work environment (organisational support, manager support and co-worker support for employee development) were positively and moderately correlated with each other ( $0.39$  to  $0.54, p < .001$ ). These constructs had modest relationships with seven of the eight remaining constructs in the model, although exhibited non-significant relationships with anxiety. Significant correlations ( $p < .001$ ) for perceived organisational support ranged from  $0.12$  (general self-efficacy) and  $0.38$  (career-job congruence); manager support ranged from  $.19$  (improvability beliefs) to  $0.34$  (career-job congruence and intentions to participate); while correlations for co-worker support ranged from  $.16$  (improvability beliefs) to  $0.31$  (intentions). Correlations between these variables and anxiety were all non-significant ( $p > .05$ ).

As expected, motivation to learn was strongly correlated with attitudes to continuous learning ( $0.51, p < .001$ ), and was modestly related to career-job congruence and intentions to participate ( $0.20$  and  $0.27, p < .001$  respectively). Career-job congruence was also positively related to intentions to participate ( $0.35, p < .001$ ).

The central construct of the hypothesised model – development self-efficacy – exhibited a strong relationship with all three individual attributes: general self-efficacy ( $0.67, p < .001$ ), anxiety ( $-0.35, p < .001$ ), and improvability beliefs ( $-0.50, p < .001$ ). In regards to the three dimensions of the work environment, development

self-efficacy exhibited modest relationships with each: 0.13 with organisational support, 0.26 with manager support, and 0.24 with co-worker support (all  $p < .001$ ). These relationships are similar to correlations found in previous research, although these studies had aggregated dimensions of work support into a single scale, preventing examination of specific relationships (Maurer, Lippstreu, et al., 2008; Maurer, Weiss, et al., 2003; Tracey, et al., 2001). As predicted, development self-efficacy was also positively and moderately related to both attitudes to continuous learning (0.38,  $p < .001$ ) and motivation to learn (0.53,  $p < .001$ ), similar to findings from previous studies, and was weakly correlated with the career-job congruence and intentions to participate (0.15 to 0.18,  $p < .001$  respectively).

With the exception of anxiety, most constructs exhibited moderate to high means, and had modest but acceptable levels of negative skew ( $< 1$ ). Summated scales had high levels of internal consistency with Cronbach alpha coefficients ( $\alpha$ )  $> .75$  for all scales.

### **5.3 MEASUREMENT MODEL**

When reporting results from statistical analyses, a large number of fit statistics are available, each of which aid in different ways in the interpretation of the data. The fit statistics selected in the current study are outlined next, after which the results from the measurement model are presented.

#### **5.3.1 Reported Goodness-of-Fit Indices**

As recommended by a number of experts, the current study reports a number of goodness-of-fit indices from testing of the measurement and structural models using CFA and SEM analyses. The use of multiple indices enables comparisons to be made and to avoid reporting of 'selective' indices that may be more favourable (Byrne, 2010; Raykov & Marcoulides, 2006), balances the risk of obtaining Type-I and Type-II errors, and allows one to place greater confidence in the fit of a model (Hu & Bentler, 1999).

The three most commonly reported statistics are the chi-square ( $\chi^2$ ), its degrees of freedom (*df*) and *p*-value. These statistics provide a baseline indication of model fit; however, as the significance of the  $\chi^2$  statistic is sensitive to all but small sample sizes (<200), strict adherence to this test can frequently result in the rejection of a large number of otherwise plausible models in SEM analyses (Byrne, 2010; Schumacker & Lomax, 2004). Despite limitations of  $\chi^2$ , experts recommend this still be reported, along with its associated degrees of freedom and *p*-value (Hayduk, Cummings, Boadu, Pazderka-Robinson, & Boulianne, 2007; Hooper, Coughlan, & Mullen, 2008; Kline, 2005; Schumacker & Lomax, 2004).

In addition to the baseline indicators, the standardised root mean square residual (SRMR, or SRMSR), the root mean square error of approximation (RMSEA), at least one of the comparative fit indices, and one of the parsimony indices are also recommended for assessing model fit (Byrne, 2010; MacCallum & Austin, 2000; Raykov & Marcoulides, 2006). The current study reports the SRMR, the RMSEA and its associated confidence interval, two comparative fit indices – the comparative-fit index (CFI) and the Tucker-Lewis index (TLI, also referred to as the non-normed fit index (NNFI)) (McDonald & Ho, 2002) – the parsimony adjusted CFI index (PCFI), the change in CFI ( $\Delta$ CFI) and the Akaike information criterion (AIC) index. Although still cited by many researchers, the goodness-of-fit index (GFI), has been found to have problems associated with it and is no longer recommended (Sharma, et al, 2005 cited in Hooper, et al., 2008; Hu & Bentler, 1998).

Fit statistics for the SRMR range from 0 to 1, with values <.06 suggestive of a well fitting model, although values <.08 (Hu & Bentler, 1999) and even <.10 (Kline, 2005) are considered acceptable. RMSEA values  $\leq$ .08 are regarded as being a reasonable error of approximation (Steiger, 2007), with values <.05 being preferable (Hayduk & Glaser, 2000; Mulaik & Millsap, 2000; Schumacker & Lomax, 2004).

The TLI and CFI were selected as the incremental fit indexes as they are the most insensitive to sample size, model misspecification and parameter estimates

(Hooper, et al., 2008). The CFI adjusts for degrees of freedom and measures covariation in the data. Values for both the CFI and TLI range from 0-1, and while values  $>.95$  are preferable (Byrne, 2010; Hooper, et al., 2008; Raykov & Marcoulides, 2006), values  $>.90$  are acceptable, particularly for complex models (e.g. Maurer, Lippstreu, et al., 2008). However, because the TLI prefers simpler models, complex models can be penalised with lower fit values. The PCFI index was also selected as an additional measure of fit and takes into account model complexity; however, as complexity is still penalised, it is not uncommon to see values as low as  $.50$  (Hooper, et al., 2008). Values above this can, with some caution, be regarded as acceptable for complex models (Byrne, 2010).

In assessing the fit and superiority of subsequent models, the  $\Delta\chi^2$ ,  $\Delta\text{CFI}$  and AIC are reported. The  $\Delta\chi^2$  provides an indication of the statistical significance of subsequent models in the model testing process, while the  $\Delta\text{CFI}$  provides an indication of the practical significance of differences between structural models (Byrne, 2010; Cheung & Rensvold, 2002). Where significant differences were found, the critical ratios (pairwise parameters) and standardised path coefficients are reported for affected relationships (Schumacker & Lomax, 2004). The Akaike information criterion (AIC) index is also included as an additional indication of the superiority of alternative models, which takes into account both the fit and complexity of a model. While there are no strict guidelines for interpreting the AIC, lower values are considered to be better approximations of the data than those with higher values (Raykov & Marcoulides, 2006).

### 5.3.2 Results

The measurement component of the model was tested to ensure adequacy of the items as indicators of the latent constructs (Byrne, 2010). Consistent with recommendations (Byrne, 2010) and previous research (Maurer, Lippstreu, et al., 2008), confirmatory factor analyses were conducted on clusters of related constructs: work support (perceptions of organisational support for learning,

manager support and co-worker support), self-beliefs (general self-efficacy, personal improvability beliefs, and anxiety), and attitudes and motivation. The remaining constructs were analysed individually, namely: development self-efficacy, career-job congruence, and intentions to participate. Following recommendations (Byrne, 2010), post-hoc statistics were computed to allow the inspection of normality, multivariate outliers, and modification indices. The measurement models all demonstrated good fit to the data, and were appropriate for testing of the structural models. The results are presented in Table 6 (page 124).

The data was also inspected for measurement invariance (Pallant, 2007). Of the 66 analyses conducted, five statistically significant differences were found ( $p < .001$ ); however, examination of the effect sizes revealed these were small ( $\leq .03$ ), indicating the practical significance of these effects was negligible. Accordingly, the sample was combined for subsequent analyses. As an additional and precautionary measure, the model was also inspected for structural invariance with respect to industry and organisational size. Results of these analyses confirmed structural invariance for these variables. A complete set of parameters and their standard errors are presented in Appendix E (page 251).



TABLE 6: FIT STATISTICS FOR MEASUREMENT MODELS

Model Description	# Latent Variables	# Observed Variables	$\chi^2$	df	p <	SRMR	TLI	CFI	RMSEA	90% CI
Work Environment	3	13	291.7	62	.001	.03	.95	.96	.07	.060 - .075
Individual Attributes	3	9	158.6	51	.001	.03	.98	.98	.05	.042 - .060
Attitudes and Motivation	2	8	102.7	19	.001	.03	.96	.97	.07	.060 - .088
Development Self-Efficacy	1	4	6.9	2	.05	.02	.99	.99	.05	.015 - .102
Career-Job Congruence	1	4	5.9	2	.05	.01	.99	.99	.05	.000 - .096
Intentions	1	4	25.6	2	.001	.03	.91	.97	.12	.081 - .164

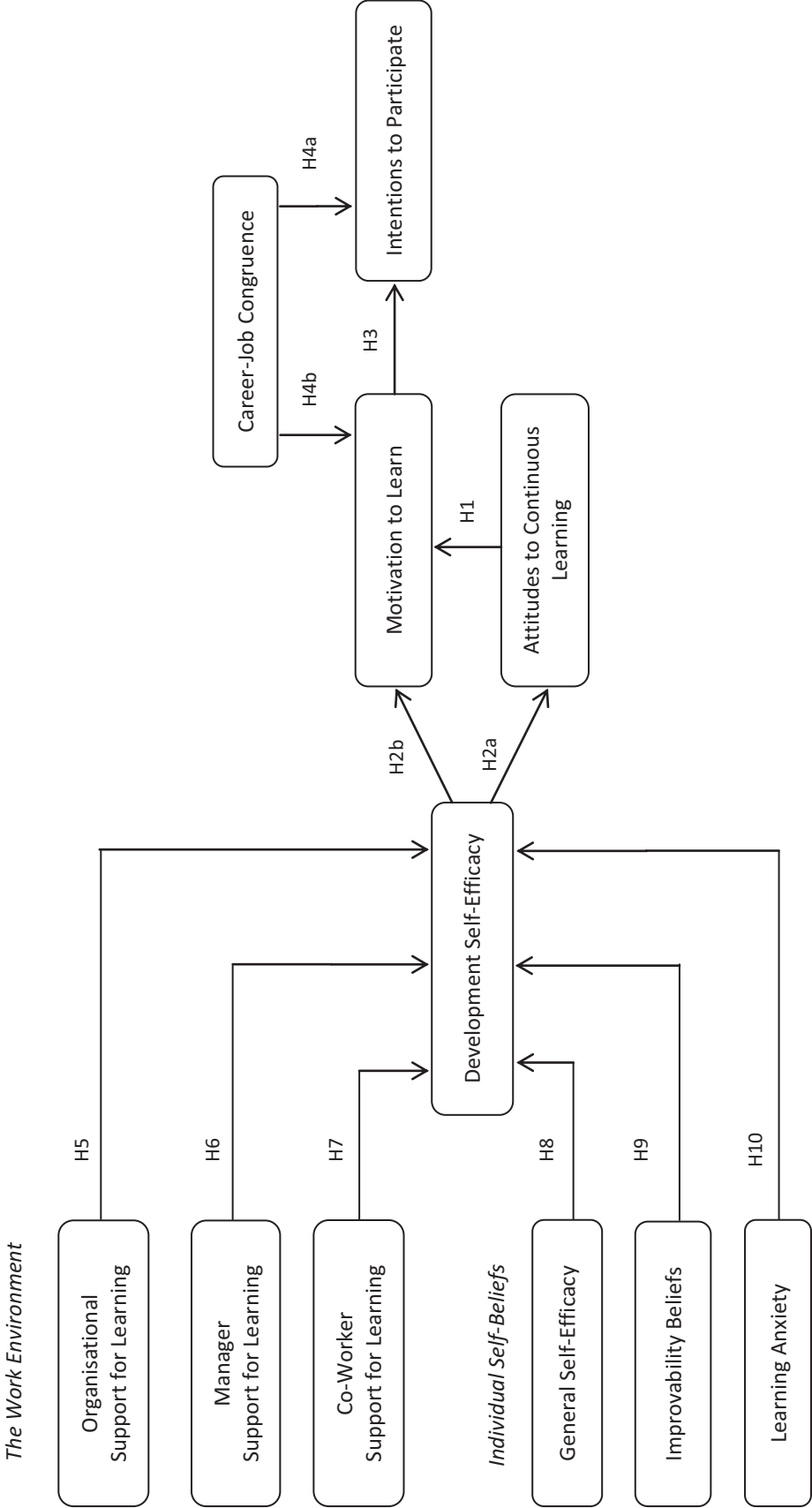
## 5.4 STRUCTURAL MODEL

### 5.4.1 Fully-Mediated Model

Figure 4 (page 126) presents the proposed fully-mediated structural model with all hypothesised paths (H1, H2a H2b, H3, H4a, H4b, H5, H6, H7, H8, H9, H10). The 12 hypothesised paths in the model were simultaneously tested. Overall the model was supported and demonstrated reasonable fit to the data ( $\chi^2 = 2578.3$ ,  $df = 927$ ,  $p < .001$ ,  $TLI = .92$ ,  $CFI = .92$ ,  $PCFI = .86$ ,  $RMSEA = .05$ ,  $SRMR = .11$ ,  $AIC = 2794.3$ ) ( $n = 817$ ). Of the 12 paths examined, 11 were found to be statistically significant ( $p \leq .05$ ). The supported paths and their standardised regression weights for the observed structural model are shown in Figure 5 (page 127). For clarity, the measurement components of the model are excluded from the diagram. A complete list of parameter estimates and their standard errors is available in Appendix F (page 255).

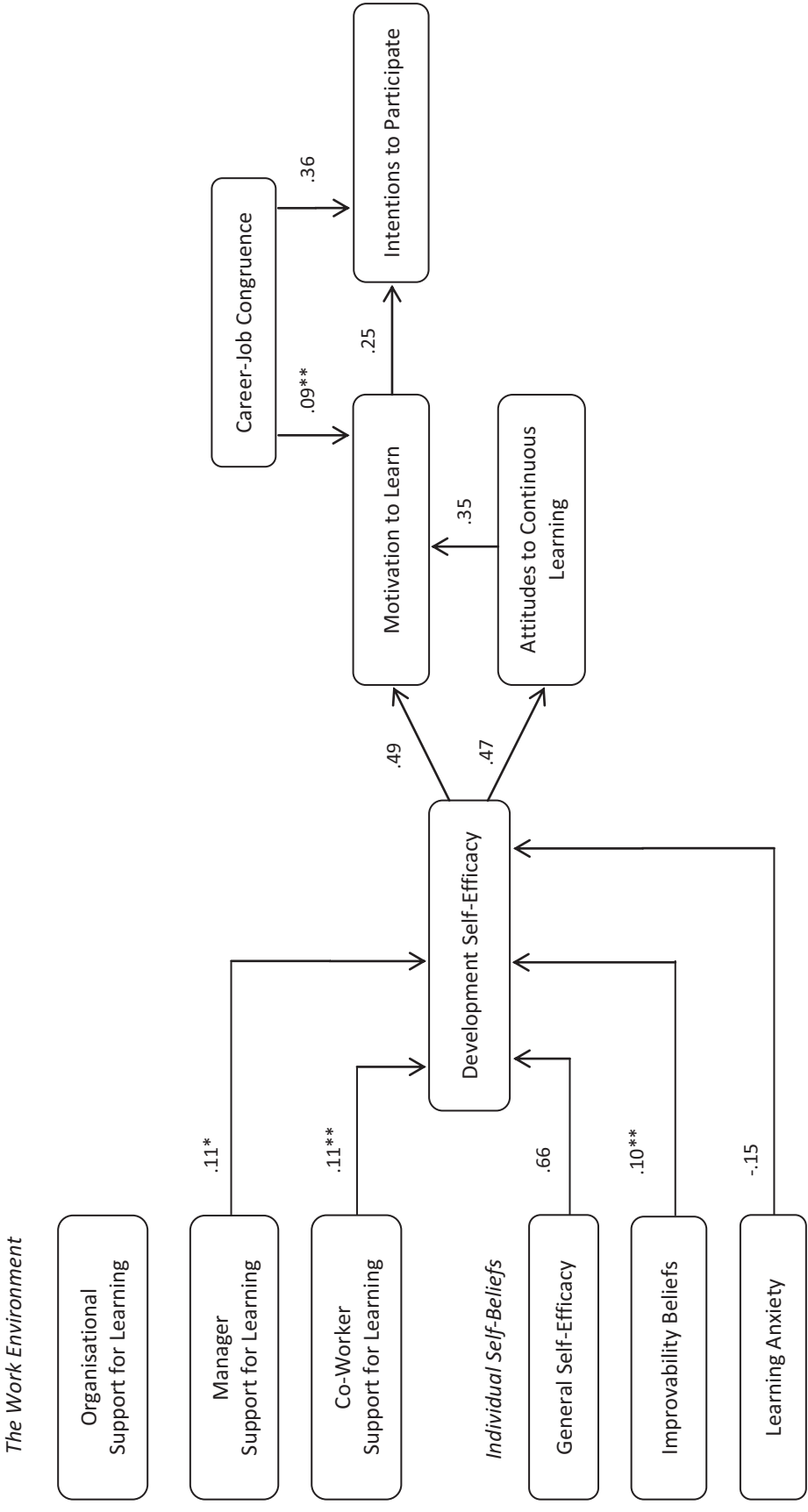
Inspection of the scalar estimates revealed that 11 of 12 hypothesised paths were statistically significant. These were: attitudes to continuous learning to motivation to learn (H1,  $\beta = .35$ ,  $p < .001$ ); development-self efficacy to attitudes (H2a,  $\beta = .47$ ,  $p < .001$ ) and to motivation (H2b,  $\beta = .49$ ,  $p < .001$ ); motivation to intentions (H3,  $\beta = .25$ ,  $p < .001$ ); career-job congruence to intentions (H4a,  $\beta = .36$ ,  $p < .001$ ) and to motivation to learn (H4b,  $\beta = .09$ ,  $p \leq .01$ ); perceived manager support to development self-efficacy (H6,  $\beta = .11$ ,  $p \leq .05$ ); perceived co-worker support to development self-efficacy (H7,  $\beta = .10$ ,  $p \leq .01$ ); general self-efficacy to development self-efficacy (H8,  $\beta = .66$ ,  $p < .001$ ); personal improvability beliefs to development self-efficacy (H9,  $\beta = .10$ ,  $p \leq .01$ ); and anxiety to development self-efficacy (H10,  $\beta = -.15$ ,  $p < .001$ ). The remaining path from perceived organisational support for employee development to development self-efficacy (H5) was not significant ( $\beta = -.04$ ,  $p > .05$ ).

FIGURE 4: HYPOTHESED STRUCTURAL MODEL (FULLY-MEDIATED)



Note: All hypothesised paths are positive (+), except H10 (learning anxiety to development self-efficacy) which is negative (-).

FIGURE 5: OBSERVED STRUCTURAL MODEL (FULLY-MEDIATED)



Note: All standardised path coefficients ( $\beta$ ) shown are significant at  $p < .001$  except: \*\* which was significant at  $p < .01$ , and \* which was significant at  $p \leq .05$ . All other paths were non-significant ( $p > .05$ ) and are not shown.

The hypothesised antecedent variables accounted for a considerable amount of variance in each of the dependent variables. Together, the two work support variables (perceived manager support and perceived co-worker support) and three individual characteristics (general self-efficacy, improvability beliefs, and anxiety) accounted for 67% of the variance in development self-efficacy beliefs. Development self-efficacy accounted for 22% of the variance in attitudes to continuous learning, and, together with attitudes and career-job congruence, accounted for 53% of the variance in motivation to learn. Motivation and career-job congruence accounted for 21% of the variance in younger workers' intentions to participate in learning and development activities.

### 5.4.2 Alternative Models

Although the fully-mediated model exhibited acceptable fit a number of alternative models were tested to determine the most plausible explanation of the data, as recommended (Tomarken & Waller, 2003) and as practiced in the literature (Maurer, Weiss, et al., 2003; Zhang, 2003). The models were examined in a nested approach allowing for examination of chi-square test ( $\Delta\chi^2$ ), thus non-significant paths from the model 1 were retained. The results from the nested model comparisons, including the initial fully-mediated model and cross-validation of the final model are summarised in Table 7 (page 129) and are described following.

The first alternative model (model 2) tested three additional direct paths from perceived organisational support for learning and development, manager support, and co-worker support to motivation to learn (H11, H12, H13 respectively). These constructs have been previously examined and supported as antecedents of motivation to learn (Chiaburu & Marinova, 2005; Switzer, et al., 2005; Tracey, et al., 2001), but have not been examined in relation to younger workers. In addition, only one of these studies (Tracey, et al., 2001) examined work support as both a direct *and* indirect antecedent of motivation to learn; however, in that study the dimensions of work support measured were aggregated together in the analyses,

TABLE 7: FIT STATISTICS FOR STRUCTURAL MODELS<sup>1</sup>

Model	Description	Hypothesised Paths (H)	$\chi^2$	df	p <	SRMR	$\Delta\chi^2, p <$	AIC	TLI	CFI	PCFI	RMSEA	90% CI
1	Fully mediated	1, 2a, 2b, 3, 4a, 4b, 5, 6, 7, 8, 9, 10	2578.3	927	.001	.11	-	2794.3	.92	.92	.86	.05	.044 - .048
2	Partially mediated as above, plus PWS→MTL	11, 12, 13	2565.7	924	.001	.11	.001	2787.7	.92	.92	.86	.05	.044 - .048
3	Partially mediated, as above, plus PIB→ATCL	14	2496.7	923	.001	.11	.001	2720.7	.92	.92	.86	.05	.044 - .048
4	Partially mediated, as above, plus PWS→CJC	15	2345.6	922	.001	.08	.001	2571.6	.93	.93	.87	.04	.041 - .046

<sup>1</sup> All structural models were examined using sample 2 ( $n = 817$ )

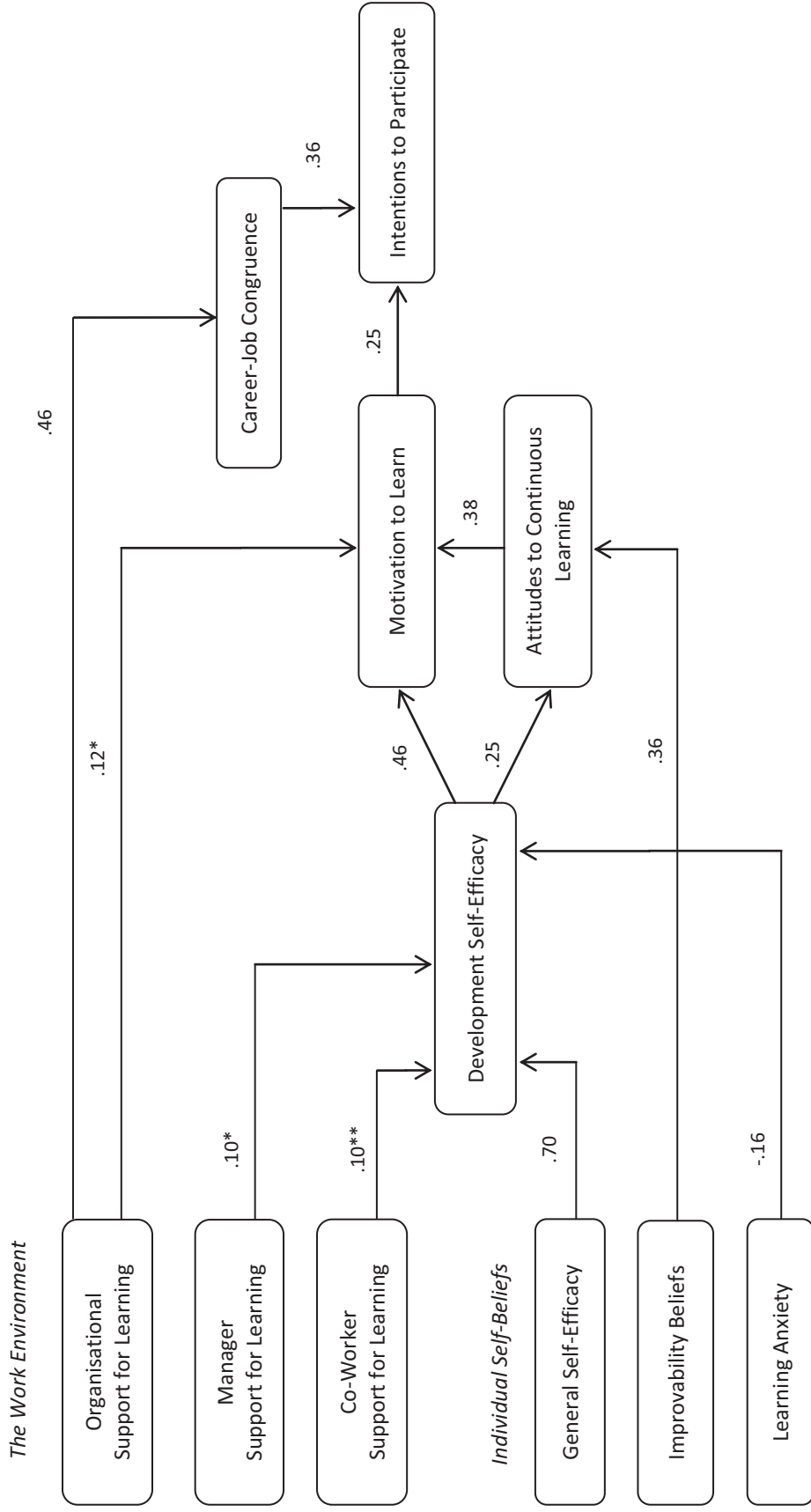
and did not include co-worker support. The results from model 2 suggest acceptable model fit and, as the  $\Delta\chi^2$  was statistically significant ( $p < .01$ ), the model could be accepted. Of the three hypothesised paths, however, only perceived organisational support to motivation to learn (H11) was significant ( $p < .01$ ,  $\beta = .12$ ). Of note was the non-significant relationship between motivation and career-job congruence with the inclusion of these additional paths.

The second alternative model (model 3) tested Hypothesis 14, which suggested a direct relationship between personal improvability beliefs and attitudes to continuous learning. The fit statistics supported the overall fit of the model and the significance of the hypothesised path ( $p < .001$ ,  $\beta = .36$ ). The  $\Delta\chi^2$  ( $p < .01$ ) also indicated the model was superior to the previous model.

A final path was added to the model (model 4) which tested a direct relationship between organisational support and career-job congruence (Hypothesis 15). The model demonstrated acceptable fit to the data, and a moderate relationship was found between the variables ( $p < .001$ ,  $\beta = .46$ ). The  $\Delta\chi^2$  also supported the superiority of this model compared to model 3

Although a fully-mediated model was supported, the partially mediated model (model 4) demonstrated better overall fit to the data and was accepted as the final solution. In total, 12 of the 17 hypothesised relationships were found to be statistically significant. The final model is presented in Figure 6 (page 131). As with previous models, the measurement components of the model are excluded from the diagram. A complete list of measures, parameter estimates and standard errors is available in Appendix G (page 259).

FIGURE 6: FINAL MODEL



Note: All standardised path coefficients (β) shown are significant at  $p < .001$  except: \*\* which was significant at  $p < .01$ ; and \* which was significant at  $p < .05$ . All other paths were non-significant ( $p > .05$ ) and are not shown.



### 5.4.3 Cross-Validation

The model was then tested using the hold-out sample ( $n = 393$ ). Only previously significant paths were retained (12 paths in total). The model was supported and demonstrated good fit to the data ( $\chi^2 = 1646.7$ ,  $df = 927$ ,  $p < .001$ ,  $TLI = .92$ ,  $CFI = .93$ ,  $PCFI = .87$ ,  $RMSEA = .05$ ,  $SRMR = .09$ ;  $n = 395$ ). In total, 11 of the 12 hypothesised relationships were confirmed in the cross validation procedure. These findings are presented below, and are summarised in Table 8 (pages 134/135). The standardised path coefficients for the model are shown in Figure 7 (page 136). A full list of measures, parameter estimates and standard errors is available in Appendix H (page 263).

As hypothesised, development self-efficacy was predicted by three of the four previously supported antecedents being: co-worker support ( $H7 \beta = .13$ ,  $p < .05$ ), general self-efficacy ( $H8 \beta = .67$ ,  $p < .001$ ), and learning-related anxiety ( $H10 \beta = -.27$ ,  $p < .001$ ). Together these explained significant proportion (69%) of the variance in self-efficacy. Contrary to previous findings, manager support for employee development was not predictive of development self-efficacy. As this relationship could not be replicated, the support for hypotheses 6 is regarded as being equivocal.

Motivation to learn was predicted by three of the six hypothesised paths; namely, development self-efficacy ( $H2b$ ), attitudes to continuous learning ( $H1$ ), and organisational support for employee development ( $H11$ ). Together, these variables accounted for 61% of the variance in motivation to learn, each exhibiting moderate relationships with the dependent variable ( $H2b \text{ DSE} \rightarrow \text{MTL}$ ,  $\beta = .43$ ,  $p < .001$ ;  $H1 \text{ ATCL} \rightarrow \text{MTL}$ ,  $\beta = .48$ ,  $p < .001$ ;  $H11 \text{ POSL} \rightarrow \text{MTL}$ ,  $\beta = .14$ ,  $p < .01$ ).

The improvement to the squared multiple correlation ( $R^2$ ) in the partially-mediated model is notable. Including organisational support as a predictor variable improved this by 7% compared to the fully-mediated model where 53% of the variance in

motivation was accounted for by development self-efficacy (H2b,  $\beta = .49, p < .001$ ), attitudes to learning (H3,  $\beta = .35, p < .001$ ) and career-job congruence (H4b,  $\beta = .09, p < .01$ ). The partially-mediated model did not provide support for career-job congruence, manager support or co-worker support as antecedents of motivation to learn, thus hypotheses H4b, H12 and H13 were not confirmed.

Both hypothesised antecedents of attitudes were supported and exhibited modest to strong relationships. Together, development self-efficacy and improvability beliefs accounted for 29% of the variance in attitudes to continuous learning (H2a,  $\beta = .18, p < .001$ ; and H8,  $\beta = .43, p < .001$  respectively), compared with 22% in the fully-mediated model when self-efficacy was the sole antecedent (H2a,  $\beta = .47, p < .001$ ). As hypothesised, intentions to participate in development activities were predicted by two constructs: motivation to learn (H3,  $\beta = .32, p < .001$ ) and career-job congruence (H4a,  $\beta = .29, p < .001$ ), together explaining 20% of the variance in intentions. In addition, organisational support was found to be strongly predictive of career-job congruence (H15,  $\beta = .45, p < .001$ ), explaining 20% of the variance in this construct.

As a way of increasing confidence in the cross-validation procedure, the two CFA samples were inspected for measurement invariance using a multi-group analysis (Byrne, 2010). Inspection of the nested model comparisons revealed no statistically significant differences between the data sets in relation to the measurement weights (factor loadings), structural weights (path coefficients) or structural co-variances (factor variances and co-variances) ( $\Delta\chi^2 p > .001$ ). The two samples were found to be invariant, providing support for the robustness of the cross-validation procedure.

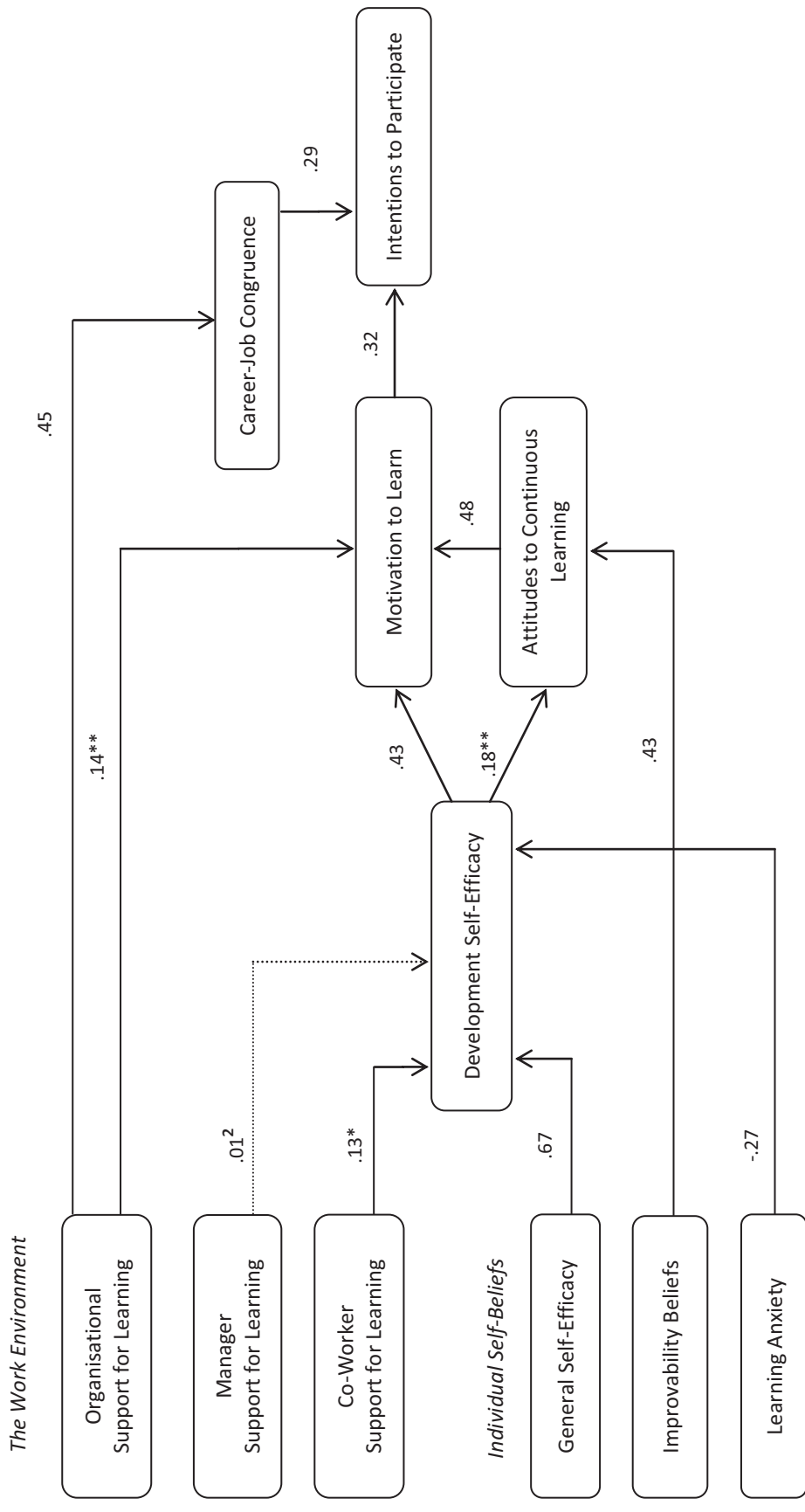
**TABLE 8: SUMMARY OF HYPOTHESES**

Hypothesis Description	Path	Supported?
<i>Fully-Mediated Model (Model 1)</i>		
Hypothesis #1: Attitudes to continuous learning will be positively related to motivation to learn for younger workers	ATCL → MTL	Yes
Hypothesis #2a and 2b: Development self-efficacy will be positively related to both attitudes to continuous learning (2a) and motivation to learn for younger workers (2b).	DSE → ATCL	Yes
	DSE → MTL	Yes
Hypothesis #3: Motivation to learn will be directly and positively related to intentions to participate in development activities	MTL → INT	Yes
Hypothesis #4a and 4b: Career-job congruence will positively influence younger workers' intentions to participate directly (4a), as well as indirectly through its effects on motivation to learn (4b)	CJC → INT	Yes
	CJC → MTL	No
Hypothesis #5: Perceptions of organisational support for employee learning and development will be positively related to the development self-efficacy beliefs of younger workers.	POSL → DSE	No
Hypothesis #6: Perceptions of manager support for employee learning and development will be positively related to the development self-efficacy beliefs of younger workers	PMSL → DSE	Equivocal
Hypothesis #7: Perceptions of co-worker support for employee learning and development will be positively related to the development self-efficacy beliefs of younger workers	PCWSL → DSE	Yes
Hypothesis #8: General self-efficacy will be positively related to the development self-efficacy beliefs of younger workers	GSE → DSE	Yes
Hypothesis #9: Personal improvability beliefs will be positively related to the development self-efficacy beliefs of younger workers	PIB → DSE	No
Hypothesis #10: Learning-related anxiety will be negatively related to the development self-efficacy beliefs of younger workers	ANX → DSE	Yes

*(TABLE 8: CONTINUED)*

Hypothesis Description	Path	Supported?
<i>Alternative Models</i>		
<i>Model 2</i> – Hypothesis #11, 12, 13: Perceptions of organisational support for employee learning and development (11), manager support (12), and co-worker support will be directly and positively related to younger workers' motivation to learn (13)	POSL → MTL	Yes
	PMSL → MTL	No
	PCWSL → MTL	No
<i>Model 3</i> – Hypothesis #14: Personal improvability beliefs will be directly and positively related to younger workers' attitudes towards continuous learning	PIB → ATCL	Yes
<i>Model 4</i> – Hypothesis #15: Perceptions of organisational support for learning and development will be directly and positively related to younger workers' career-job congruence	POSL → CJC	Yes

FIGURE 7: CROSS-VALIDATION MODEL



Note 1: All standardised path coefficients ( $\beta$ ) shown are significant at  $p < .001$  except: \*\* which was significant at  $p < .01$ , \* which was significant at  $p < .05$ .

Note 2: The relationship between perceived manager support for learning (PMSL) and development self-efficacy (DSE) was no longer significant ( $p > .05$ ).

## 5.5 MULTI-GROUP ANALYSES

### 5.5.1 Model Testing

As identified in the review of the literature, there is some evidence to suggest that certain antecedents of self-efficacy may differ between males and females (S. L. Anderson & Betz, 2001; Usher & Pajares, 2006). Thus, the study also hypothesised that gender may moderate the relationship between the work environment and individual characteristics as antecedents of development self-efficacy and self-efficacy beliefs. Following Byrne's (2010) recommendations for testing structural invariance of a model, the data was inspected using a multi-group comparison in a two-step approach. First, the model was tested separately for males and females to determine overall fit for each group. The fit statistics demonstrate acceptable fit for both males and females (see Table 9, page 138).

Next, the model was tested using a multi-group modelling approach using nested comparisons to determine whether the groups were invariant. The results of the nested comparisons are presented in Table 10 (page 138). A complete list of parameter estimates and standard errors are presented in Appendix I (page 267). Analysis of the configural model statistics supported invariance at the measurement level ('measurement weights',  $\Delta\chi^2 p > .01$ ) as previously found. The results indicated a marginally significant difference at the structural level ('structural weights',  $\Delta\chi^2 p = .055$ ). The change in CFI was small ( $\Delta CFI < .01$ ), indicating the difference for the overall model was negligible (Byrne, 2010; Cheung & Rensvold, 2002). However, of most interest were differences in specific paths between different antecedents of development self-efficacy and self-efficacy itself.

To identify whether the hypothesised relationships were significantly different, the pairwise parameter comparisons (critical ratios) were inspected. Two paths were found to exhibit statistically significant differences with a critical ratio (cr) value  $> 1.96$ . These paths were perceived manager support and development-self efficacy,

TABLE 9: FIT STATISTICS FOR MODERATED STRUCTURAL MODEL

Model Description	N	$\chi^2$	df	p <	SRMR	TLI	CFI	PCFI	RMSEA	90% CI
Males	442	1807.7	927	.001	0.07	.91	.92	.86	.05	.043 - .050
Females	375	1846.1	927	.001	0.11	.91	.91	.85	.05	.048 - .055

TABLE 10: FIT STATISTICS FOR NESTED MODEL COMPARISONS

Model Description	N	$\chi^2$	Df	p <	$\Delta\chi^2, p =$	SRMR	TLI	CFI	PCFI	RMSEA	90% CI
Configural Model (unconstrained)	817	4038.3	1860	.001	-	0.11	.89	.90	.84	.04	.036 - .040
Measurement Weights	817	4071.7	1893	.001	.447	0.11	.89	.90	.86	.04	.036 - .040
Structural Weights	817	4092.4	1905	.001	.055	0.11	.89	.90	.86	.04	.036 - .040

and perceived co-worker support and development self-efficacy. An inspection of the standardised path coefficients revealed that perceived manager support for learning predicted development self-efficacy for males ( $\beta = .18, p < .01$ ), but not for females. Conversely, perceived co-worker support predicted development self-efficacy for females ( $\beta = .17, p < .001$ ), but not for males. Gender did not moderate the relationships between other sources of development self-efficacy and self-efficacy ( $cr < 1.96$ ).

The remaining paths in the model were also inspected to determine whether there were any other differences between males and females that had not specifically been hypothesised. This revealed one further path as non-invariant: perceived organisational support as a predictor of career-job congruence. This path was statistically significant for both males ( $\beta = .48, p < .001$ ) and females ( $\beta = .63, p < .001$ ).

### 5.5.2 Cross-Validation

A further and final step was undertaken to determine whether the differences found in the first model could be replicated in a hold-out sample. As research method experts recommend samples of  $n = 400$  as optimal for conducting SEM analyses (Jackson, 2001; Kline, 2005), a sample comprising approximately 400 male and 400 female participants was desired for the analysis. To achieve this, sample 1 ( $n = 500$ ) and sample 3 ( $n = 393$ ) were combined, resulting in a total sample of  $n = 893$  (males  $n = 497$ , females  $n = 396$ ). A summary of the fit statistics and nested model comparisons are presented in Table 11 and Table 12 respectively (page 141). A complete list of parameter estimates and standard errors are presented in Appendix J (page 273).

The results indicated a statistically significant difference at the structural level ('structural weights',  $\Delta\chi^2 p = .002$ ), and a negligible change in CFI ( $\Delta CFI < .01$ ),



indicating variance in the model. Three paths were found to exhibit statistically significant differences ( $cr > 1.96$ ). However, only one of the previously variant paths was supported: perceived organisational support as a predictor of career-job congruence. This path was significant for both males ( $\beta = .57, p < .001$ ) and females ( $\beta = .30, p < .001$ ). The two other paths that were found to be non-invariant were personal improvability beliefs as a predictor of attitudes to continuous learning, and career-job congruence as a predictor of intentions to participate. These paths were statistically significant for both males ( $\beta = .44, p < .001$ ;  $\beta = .37, p < .001$  respectively) and females ( $\beta = .34, p < .001$ ;  $\beta = .20, p < .001$  respectively).

In contrast to the previous model, the differences for perceived manager support and perceived co-worker support as determinants of development self-efficacy were not replicated. The results from these analyses, along with their implications for scholars and practitioners, are discussed in the following chapter.

TABLE 11: FIT STATISTICS FOR CROSS-VALIDATION OF MODERATED STRUCTURAL MODEL

Model Description	N	$\chi^2$	df	p <	SRMR <sup>1</sup>	TLI	CFI	PCFI	RMSEA	90% CI
Males	497	1718.3	927	.001	-	.93	.94	.84	.04	.038 - .045
Females	396	1722.2	927	.001	-	.91	.92	.82	.05	.043 - .050

<sup>1</sup> SRMR was unable to be calculated due to a small amount of missing data in the recombined cross-validation sample (sample 1 + sample 3).

TABLE 12: FIT STATISTICS FOR CROSS-VALIDATIO OF NESTED MODEL COMPARISONS

Model Description	N	$\chi^2$	df	p <	$\Delta\chi^2, p =$	SRMR <sup>1</sup>	TLI	CFI	PCFI	RMSEA	90% CI
Configural Model (unconstrained)	893	3440.6	1854	.001	-	-	.92	.93	.83	.03	.029 - .033
Measurement Weights	893	3471.5	1888	.001	.621	-	.92	.92	.85	.03	.029 - .032
Structural Weights	893	3659.4	1945	.001	.002	-	.92	.92	.87	.03	.030 - .033

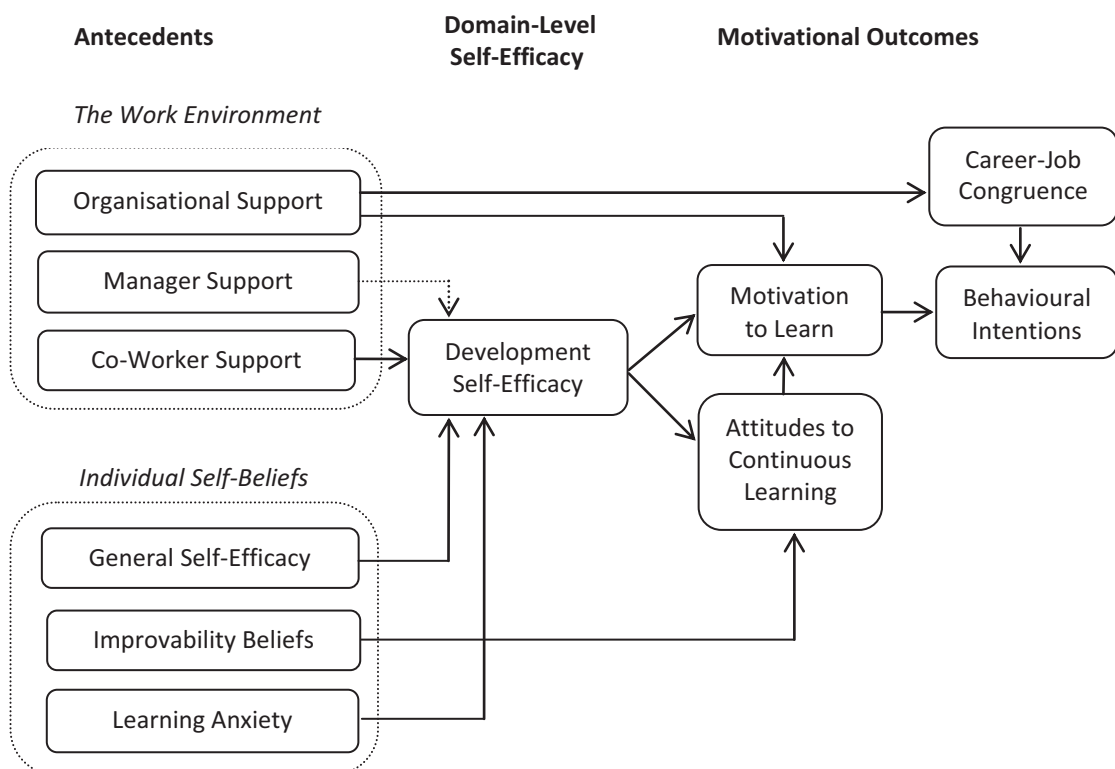
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## CHAPTER 6: DISCUSSION

### 6.1 OVERVIEW

This study set out to examine three main sets of relationships: first, the influence of individual and work environment factors on younger workers' development self-efficacy beliefs; second, the influence of development self-efficacy, the work environment and self-beliefs on attitudes and motivation; and third, motivational factors and job beliefs as determinants of young people's intentions to participate in development activities. These relationships are shown in Figure 8 below.

**FIGURE 8: A MODEL OF LEARNING & DEVELOPMENT FOR YOUNGER WORKERS**



Overall, the study found that development self-efficacy plays a central mediating role between the work environment and individual self-beliefs and motivational aspects of the development process. Specifically, younger worker's development self-efficacy beliefs mediated the relationship between their general self-efficacy

beliefs, learning anxiety and perceived support from co-workers and their attitudes to continuous learning and motivation to learn.

The study also found that improvability beliefs were directly related to young people's attitudes to continuous learning. In addition, young people's perceptions regarding the organisation's support for development were directly related to their motivation to learn and career-job congruence beliefs. Motivation to learn and career-job congruence in turn both directly influenced the intentions of younger workers to participate in development activities.

These findings are discussed in more detail in this chapter in four sections. First, section 6.2 discusses the relationships between each of the key variables examined in the model beginning with the sources that influence younger workers' development self-efficacy beliefs, followed by the factors that influence attitudes to continuous learning, motivation to learn and behavioural intentions; three important motivational components of the development process. This section also addresses the differences found in some relationships between males and females. Next, section 6.3 discusses the main findings from the study with regards to the implications of these and recommendations for the practice of human resource development in organisations. The final two sections address a number of limitations and opportunities for future research arising from the study.

## **6.2 A MODEL OF LEARNING AND DEVELOPMENT FOR YOUNGER WORKERS**

### **6.2.1 Factors that Influence Development Self-Efficacy Beliefs**

In regards to the first set of relationships, the study found that general self-efficacy beliefs, learning anxiety and perceived co-worker support influenced young people's development self-efficacy beliefs. Of these antecedents, general self-efficacy had the strongest effect on development self-efficacy. The findings suggest

that younger workers who have a high level of confidence in their ability to succeed across a variety of areas of life, who are not beset by anxiety in learning situations, and who perceive their work colleagues as supporting their development are more likely to believe in their ability to successfully learn and develop new skills or knowledge at work. These findings clarify the factors that influence the learning-related self-efficacy beliefs of younger workers. In addition, they provide support for a number of theoretical relationships that have not previously demonstrated in the HRD literature.

First, the findings provide support for suggestions that domain-level self-efficacy beliefs are informed by various internal (individual) and external (environmental) factors (Eden, 2001; Gist & Mitchell, 1992; Maurer, 2002). Previously, scholars have paid attention to the four primary sources of self-efficacy beliefs, primarily at the task-specific level (Bandura, 1997; Creed, et al., 2001; Wolfe, et al., 1998). By contrast, relatively little attention has been paid to internal and external sources of information which act as secondary cues of self-efficacy beliefs in relation to learning and development, at either task- or domain-level. This study extends this area of literature by showing that, for younger workers, development self-efficacy beliefs are informed predominately by internal factors (specifically, their global self confidence and learning anxiety) but also by a specific external factor: co-worker support for employee development.

Further, the findings provide evidence for the hypothesised, but previously unsupported, relationships between general self-efficacy and anxiety and development self-efficacy as a domain-level belief. That general self-efficacy was significantly and strongly related to development self-efficacy confirms suggestions that an individual's global self-confidence is an important indicator of their confidence for succeeding in different domains of functioning (Gibbons & Weingart, 2001; Schyns & von Collani, 2002; Woodruff & Cashman, 1993). Previously, general self-efficacy had been found to influence normative development self-efficacy but there had been no support for a relationship with absolute self-efficacy (Maurer,

Weiss, et al., 2003). This study is able to confirm that general self-efficacy influences absolute (task-referenced) development self-efficacy beliefs. The more confident one is of succeeding in life generally the more confident they will be for developing new skills and knowledge in work contexts. Thus, the study provides further support for the empirical distinction of general and domain self-efficacy.

The study also demonstrates the utility of general self-efficacy as a global construct which has been contested by some researchers (Bandura, 1997; Stajkovic & Luthans, 1998). The findings suggest that domain and general efficacy beliefs are both important for understanding younger workers' motivation and participation in development activities. Although general self-beliefs had the greatest impact on development self-efficacy, it is not the only source that influences these domain-level beliefs. This information may help organisations wishing to employ younger workers who are likely to be actively engaged in skill development and to focus development efforts on those who may benefit the most from these opportunities.

Anxiety was also found to have a significant negative impact on young people's confidence for learning and development. This finding further supports previous research on the debilitating effect of anxiety on employee learning and development through its effects on self-efficacy (Bandura, 1997). Individuals who are beset by high levels of anxiety in learning situations are less confident that they can successfully learn new skills and may avoid pursuing or engaging in learning opportunities. Research also shows that anxiety also affects learning outcomes such as declarative knowledge, skill acquisition and reactions to training (Colquitt, et al., 2000) by interfering with cognitive and self-regulated functioning (Zimmerman, 1989). A high level of negative arousal undermines a person's use of meta-cognitive control processes thus reducing their ability to process new material or information. Further, anxiety diminishes goal setting behaviours and motivation by adversely affecting a person's perceived control over a particular situation (Zimmerman, 1989).

Although anxiety has been demonstrated as a source of task-specific self-efficacy information (Colquitt, et al., 2000; Compeau & Higgins, 1995), its relationship with domain-level self-efficacy belief has received less attention. There is some evidence that anxiety is related to domain-level beliefs, for instance, the social and academic self-efficacy beliefs of children and adolescents (S. L. Anderson & Betz, 2001; Usher & Pajares, 2006). However, only one study has previously examined anxiety as a source of the development self-efficacy beliefs, but found it did not predict either task-referenced or normative self-efficacy beliefs (Maurer, Weiss, et al., 2003).

The differences between the findings from Maurer et al's (2003) study and the present study suggest that anxiety may be more debilitating for younger workers than for more established employees. For younger workers, anxiety appears to be a salient source of learning-related efficacy judgments. By contrast, as Maurer et al (2003) suggested, feeling anxious about learning may not be sufficient for more established employees to avoid participation in learning activities or to doubt their ability to succeed in such situations. That anxiety is significantly related to young people's self-efficacy beliefs suggests more attention is needed to understand how anxiety may be reduced in order to enhance the development of these employees.

Perceptions of co-worker support for learning and development were also significantly related to young people's development self-efficacy beliefs. This finding confirms suggestions that work colleagues are an important source of self-efficacy information (Maurer, 2001, 2002), a finding that previously lacked empirical support. Other studies have highlighted the importance of work colleagues in facilitating the development of younger workers (E. Smith, 2002; A. Taylor, 2002), and employees generally (Ellinger & Cseh, 2007; Hughes, 2004), but have not examined their impact on development self-efficacy beliefs. Only one previous study had included co-worker support as a dimension of the work environment, but did not support a relationship between aggregate work support and either absolute (task-referenced) or relative (peer-referenced) development self-efficacy (Maurer, Weiss, et al., 2003). Another study found that work environment (as an aggregate



construct) was related to learning self-efficacy, but did not include co-worker support as a dimension of this environment (Tracey, et al., 2001). The findings from this study indicate that co-workers influence novice employees' confidence for learning by providing guidance and advice in learning situations, encouraging their peers to persevere if they are finding things difficult and to believe they are capable of learning and developing new skills and knowledge.

Contrary to expectations, support from managers had little impact on young people's development self-efficacy beliefs. In the model testing process, manager support was weakly related to development self-efficacy, but this relationship was not sustained in the cross-validation procedure. This finding is surprising given that previous studies have identified managers as important sources of learning for novice workers (E. Smith, 2002; A. Taylor, 2002).

One reason that managers may not influence young peoples' self-efficacy beliefs may be their lack of physical and temporal proximity. In many work situations, managers are physically located further away from the individual's work station. This may make it difficult for employees to approach their manager when they need help, particularly if it is needed straight away. Managers may also be perceived as being too busy or uninterested in providing training or support unless it is important. By contrast, because colleagues often work closely alongside or nearby one another, often on similar tasks, employees may be more likely to ask each other for advice or help with routine or non-urgent activities.

Additionally, some researchers have suggested that managers influence skill development directly by providing opportunities and resources needed for participation, rather than through cognitive or motivational aspects of the development process (for example, self-efficacy or motivation) (Gibb, 2003; Hughes, 2004; Tharenou, 2001). There was some evidence that the relationships between manager and co-worker support and self-efficacy may differ for males and females. However, these effects were modest and were not replicated in the cross-validation

analysis. The potential moderating effect of gender on the development process is discussed more in section 6.2.4 of this chapter.

Overall, the findings indicate that the development self-efficacy beliefs of younger workers are influenced by information gained from both external and internal cues, although internal cues have a greater effect on these beliefs. While internal and external cues have also been shown to be related to the learning self-efficacy beliefs of established employees, the relevance of specific cues appear to differ for these groups. For instance, while general self-efficacy, anxiety and co-worker support all predicted younger workers' development self-efficacy beliefs, these were not found to be significant sources of self-efficacy for more established employees (Maurer, Lippstreu, et al., 2008; Maurer, Weiss, et al., 2003).

Notwithstanding the importance of internal factors, there was also some evidence that the work environment is a source of development self-efficacy beliefs. Previously there has been mixed support for the work environment as a determinant of learning-related self-efficacy beliefs with some studies supporting this relationship (Tracey, et al., 2001) but not others (Maurer, Lippstreu, et al., 2008; Maurer, Weiss, et al., 2003). One reason the work environment – specifically, support from co-workers – may be more relevant to the self-efficacy beliefs of novice workers is the responsiveness of individual characteristics at younger ages (Arnett, 2000). While there is substantial evidence for the malleability of characteristics at younger ages (Caspi & Roberts, 2001; Roberts & DelVecchio, 2000; Roberts, et al., 2006; Visser & Krosnick, 1998), few scholars have examined the extent to which learning-related beliefs, attitudes or values may be influenced by an organisation's learning environment. This study provides some support for the work environment as an antecedent of self-efficacy beliefs for younger workers. Moreover, it clarifies which aspects of the work environment are most salient to these employees.

Another reason for the mixed findings regarding the relationship between the work environment and development self-efficacy beliefs may be the approach taken by some researchers in combining aspects of the work environment to form an aggregate construct (Maurer, Lippstreu, et al., 2008; Maurer, Weiss, et al., 2003; Tracey, et al., 2001). Thus, the current study illustrates the importance of disaggregating work environment variables in order to clarify which aspects of this environment have the greatest impact on self-efficacy beliefs.

In summary, the findings clarify which individual and environmental factors have the greatest influence on the development self-efficacy beliefs of younger workers. They also provide some support for suggestions that individuals weight sources of information differently in forming efficacy beliefs (Bandura, 1997; Eden, 2001; Gist & Mitchell, 1992; Mitchell, et al., 1994). One factor that may explain these effects is the life-stage of employees. The importance of distinguishing between developmental cohorts is, therefore, crucial for understanding and maximising the development of employee capability.

### **6.2.2 Factors that Influence Attitudes and Motivation**

The second set of relationships examined was the influence of individual and contextual variables on younger workers' attitudes to continuous learning and motivation to learn. The results showed that individuals who believe they are able to improve their skills and knowledge and are confident they can successfully learn new skills have more positive attitudes towards continuous learning. Workers who view continuous learning as desirable, are confident in their ability to learn new skills and who perceive their organisation as being supportive of their development are more motivated to pursue and take up learning and development opportunities. These findings suggest that cognitive, attitudinal and motivational constructs each have an important role in the development process and, together, are indicative of a young persons' tendency to engage in work-related learning and development; that is, their 'orientation to learn' (Maurer, 2002).

The findings also extend the broader HRD literature in a number of ways. First, they provide empirical support for distinguishing between three important learning-related evaluations: development self-efficacy, continuous learning attitudes and motivation to learn. Scholars have suggested these cognitive and affective evaluations are not only related but influence one another, but had not empirically supported these relationships simultaneously (Carlson, et al., 2000; Fecteau, et al., 1995; Rowold, 2007). The findings from the present study support these suggestions by demonstrating these learning-related evaluations are strongly related and interact to influence younger workers' engagement in learning behaviours. Specifically, self-efficacy for learning and development influences attitudes to learning; and development self-efficacy and learning attitude both directly influence learning motivation.

Previous studies have shown that self-efficacy influences affective evaluations including motivation (Tracey, et al., 2001) and attitudes to learning (Maurer, Lippstreu, et al., 2008; Maurer, Weiss, et al., 2003), and that attitudes influence motivation (Carlson, et al., 2000). However, because researchers have tended to examine self-efficacy's relationship with attitudes and motivation separately, the triadic relationship between these constructs was not well understood. Carlson et al (2000) included all three constructs in their study, but found that training self-efficacy was not directly related to either attitudes or motivation. The lack of support for the relationships in their study may have resulted from their conceptualisation of self-efficacy ('training' self-efficacy) or the small sample size ( $N = 158$ ). Because efficacy beliefs can vary across domains of functioning, as well as tasks within those domains, it is possible that employees' confidence in formal training situations may differ from their confidence for succeeding in less formal and more diverse learning or development situations. Indeed, because training is a specific type of development activity it may be better conceptualised as an activity-specific or sub-domain belief as some have done (Colquitt, et al., 2000; Guthrie & Schwoerer, 1994) rather than as a domain-level belief as others have done (Chiaburu & Lindsay, 2009; Schwoerer, et al., 2005).

In sum, the significance and strength of the relationships between young people's self-efficacy beliefs, learning attitudes and motivation found in the present study clarify the contribution of each to the development process and confirm the value of including both cognitive and affective evaluations in future studies.

A second important finding from this part of the model is the influence of specific individual beliefs and aspects of the organisation's learning environment on young people's learning-related attitudes and motivation: two important components of their 'orientation to learn'. In addition to development self-efficacy, improvability beliefs directly influenced young people's attitudes to continuous learning. When workers believe their skills and knowledge are able to be developed, and when they are confident they can succeed in doing so, they are more likely to view continuous learning as a desirable activity.

The relationship between a person's beliefs about the improvability of skills and their attitudes to continuous learning has been suggested by self-efficacy experts (Bandura, 1997), but has not been fully explored by HRD scholars in relation to either adult or younger populations. A previous study (Maurer, Weiss, et al., 2003) found that the beliefs about personal learning qualities of established employees were indirectly related to their attitudes towards learning through their development self-efficacy beliefs. In contrast, the current study found that younger workers' improvability beliefs were directly related to their attitudes to learning. This finding provides further support for the suggestion that life-stage may be an important factor in understanding the development process.

The strong relationship between improvability beliefs and learning attitudes observed in the present study may also explain differences in the learning-related attitudes and aspirations of young people found in a recent longitudinal study (Vaughan, 2010; Vaughan, et al., 2006). Using a qualitative method of enquiry, Vaughan and colleagues' study examined the experiences of over 100 young New Zealander's over a five year period as they transitioned from school into the

workforce. The focus of their research was on understanding the meaning young people attached to career and their experiences of different transition pathways, thus it did not specifically explore how or why young people's attitudes to learning varied. However, a number of findings from their study provide insights into why such differences may exist. In particular, their findings indicate that young people who had poor experiences of learning at school chose career pathways that were less prestigious or required lower educational qualifications, while those who reported positive experiences at school were engaged in higher status pathways and had more positive attitudes towards continuous learning.

Other studies have found that a person's early experiences of learning, particularly in their family and school environments, has a significant impact on their beliefs about their capability as a learner and their confidence for succeeding in learning situations (Bandura, 1997; Dweck, 2002; Schunk & Meece, 2006). Young people who have had poor experiences of learning at school, or have had little support or encouragement from their family, are more likely to believe that ability is innate or fixed thus holding an 'entity' theory of ability (Dweck, 2002). Entity theorists tend to pursue performance goals and to avoid situations in which they may be seen as being incompetent (Colquitt & Simmering, 1998; Dweck & Leggett, 1988). In contrast, those who believe that abilities can be improved (thus, holding an incremental view of ability) are more likely to pursue learning goals, to be confident in their ability to learn and to view learning and development as beneficial (Dweck, 2002; Maurer, Lippstreu, et al., 2008). Although ability conceptions become more stable with age, they are responsive to change and may be influenced through strategies such as cognitive priming (Martocchio, 1994; Thompson & Musket, 2005; Wood & Bandura, 1989a).

As discussed, the relationship between improvability beliefs and attitudes found in this study provides further support for the suggestion that life-stage is an important factor in understanding the learning orientation of employees. It is also possible, however, that these differences may relate to the conceptualisation of this learning-

related belief rather than an individual's life-stage. For instance, Maurer et al (2003) defined 'personal learning qualities' as an individual's belief about the extent to which they possessed the qualities needed to learn, grow and develop in their career. By contrast, 'personal improvability beliefs' were defined in the present study as an individual's belief about whether their work-related skills and knowledge *could* be improved, not whether they believed they *have* the qualities needed to learn or improve their skills. In this way, improvability beliefs more closely reflect Dweck and colleagues' (Dweck, 1999, 2002) 'ability conceptions' construct (that is, implicit theory of self) than Maurer and colleagues' 'perceived learning qualities' construct.

Although the distinction may be subtle, it is plausible for an individual to believe their skills, knowledge and abilities are malleable (improvability beliefs), but for them to doubt whether they have the qualities needed to develop their skills and knowledge (learning qualities). Consequently, it would be useful for future studies to examine whether employees of different ages perceive these learning-related beliefs as being conceptually distinct. If so, investigating the relative importance of these beliefs to the learning-related self-efficacy beliefs and attitudes of different development cohorts would also be valuable.

Nonetheless, that improvability beliefs were found to be directly related to young people's learning attitudes highlights the importance of these beliefs in understanding young people's readiness to learn. Young people who believe their skills and knowledge can be improved are more likely to view on going learning and development as a desirable activity, and to actively seek out and engage in development activities. This finding has potential implications for organisations when selecting employees for training or development activities. Ascertaining an employee's beliefs about the malleability of their skills, knowledge and abilities would help organisations select individuals who are likely to gain the most from investments in their development. In addition, because conceptions of ability are amenable to influence (Martocchio, 1994; Wood & Bandura, 1989a), organisations

may wish to look at ways of fostering young people's beliefs about the extent to which different skills and abilities can be improved.

Given the relevance of improvability beliefs to both the learning process and its associated outcomes, two avenues seem worth exploring: first, how novice workers' experiences of school influence their beliefs about the improvability of skills; and second, how these beliefs may be enhanced in organisational settings to maximise employee's ongoing engagement in development opportunities.

A third important finding from this part of the model is the influence of perceived organisational support on young people's motivation to learn. A person's desire to seek out learning and development opportunities is influenced not only by their confidence for learning new skills and continuous learning attitudes, but also by their perceptions of the organisation's support for employee development. Despite agreement about the importance of learning environments in facilitating employee engagement in development activities (Ellinger & Cseh, 2007; Maurer & Tarulli, 1994; Noe & Wilk, 1993), the relationship between perceived organisational support and learning motivation with either mature (Tharenou, 2001) or novice workers has received scant attention. This study extends Tharenou's (2001) findings to younger workers; that is, that a person's perceptions regarding the organisation's support for learning and development influences their desire to learn.

In view of this, it would be advantageous for organisations to review their commitment to employee development and to examine how this is communicated across the organisation and perceived by employees. A critical time for communicating the organisation's commitment to learning and development is during the induction of new recruits. However, development opportunities are not always evenly distributed to employees. Research shows that employees with higher levels of skills, qualifications and occupational status tend to have more opportunities for training and development while those lower in the organisational



hierarchy are often overlooked (Bryson, et al., 2006; Rainbird, 2000). Consequently, organisations may need to examine the availability of development opportunities, particularly to new and younger employees who tend to hold less skilled and lower status roles.

Although organisational support had a strong and direct effect on young people's motivation to learn, manager and co-worker support had no effect. This contrasts with findings in studies of more established employees which show significant, although small, relationships between manager and co-worker support with motivation (Chiaburu & Marinova, 2005; Fecteau, et al., 1995; Switzer, et al., 2005). It may be that support from managers and peers influences young peoples' motivation to learn through other means such as their beliefs about themselves as learners. It would be worthwhile exploring these relationships further to clarify the impact of managers and co-workers on young peoples' conceptions of ability, learning and motivation. These findings further confirm the importance of distinguishing between different types of support in order to understand how these influence specific aspects of the development process.

Fourth, the findings from this study clarify the role of domain-level self-efficacy in mediating the effects of certain individual and contextual factors on motivational aspects of the development process for younger workers. As discussed, development self-efficacy (as a task-referenced domain-level construct) was found to mediate the relationship between general self-efficacy, anxiety and co-worker support with both continuous learning attitudes and proximal learning motivation. This extends previous studies which have found direct relationships between general self-efficacy and motivation (Switzer, et al., 2005), and between training self-efficacy (as a domain construct) and motivation (Chiaburu & Marinova, 2005), but have not demonstrated the mediating role of development self-efficacy in these relationships. There is some evidence that 'relative' (peer-referenced) self-efficacy for development mediates the relationship between general self-efficacy and learning attitudes (Maurer, Weiss, et al., 2003); however, no effects were found for

‘absolute’ (task-referenced) self-efficacy in that study. The findings from this study clarify the mediating role of absolute self-efficacy in the development process in the context of younger workers. In addition, they confirm that general and domain-level self-efficacy beliefs are both highly relevant for understanding younger workers’ orientation to learn.

Taking into account the mediating role of development self-efficacy, the findings suggest that an individual’s beliefs about their ability to succeed in life generally, their beliefs about the improvability of skills and knowledge, their confidence for learning new skills, and their perceptions of support from their organisation and co-workers all significantly influence their desire to engage in continuous learning and to seek out learning opportunities.

### **6.2.3 Factors that Influence Developmental Intentions**

The third main set of relationships examined in the study relates to the factors that influence younger workers’ intentions to participate in development activities. The results showed that workers who believe their job is relevant to their career interests and are motivated to seek out learning opportunities are more likely to engage in voluntary training or learning activities. Both constructs were strongly related to and accounted for similar amounts of variance in developmental intentions.

The study also found that an individual’s perceptions of organisational support significantly influenced their career-job congruence beliefs. Novice employees who perceive their organisation as supporting the development of their skills and knowledge are more likely to view their job as being relevant to their career interests and goals and to seek out and participate in voluntary development activities. Together, these findings provide a better understanding of the factors that directly and indirectly influence younger workers’ developmental behaviours.

Prior to this study, research had not explicitly examined either motivation to learn or career-job congruence as direct antecedents of behavioural intentions with either established or novice employees. Previous research has reported a link between attitudes to learning and intentions to participate (Maurer, Lippstreu, et al., 2008; Maurer, Weiss, et al., 2003), and between attitudes and motivation (Carlson, et al., 2000). However, there had been no examination of the interrelationships between learning-related attitudes, motivation and behavioural intentions.

The present study found that motivation to learn mediates the relationship between learning attitudes and developmental intentions. In view of this, organisations wishing to develop the skills and abilities of young people could look at ways of enhancing their motivation to learn. The findings from this study suggest that motivation is directly influenced by a person's development self-efficacy beliefs, attitudes to ongoing learning and, importantly, the organisation's supportive learning environments. By ensuring that learning and development is emphasised and communicated to employees through organisational policies and practices, organisations can directly enhance young people's desire to develop their skills and knowledge.

A second important finding was the strong relationship between younger workers' career-job congruence beliefs and their intentions to participate in development activities. This finding contributes to a fairly scant literature regarding the effects of job-related beliefs on behavioural intentions, thus extending our understanding of this aspect of the development process. Previous studies have found that job beliefs such as job involvement and work centrality are related to other components of the development process; for example, self-efficacy for learning (Maurer, Weiss, et al., 2003; Tracey, et al., 2001) and motivation to learn (Noe & Schmitt, 1986; Tracey, et al., 2001). However, few studies have examined or found a link between job beliefs and employee intentions to participate in development activities (Maurer & Tarulli, 1994). The present study found that, for younger

workers, a specific job belief – career-job congruence – is highly relevant to their learning intentions.

A further finding from this part of the model was the influence of organisational support on younger workers' career-job beliefs. Young people who perceive their organisation as valuing and supporting employee development are more likely to view their job as being relevant to their career interests and, in turn, to engage in development activities. Prior to this study, there had been some investigation of the influence of individual characteristics (for example, locus of control and age) on job beliefs (namely, work centrality and job involvement) (Maurer, Weiss, et al., 2003; Noe & Schmitt, 1986), but very little into the effects of the work environment on these beliefs.

A small number of studies of adolescent workers provide some indication that the work environment is related to work values, attitudes and motivation (Loughlin & Barling, 1998; Stern, et al., 1990); however these had not specifically examined the relationship between organisational support for development and career-job congruence beliefs. For instance, Loughlin and Barling (1998) found that young people's satisfaction with interpersonal relationships at work was directly (and negatively) related to their work-related cynicism. Stern and colleagues (1990) found that the opportunity to learn new things at work was positively associated with young people's work motivation. Their study also found that career-job congruence was related to motivation-to-do-good-work and negatively related to cynicism. This study draws together and extends these areas of scholarship by demonstrating that organisational support has a direct and significant impact on young people's work beliefs and in turn developmental behaviours. In particular, it highlights the importance of the work environment in enhancing the development of younger workers through their career-job beliefs.

The influence of organisational support on career-job congruence beliefs may be particularly important for novice workers. During the early stages of their working

lives, many young people do not have clear or well-formed career aspirations or goals, even after undertaking specific vocational training or further education (Boyd, et al., 2001; Lounsbury, et al., 2005). Moreover, in times of economic recession, many may take a job simply because of its availability rather than its relevance to their education or career goals (Arnett, 2004). In these situations, organisations may be able to help young people develop their occupational skills and interests by providing opportunities and support for skill development and growth. Such support may increase an employee's awareness about potential opportunities for career or occupational advancement. When organisations value, prioritise and emphasise employee development, young people are more likely to participate in development activities thereby improving their work-related skills, knowledge and abilities.

Career-job congruence beliefs may also be relevant for understanding the development of established employees. Changes in social, economic and work environment structures require employees to have high levels of skill and cognitive flexibility and therefore engagement in continuous learning (Hall, 2004; Maurer, 2001; Wrenn & Maurer, 2004). Changes in the work environment also mean that traditional 'organisational' careers which progress in a fairly predictable and linear manner are no longer the norm. Rather, career paths are increasingly flexible, changeable and diverse (Hall & Mirvis, 1995; Sullivan & Baruch, 2009).

This more contemporary type of career, referred to as a 'protean' or 'boundaryless' career, focuses on individual competencies and adaptability rather than a linear accumulation of knowledge and experience in a particular role (Wrenn & Maurer, 2004). Thus, continuous learning is also a key feature of modern careers. In addition, because career decisions are managed and driven by a person's values rather than the organisation (Hall, 2004), career paths are likely to involve physical movement across organisations (Arthur & Rousseau, 1996). While protean and boundaryless careers are distinct concepts, both reflect contemporary views of how

'career' is understood and pursued, particularly with regards to the employer-employee relationship (Peiperl & Baruch, 1997 cited in Sullivan & Baruch, 2009).

Although these types of careers are more common amongst younger generations (Dries, Pepermans, & De Kerpel, 2008), given the pace at which work continues to change, employees of all ages, including those in their mid and late working lives, need to be adaptable and engaged in ongoing learning (Maurer, 2001). Unlike younger workers who have just entered the workforce, more experienced employees have been significantly affected by organisational changes such as restructuring and downsizing. Economic and social changes may cause employees to reconsider their work and career options and to assess the relevance of their current job to their goals. Ultimately, these assessments may impact a person's work behaviours such as the pursuit of new skills and knowledge. It would therefore be valuable to explore whether career-job beliefs are also relevant to understanding the developmental intentions of more established workers.

#### **6.2.4 The Moderating Effect of Gender**

One goal of the study was to examine whether specific relationships differed for males and females, as some studies have found (S. L. Anderson & Betz, 2001; Usher & Pajares, 2006). The multi-group analysis procedure confirmed the equivalence (fit) of the overall model for both males and females, and provided some evidence of gender differences for a number of relationships. Although the importance of some differences was unclear, the findings suggest that males and females may experience some aspects of the development process differently.

One area of difference detected was the influence of manager and co-worker support on the development self-efficacy beliefs of males and females. The initial multi-group analysis found that manager support was related, albeit marginally, to males' development self-efficacy beliefs but was not related to females' beliefs. This analysis also showed that co-worker support influenced females' development

self-efficacy beliefs but did not influence males' efficacy beliefs. However, these effects were not replicated in the cross validation procedure. Nonetheless, the initial findings raise a number of potentially intriguing ideas.

If managers and co-workers do influence the self-efficacy beliefs of younger males and females differently, the capability of these employees may be developed more effectively through different sources of interpersonal support. For younger males, their confidence for successfully learning new skills and knowledge may be enhanced more by observing the learning behaviours or strategies of their managers or supervisors than by observing work colleagues. The impact of verbal or social persuasion on efficacy beliefs may also be greater for males when the persuader is their manager. Conversely, the self-efficacy beliefs of females may be more responsive to the influence of behavioural modelling and persuasion when the referent is their work colleague.

Self-efficacy experts suggest that vicarious learning and persuasion have a greater influence on self-efficacy beliefs when the role model or persuader is esteemed by or perceived as being similar in some way to the individual (Bandura, 1997). In view of this, it is possible that the differences detected may be explained by these factors. For instance, male employees may regard their managers more highly than their co-workers, thus support from managers would have a greater effect on their self-efficacy beliefs. Alternatively, the influence of managers on the self-efficacy beliefs of males may be a result of perceived gender similarity. Although this study did not ask participants to indicate whether their manager was male or female, research shows that the proportion of male managers tends to outweigh that of female managers, particularly in senior level positions, internationally and in New Zealand (Davidson & Burke, 2004; McGregor, 2002; Olsson & Pringle, 2004; Wirth, 2001). Thus there is a reasonable possibility that male employees were identifying with male managers.

Although these differences were not able to be replicated in the cross-validation procedure, they provide some support for the suggestion that sources of self-efficacy information may influence the self-efficacy beliefs of males and females in different ways. Given that such differences have potentially important implications for developing younger workers, these relationships merit further investigation.

The multi-group analysis also identified three other relationships that differed for males and females. These were between perceived organisational support and career-job congruence, improvability beliefs and attitude to learning, and career-job congruence and behavioural intentions. Both the initial and cross-validation procedures confirmed that gender affected the relationship between organisational support and career-job beliefs, although the practical importance of these differences is unclear. The first analysis indicated that while the influence of organisational support on career-job beliefs was significant for both males and females, the effect was stronger for females; however the cross-validation procedure showed the effect was stronger for males. Given the differences in the effect sizes was small and variable, the findings may be the result of sampling error.

Gender differences were also identified in the relationship between improvability beliefs and attitudes to continuous learning, and between career-job congruence and behavioural intentions. However, these differences were only detected in the cross-validation procedure. In both cases, the relationships were statistically significant for both males and females, although there was little difference in the effect sizes. Consequently, it is difficult to draw meaningful conclusions about the nature of these relationships or their implications for organisations.

Overall, there was some evidence of differences between males and females with respect to certain relationships. Although the practical significance of some of these differences was unclear, there is a reasonable basis to suggest males and females may have different experiences of aspects of the learning and development



process. Further examination of these relationships would help establish whether or not the effects detected in this study are genuine.

### **6.3 GENERAL DISCUSSION: IMPLICATIONS AND RECOMMENDATIONS**

#### **6.3.1 Developing Younger Workers**

The primary aim of this study was to develop and test a model of learning and development for younger workers in which development self-efficacy played a central mediating role. Overall, the model was supported as being a valid and reliable representation of the learning and development process as experienced by these employees. This process can be understood as a series of relationships between important cognitive and affective variables that young people's developmental behaviours which are influenced by aspects of the work environment and the individual (refer to Figure 8 on page 143 for a diagrammatic representation of these relationships). Given the importance of younger workers to an organisation's long-term sustainability and competitiveness, understanding the factors that directly and indirectly influence their development is a priority for scholars and practitioners. The findings from the study have a number of implications for developing the capability of younger workers.

First, the results suggest that a person's evaluations of them self and their beliefs about learning have a significant impact on their engagement in learning. Young people who are confident in the ability to success across a range of areas of life, believe that their skills and abilities are able to be improved and are confident they can successfully improve those are likely to seek out and participate in learning and development activities. In view of this, practitioners should pay attention to these beliefs when designing training or development programmes and selecting individuals to participate in these. Employees who have positive self-beliefs are more likely to benefit from learning and development activities than individuals who are weighed down by self-doubts or anxiety.

To increase the effectiveness of training for novice workers, organisations may also look at ways they can enhance a person's beliefs about them-self as a learner and their attitude to learning. Although general self-efficacy and improvability beliefs are believed to be fairly stable individual characteristics, a number of studies have shown these to be amenable to influence through the use of cognitive and behavioural modelling and verbal persuasion (Eden & Aviram, 1993; Eden & Kinnar, 1991; Martocchio, 1994; Schwoerer, et al., 2005; R. E. Smith, 1989). Because an individual's assessments of their ability to succeed in different situations (their general self-efficacy beliefs) are an integral part of the development process, any improvements to these are likely to have a positive effect on an individual's confidence, interest and engagement in learning.

When assessing an individual's beliefs about the improvability of skills, knowledge and abilities, it may also be worthwhile to distinguish between different types of skills, knowledge or abilities. Recent research suggests that employees believe some skills are more malleable than others (Maurer, Wrenn, et al., 2003). Maurer and colleagues' (ibid) study found that organisational and verbal characteristics (for example, organising, planning, oral and written communication skills) were seen as being most malleable; cognitive/technical skills (for example, mathematical reasoning and data analysis) as being moderately malleable; and personal and entrepreneurial skills (for example, work standards, integrity, innovation and risk taking) as being least malleable. Understanding which skills employees believe are most malleable may help organisations target interventions to maximise employee engagement in learning and skill development. It may also be advantageous to look at ways of increasing an individual's beliefs about the improvability of different types of skills.

Effort and perseverance are also important to the learning process. Because self-efficacy is positively related to effort (Latham & Pinder, 2005), increasing a person's self-efficacy beliefs can be expected to increase their level of effort and perseverance when learning becomes difficult. This may be particularly important

for employees who have had unsuccessful experiences of learning in the past, particularly in school environments or in academic or formal learning situations. Given that support from co-workers has a direct relationship with younger workers' development self-efficacy beliefs, equipping work colleagues to support and encourage one another in the learning process may enhance an individual's effort in learning situations.

While a high level of self-efficacy is generally regarded as being beneficial for employee behaviour, unrealistically exaggerated levels of confidence may be detrimental to the learning process (Taylor, 1989 cited in Bandura, 1995; S. D. Brown & Lent, 2006). Today's generation of young people ('Millennials') are recognised as having particularly high levels of confidence causing many to believe they have little need for skill development (Lancaster & Stillman, 2002). The importance of such insights is highlighted in the organisational literature: when individuals see the benefits of training they are more motivated to learn and participate in development activities (CIPD, 2002; Tharenou, 2001). In view of this, it would be worthwhile engaging employees with high levels of confidence in self-reflection activities to help them assess their strengths and weaknesses and identify any opportunities for skill development as a way of increasing their engagement in learning. These activities may also inform an employee's expected outcomes of different learning activities and increase their beliefs about the utility of training for their job, occupation or career, as well as helping them set appropriate learning goals (Bandura, 1986; N. Fouad & Guillen, 2006; Maurer, Lippstreu, et al., 2008; Noe & Wilk, 1993).

The extent to which self-efficacy beliefs can be modified may depend on the initial level of the belief. Research shows that self-efficacy is most amenable to influence when initial levels of self-beliefs are low and when perceptions are inaccurate (Creed, et al., 2001; Gist & Mitchell, 1992; Saks, 1995). Other individual characteristics, such as achievement motivation, may also help predict an individual's responsiveness to efficacy enhancing interventions (Mathieu, et al.,

1993). However, there has been little examination of how high levels of self-efficacy may be lowered. This seems a useful area for further investigation, particularly given the high level of confidence held by young people both in this and other studies (Howe & Strauss, 2000).

The debilitating effect of anxiety on the development process for younger workers is also substantiated by the current study. Young people who are anxious about learning are less confident they can successfully develop new skills and knowledge and in turn are less inclined to participate in development activities. Consequently, it would be prudent to try and reduce employees' levels of anxiety in learning situations. Strategies that can be used to enhance self-efficacy beliefs can also be used to lower anxiety. For instance, successful experiences of learning new skills or knowledge, exposure to successful behaviours through role modelling and observation, and helping individuals to ascribe failures to situation factors rather than personal capability are potentially effective interventions (Bandura, 1997; Maddux, 1995). In addition, emphasising learning rather than performance goals, focusing on task-referenced rather than normative achievements, and encouraging learners to view mistakes as part of the learning process can also reduce an individual's concerns about learning (Ames & Archer, 1988; Maurer, 2001). Anxiety may also be reduced through systematic attempts to increase a person's conceptions of ability (Martocchio, 1994).

Second, the study corroborates the importance of the work environment for younger workers found in previous studies (E. Smith, 2003; A. Taylor, 2002; Vaughan, 2010). Moreover, the study extends this literature by demonstrating that different aspects of this environment affect the development process in different ways. Specifically, the findings suggest that organisational support influences younger workers' behavioural intentions through their motivation to learn and career-job congruence beliefs, while support from co-workers influences behavioural intentions through their confidence for learning.

The influence of an organisation's support for employee development on young people's behavioural intentions through their motivation to learn and career-job beliefs confirms the importance of supportive learning environments. There is general agreement that organisational values, policies and procedures have an important role in employee development; in particular, by influencing the amount and availability of resources needed by employees to engage in skill development activities (Maurer, 2002; Tannenbaum, 1997; Tracey, et al., 1995). However, few scholars have specifically examined how an organisation's support for development influences cognitive and affective components of the development process with either novice or experienced employees.

The present findings clarify and extend this area of knowledge by illustrating a direct relationship between organisational support and motivation to learn and career-job beliefs. When younger workers perceive their organisation as being supportive of learning and development they are more motivated to seek out learning opportunities and more likely to see their job as being relevant to their career goals. Together, these evaluations directly influence an individual's intentions to participate in development activities. An organisation's support for learning and development is, therefore, essential to a supportive learning environment and employee development.

Interpersonal relationships are also an important aspect of an organisation's learning environment. Research shows that a significant proportion of learning occurs alongside and through other people (Coetzer, 2007; Hughes, 2004). Thus, individuals do not learn in isolation but rather as part of a 'community of practice' (Billett, 2004; Fuller & Unwin, 2003; Garavan, et al., 2004; Lave & Wenger, 1991). Work colleagues are particularly important sources of informal learning for both experienced (Coetzer, 2007; Ellinger & Cseh, 2007; Hughes, 2004; Svensson, et al., 2004; Tannenbaum, 1997), and novice workers (E. Smith, 2003; A. Taylor, 2002; Vaughan, 2010).

Given the importance of colleagues for employee learning, organisations wishing to create an environment in which learning is prioritised and supported may need to look at how they can equip employees to support one another in the learning process. One technique that can be used to enhance employees' self-efficacy beliefs and reduce their level of anxiety is verbal persuasion; that is, encouragement, affirmation and cognitive priming (Bandura, 1997; Eden & Kinnar, 1991; Zeldin & Pajares, 2000). In addition, by participating in development activities themselves, co-workers act as role models of cognitive and behavioural strategies that may be effective in learning situations. The findings from this study indicate that these support mechanisms are related to younger workers' confidence for learning. Consequently, providing opportunities for employees to share in and facilitate one another's learning as part of their everyday work is a vital part of a positive learning environment (Vaughan, 2008).

Another way organisations can build supportive learning environments is through strategic recruitment. Recruiting employees who value learning means these employees are more likely to engage in learning, act as positive role models and to support the learning of others (Fuller & Unwin, 2004; Tannenbaum, 1997). Consequently, creating an environment that supports learning increases not only individual skills and knowledge but also increases collective capability and performance. Having a workforce that values and supports learning and is motivated to learn is essential for an organisation's ability to respond to changing work environments.

Research demonstrates that building supportive learning environments is beneficial both for organisations and individuals. For instance, supportive environments have been associated with increased employee performance, reactions to training and transfer of training (Colquitt, et al., 2000; Sonnentag, et al., 2004). Training, an integral part of a learning environment, has also been linked to increased individual job satisfaction, retention and productivity, as well as collective output, quality and customer satisfaction (Tharenou, Saks, & Moore, 2007). Investing in and supporting

employee development at an organisational level clearly contributes to the organisation's ability to succeed in an increasingly competitive world.

In view of these effects, organisations may wish to examine the extent to which learning and development is valued, emphasised and communicated through organisational policy and practice: key characteristics of supportive learning environments (Fuller & Unwin, 2004; Tannenbaum, 1997). However, research shows that employees do not all have the same level of access to training and development opportunities (Bryson, et al., 2006; Rainbird, Munro, Holly, & Leisten, 1999). In view of this, it would be prudent for organisations to examine the availability and distribution of such opportunities to ensure all employees are able to develop to their full potential.

Managers especially play a key role in governing employees' access to resources needed for skill development; thus acting as 'gatekeepers' of developmental opportunities and resources (Ashton, 2004). The values, attitudes and behaviours of managers can also have a powerful impact on whether learning is supported or discouraged within work teams, and whether employees are encouraged and empowered to support one another in the development process (CIPD, 2007; Coetzer, 2006b; Ellinger & Cseh, 2007; Tharenou, 2001). Consequently, organisations may need to examine the extent to which their managers provide their subordinates with both access to and support for skill development.

The findings from the study also signal the value of disaggregating aspects of the work environment for understanding its effects on the development process. As discussed, an approach taken by some scholars has been to combine different aspects of the work environment to form an overall 'work support' construct (Maurer, Weiss, et al., 2003; Tracey, et al., 2001). One of the disadvantages of this approach is the inability to examine the influence of specific aspects of support on an individual's cognitive and affective evaluations. As this study found, support from organisations, managers and co-workers influence the development of

younger workers in different ways and to different degrees. Aggregating variables may also explain why findings regarding the influence of the work environment on development self-efficacy beliefs in previous studies have been mixed.

Examining aspects of the work environment separately also produced a number of unexpected but potentially important findings. First, the findings suggest the influence of an organisation's learning environment, as conceptualised in the current study, on young workers' development self-efficacy beliefs may not be as significant as suggested. Indeed, only support from co-workers had a consistent, albeit modest, effect on these beliefs.

Second, the findings indicate that support from managers has little impact on the development process. This result was surprising given that other studies have found managers to be important sources of employee motivation (Chiaburu & Marinova, 2005; Fecteau, et al., 1995; Switzer, et al., 2005) and learning (Coetzer, 2006b; Ellinger & Cseh, 2007; Sonnentag, et al., 2004). As discussed, it is possible that managers influence young people's engagement in learning directly rather than through their cognitive or affective evaluations; a suggestion that may also be true for more experienced employees (Hughes, 2004; Tharenou, 2001). While there was some evidence that managers may influence the development self-efficacy beliefs of males, these effects could not be confirmed. In view of the unclear effects of managers on young people's confidence, motivation and engagement in learning, it would be valuable to explore these relationships further.

Third, that co-worker support was the only environmental factor to have a significant and consistent effect on self-efficacy indicates that some aspects of support are more relevant than others in informing young workers' self-efficacy beliefs. However, as the effect of this relationship was modest, the influence of the work environment on an employee's confidence for learning may not be as strong as previously thought.



In summary, the findings from this study clarify the mechanisms that underpin the development process for younger workers. An individual's beliefs about oneself and about learning, as well as support from their colleagues and organisation, all play an important role in their engagement in learning and development. The findings also show the importance of distinguishing between different aspects of the work environment for understanding the influence of each on the development of younger workers.

### **6.3.2 Younger Workers as a Distinct Group of Employees**

An important implication from this study is the value of examining younger workers as a distinct group of employees. An increasing body of research suggests that age is a critical factor which affects an individual's engagement in learning, the processes by which individuals learn, and the outcomes of training and development activities (Maurer, 2001; Sonnentag, et al., 2004; Warr & Birdi, 1998).

One group of employees that have received increasing attention by HRM and HRD scholars over recent years are older workers. As the population ages, particularly in developed countries, the workforce will increasingly comprise mature workers. This trend has implications for organisations in developing and maximising the potential not only of older employees, but also of younger workers. Research shows that, compared with younger workers, older workers take longer to process new information, require more time to complete training, find learning new tasks more difficult and, as a result, tend to participate less in voluntary development activities (see Sonnentag, et al., 2004; P. Taylor & Urwin, 2001). Although older workers may take longer to learn initially, when learning is self-paced or when special training is available, the performance of these employees is comparable to that of younger workers (Callahan, Dsk Kiker, & Cross, 2003; Noe, Tews, & McConnell Dachner, 2010; Sonnentag, et al., 2004).

In addition, older workers tend to participate in development activities less frequently than younger workers. Their level of participation is also affected by an individual's own beliefs about the decline of abilities and their confidence for learning new skills or knowledge (Maurer, Barbeite, Weiss, & Lippstreu, 2008; Posthuma & Campion, 2009; Sonnentag, et al., 2004; Warr & Birdi, 1998; Wrenn & Maurer, 2004). Negative stereotypes held by others about a person's ability to learn also adversely affect older workers' engagement in learning by limiting the provision of opportunities made available to these employees and negatively affecting a person's beliefs about their ability to learn (Posthuma & Campion, 2009; P. Taylor & Urwin, 2001).

These studies support the notion that age is a significant factor in the learning process and that specific learning strategies can be used to enhance learning. Younger workers are likely to learn and develop in different ways to their older colleagues, and may require different types of support, resources and information for developing their skills and abilities. However, as organisational researchers have tended to examine the learning process as a homogenous process, our understanding of how younger workers may be most effectively developed is limited.

Although the present study examined only the experiences of younger workers, the findings suggest that some factors may be more important for these employees than for more established workers. For instance, general self-efficacy, learning anxiety and perceptions of co-worker support were significantly related to the development self-efficacy beliefs of younger workers, but have not been found to be significant for established employees (e.g. Maurer, Weiss, et al., 2003). Other individual factors such as goal orientation, organisational commitment and job involvement may also be important sources of younger workers' development self-efficacy beliefs as demonstrated with more experienced workers (Maurer, Lippstreu, et al., 2008; Potosky & Ramakrishna, 2002; Tracey, et al., 2001).

In addition, young people's learning attitudes were found to be directly influenced by their improvability beliefs, while for mature employees this relationship appears to be mediated by development self-efficacy (Maurer, Weiss, et al., 2003). Organisational support was also directly related to young people's motivation to learn and career-job perceptions; relationships which have not been demonstrated for older employees. Further investigation would help clarify which characteristics are most important for different groups of employees, thus enabling organisations to develop employees of different ages more effectively.

Overall, the study confirms that supportive learning environments are important for developing younger workers. Importantly, it is the first to demonstrate co-workers as a source of development self-efficacy beliefs and organisational support as a source of learning motivation and career-job beliefs. These factors may also be relevant for understanding the mature workers' engagement in learning activities, although further investigation is needed to empirically establish such relationships.

### **6.3.3 Generational Differences**

In addition to age or life stage differences, young people's experiences of the development process may differ across generational cohorts. Over the last decade there has been interest in the differences between generational or 'birth' cohorts. A growing body of literature suggests that generational cohorts exhibit different work values and attitudes to previous cohorts at the same stage of life (Smola & Sutton, 2002). These differences are believed to be significantly related to the economic and social environments they encounter at different stages throughout life (Cennamo & Gardner, 2008; Smola & Sutton, 2002).

An obvious example is the impact of technology on individual, social and workplace functioning (Patterson, 2001). The current generation of younger workers have grown up in a world where technology such as computers, the internet and mobile phones are the norm. The prevalence of technology has had a significant influence

on the way young people communicate with each other, gain knowledge and share information, as well as their expectations for the use and integration of technology in various areas of life (Gardner & Eng, 2005; Tapscott, 2008). As a result, today's generation of younger workers have different expectations and different experiences of the learning process to previous and possibly future generations of younger workers.

At the time the present study was conducted (February to December 2008), participants were aged 16 to 24 years and had been born between 1984 and 1992. These individuals form part of a generational cohort referred to as 'Generation Y' (Gen-Y), the 'Millennials' and 'Nexters' (Cennamo & Gardner, 2008; Lyons, Duxbury, & Higgins, 2005; Smola & Sutton, 2002). Millennials have been described as being highly achievement-oriented individuals who view change as positive and desirable, who are enthusiastic about situations and assignments that provide opportunities for growth and learning, and who place a high value on education (Zemke et al, 2000, cited in De Hauw & De Vos, 2010; Lancaster & Stillman, 2002; Lyons, et al., 2005; Zemke, 2001). Studies of university students show that this generation prefers to work and learn in teams (Gardner & Eng, 2005), prefers visual and kinaesthetic styles of learning, and tend to look to seek help from their peers rather than teachers or others in authority (Manuel, 2002).

In general, the younger workers who participated in the present study exhibited characteristics consistent with those of Generation-Y or Millennials. The majority of participants believed that their skills and knowledge are able to be improved and were confident that they could successfully learn new work-related skills and knowledge. They were also confident in their ability to achieve broader life goals, viewed continuous learning as a desirable activity, and were motivated to seek out and participate in development activities.

As this study found, an individual's beliefs about oneself and about learning are highly relevant to their engagement in learning and development activities.

Individuals with a positive and robust sense of self-efficacy have higher aspirations, set more challenging goals and are more committed to achieving them, persevere in the face of difficulty and recover more quickly from setbacks, are better able to regulate stress and anxiety, and are less prone to depression (Bandura, 1995; Latham & Pinder, 2005; Lent, et al., 1994). There is also evidence to suggest that the innovators, high achievers and social reformers tend to have optimistic views of their sense of personal efficacy which enable them to exercise control over influential events (Bandura, 1997).

It is possible, however, that too much confidence may be detrimental to the development of capability. For instance, high levels of personal confidence may diminish a person's ability to evaluate their strengths and weaknesses in a critical manner. Inaccurate or weak personal insights may result in individuals believing they have little need to be taught new skills or knowledge and would gain little from participating in development activities. Too much confidence may, therefore, adversely affect both the process and outcome of learning making it difficult for organisations to engage employees in ongoing skill development. However, as long as self-beliefs are not unrealistically exaggerated, they help sustain the motivation needed for personal and social accomplishments, particularly in the face of difficulty (Bandura, 1997).

From a human resource management perspective, researchers have tended to focus on the impact of differences in work values on worker engagement, performance management and retention (Cennamo & Gardner, 2008; Lyons, et al., 2005; Smola & Sutton, 2002). By contrast, the impact of generational differences on employee learning and development has been largely ignored. There has been some empirical research on the work attitudes (Kowske, Rasch, & Wiley, 2010) and career perspectives of Millennials (De Hauw & De Vos, 2010; Dries, et al., 2008), and the implications for human resource management (Espinoza, Ukleja, & Rusch, 2010; Tulgan & Martin, 2001; Zemke, Raines, & Filipczak, 2000). However, there has been little empirical examination of these employees from an HRD perspective. This may

be due to the relatively short time Millennials have been engaged in the full-time workforce. Nonetheless, there is much to be learned about how this generation's experiences of learning at work and how their skills, knowledge and abilities may be most effectively developed.

In summary, two main factors emerge. First, the model of development proposed in this study may be limited to the experiences of the Millennial generation. Second, both developmental and generational factors are important for understanding the development of younger workers, and indeed all employees.

#### **6.4 LIMITATIONS**

While much care was taken to develop and conduct a robust study, a number of caveats need to be considered when interpreting the results. One important factor is the examination of structural relationships using cross-sectional data. The fairly recent development of and access to advanced statistical applications (such as structural equation modelling, 'SEM') has enabled researchers to explore more complex relationships than previously possible. In particular, these techniques enable researchers to test hypotheses and draw inferences about the nature of causal relationships; however, relationships are often explored using cross-sectional data, as in the current study. Accordingly, conclusions about the causal nature of contextual and individual factors that influence young people's engagement in development must be interpreted with caution. Nonetheless, the study identified a number of potentially important and previously unexamined relationships that help develop a more complete understanding of the development process for younger workers. Ideally, longitudinal research is needed to establish causality and mean-level changes over time.

As discussed in Chapter 4, a number of steps were taken to ensure good coverage of the target population and to maximise both the response rate and sample size. These resulted in a satisfactory response rate (40%) and a large sample ( $N=1738$ )

which enabled detailed examination of the data using a combination of exploratory, confirmatory and cross-validation analytical procedures. In regards to the sampling method, the use of a stratified sampling technique identified organisational and geographical areas in which the majority of full-time younger workers were located, and resulted in the selection of participants from four industries, six geographical locations, and organisations with more than 20 employees. However, this method of sampling meant that otherwise eligible individuals in industries such as education and agriculture, in small urban and in rural areas and in very small organisations were excluded from the study. To determine whether any differences existed between participants from different industries and organisational sizes, a thorough analysis of the data was undertaken and revealed no effects of practical significance. While there is little evidence to suggest employees in these industries, geographical areas or organisations may have substantially different experiences from those in the current study, this is a possibility that must be considered.

Although the response rate was acceptable, non-response is a common limitation of survey-based research (Anseel, et al., 2010; Baruch & Holtom, 2008). Unfortunately, it is not possible to determine the characteristics of the employees who chose not to participate in the study or the reason for their non-response. Caution must therefore be exercised when generalising the results as these may not necessarily be true for all full-time younger workers.

A number of steps were also taken to reduce potential effects of common method bias (such as social desirability and acquiescence) associated with single-source self-report survey data. While the effects of method bias can be significant, for example, resulting in potentially misleading conclusions (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003; Schmitt, 1994), some experts believe they are often overstated (Spector, 2006). Nonetheless, as little is known about the extent to which responses were affected by these factors caution must be exercised in interpreting the bivariate and structural relationships between variables examined in the study.

A further consideration is the modest amount of variance accounted for in some dependent variables. For example, motivation to learn and career-job congruence were both strongly related to younger workers' developmental intentions, together explaining 20% of the variance in intentions. This suggests there may be other important factors that influence younger workers' behavioural intentions which were not examined in the current study. Although there has been relatively little examination of developmental intentions by HRD scholars, some studies have shown that prior participation is strongly related to intentions (Maurer, Lippstreu, et al., 2008; Maurer, Weiss, et al., 2003). Accordingly, including a measure of other factors, such as developmental behaviours, in future studies would be worthwhile.

The modest amount of variance explained in developmental intentions may also relate to the measure of intentions used in the current study. A measure was adapted for this study from previous research (Maurer, Weiss, et al., 2003) which attempted to capture a wide range of activities that younger workers may undertake in developing their work-related skills and knowledge. However, exploratory analyses indicated the structure of the data was unclear. Inspection of the items revealed that some activities were peculiar and may have been irrelevant to many employees; for example, attending a community or adult education course. The items selected for the SEM procedures reflected employee intentions to seek out and/or participate in predominately informal on-the-job learning activities such as training, guidance or advice from managers, peers or significant others in the workplace. It is likely however that a person's developmental intentions are much broader than those captured in this study. Although the internal consistency of the present measure was acceptable ( $\alpha = .76$ ), designing a more comprehensive instrument would be advantageous.

Similarly, organisational support was strongly related to career-job perceptions and accounted for 20% of the variance. While this is a significant relationship, it would be useful for future research to explore other environmental and individual factors



that may contribute to younger workers' perceptions regarding their job as a career-job during their early years in the workforce.

Another limitation of the study is the use of behavioural intentions as an indicator of young people's developmental behaviours. Although intentions have been shown to be strongly associated with subsequent behaviour (Maurer, Weiss, et al., 2003), including a direct measure of behaviour in future studies would help strengthen our understanding of young people's actual engagement in learning and development activities. It would also be useful to examine other factors that may affect young people's developmental behaviours, such as prior participation, perceived need for development and perceived valence or instrumentality of development activities (Maurer, Weiss, et al., 2003; Noe & Wilk, 1993; Tharenou, 2001).

In summary, while this study is not without limitations, the methods adopted resulted in a large and diverse sample of younger workers which allow for confidence in the findings.

### **6.5 AVENUES FOR FUTURE RESEARCH**

This study provides a better understanding of the developmental process of younger workers. Nonetheless, much remains to be learnt about young people's experiences of learning and development at work. Consequently, the findings from this study raise a number of opportunities for future research.

First, the results suggest that younger workers may learn and develop in different ways to more mature employees. In view of this, further exploration of the differences between developmental cohorts, for example, younger and older workers, would be beneficial. In addition, this study provided some support for the differential effects various internal and external sources of information have on an individual's self-efficacy beliefs (Gist & Mitchell, 1992; Mitchell, et al., 1994).

Identifying which internal and external (e.g. environmental) factors have the greatest influence on the learning-related beliefs, motivation and behaviours of different cohorts would enable organisations to develop the capability of employees in the most appropriate and effective way.

It would also be useful for future research to examine what types of support have the greatest impact on young people's self-efficacy beliefs. For example, is instructional support such as training or guidance more influential than verbal persuasion or emotional encouragement? It would also be useful to determine whether the influence of perceived support changes in relation to work group or organisational tenure. For example, does support have a greater impact on young people's self-efficacy beliefs during the first year of employment as they settle into new work roles or organisational settings and diminish thereafter, or does it continue to be important throughout their early years in the labour market? If the impact of support on self-efficacy is greater in the first year, organisations may wish to review their induction and development practices to ensure that the effects of these are maximised.

Given the limited findings in this study regarding the influence of managers on of younger workers' self-efficacy and motivation, further exploration of the role of managers in the development of these employees would also be beneficial. In fact, while previous studies have supported a relationship between manager support and learning motivation for established workers (Chiaburu & Marinova, 2005; Fecteau, et al., 1995; Switzer, et al., 2005), the effects have been modest. Thus clarification of the impact of managers on the learning-related evaluations of older employees' would also be valuable.

The importance of self-beliefs in the learning process suggests that it would be useful for research to explore the degree to which various beliefs may be enhanced in the work environment. Although regarded as relatively stable and enduring, general self-efficacy has been shown to change as a result of direct inducements

(such as cognitive priming and task exposure), in response to training, and indirectly over time (Eden & Aviram, 1993; Schwoerer, et al., 2005; R. E. Smith, 1989). There is also mounting evidence to suggest that self-efficacy beliefs are more susceptible to influence when initial levels are lower (Creed, et al., 2001; Eden & Aviram, 1993; Eden & Kinnar, 1991; Eden & Zuk, 1995; Pierce, Gardner, Dunham, & Cummings, 1993). Conceptions of ability (for example, improvability beliefs) have also been shown to be amenable to influence (Martocchio, 1994; Thompson & Musket, 2005; Wood & Bandura, 1989a). In addition, given the debilitating effect of anxiety on learning (Barbeite & Weiss, 2004; Chen, et al., 2000; Thatcher & Perrewe, 2002), it would also be useful to examine how young people's anxiety in learning situations may be lowered through relevant strategies.

Moderating these evaluations may be particularly important for young people who have had poor prior experiences of learning at school and may lack the confidence or inclination to develop to their full potential. Moreover, the malleability of individual characteristics at younger ages means that the beliefs, attitudes and values of younger workers may be more susceptible to influence than their older peers (Schwoerer, et al., 2005). An important area for future research therefore is examining how an individual's beliefs and attitudes about them self and about learning develop and change in response to different sources of influence during their early working life. Longitudinal studies would contribute greatly to a more complete understanding of the nature and strength of these relationships.

Organisations may be able to influence these important beliefs through targeted interventions such as guided personal mastery experiences and behavioural and cognitive modelling. Similarly, verbal persuasion and palliative methods such as positive self-talk and interpersonal support may also be effective strategies for enhancing self-efficacy and improvability beliefs and reducing anxiety (Bandura, 1997; Schunk & Meece, 2006; Wolfe, et al., 1998).

Identifying the significance of other individual characteristics and career-related variables in relation to younger workers would also be valuable. Learning goal orientation, conscientiousness, openness to experience and perceived need for development have been found to directly and indirectly contribute to the development self-efficacy beliefs of experienced workers (Maurer, Lippstreu, et al., 2008; Maurer, Weiss, et al., 2003; Potosky & Ramakrishna, 2002). Including a broader range of attributes such as these in future research would contribute to a more complete understanding of their role in enhancing younger workers' readiness to learn and participation in development activities.

In addition, while a link was found between career-job congruence and behavioural intentions in the current study, other job beliefs may also influence younger workers' intentions to engage in development activities; for example, job involvement and work centrality (Maurer & Tarulli, 1994). Consequently, it would be worthwhile exploring the influence of different types of job beliefs on the development process for younger employees.

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## CHAPTER 7: CONCLUSION

One of the primary goals of human resource development is improving the capability of employees so that they can contribute more effectively to the organisation's goals (Jacobs & Washington, 2003). Understanding how employees learn and develop at work, and how this process may be enhanced is therefore of great significance to HRD researchers.

Concerns about the implications of an ageing population on organisational capability have led researchers to pay attention to the developmental needs of older workers (Fuller & Unwin, 2005; Maurer, 2001; Warr & Birdi, 1998; Wrenn & Maurer, 2004). However, developing employees as they enter the workforce is also vital, particularly for long term organisational success. Now, more than ever, organisations need to ensure that younger workers are equipped to take up positions of responsibility as older generations move out of the workforce. Unfortunately, this group of employees has been largely overlooked by organisational researchers.

To address this gap in the literature, the present study developed and tested a model of learning and development for younger workers. In doing so, it has drawn together a number of diverse and somewhat separate literatures and demonstrates the significance of examining younger workers as a distinct and important group of employees. Overall, the study found that characteristics of the work environment and the individual themselves both affect their tendency to engage in learning and development, but in different ways.

Two main conclusions can be drawn from the study. First, there is reasonable evidence to suggest that the factors that influence younger workers' engagement in development activities differ from their older colleagues. This implies that an individual's life-stage is a significant factor in the learning and development process.

In particular, a person's general self-efficacy, learning anxiety and perceived support from co-workers had a direct effect on their confidence for learning new skills; a central part of the development process. These factors have not been found to be significant for experienced employees (Maurer, Lippstreu, et al., 2008; Maurer, Weiss, et al., 2003; Tracey, et al., 2001). In addition, organisational support was directly related to young people's motivation to learn and their career-job beliefs; and improvability beliefs were related to their continuous learning attitudes. It is possible that these factors may also be relevant to experienced workers but have not yet been examined with these employees.

Given that different sources affect cognitive and motivational aspects of the development process for different developmental cohorts, organisations may be able to optimise the effect of their development efforts by ensuring they are appropriate for employees. A supportive learning environment is important for both experienced and novice workers; however, the impact of different sources of support appears to vary for these groups. Consequently, understanding the needs of different developmental cohorts is important for maximising employee learning and performance. Further research would help clarify differences between developmental cohorts and how the development of younger workers in particular can be most effectively enhanced.

Second, the study suggests that characteristics of the individual and the work environment are both important to young people's engagement in development activities. Understanding which factors have the greatest influence on the development process enables organisations to develop young peoples' skills and knowledge more effectively. A person's beliefs about them self and about learning had the greatest influence on their motivation to learn. In view of this, organisations wishing to enhance the development of younger workers need to pay attention to these important cognitive evaluations.

In addition, the study corroborates the importance of supportive learning environments for young peoples' engagement in learning and development. Two aspects of the work environment were especially significant for younger workers: support from co-workers and from the organisation. Individuals who perceive their co-workers as being supportive are more confident in their ability to learn new skills, which directly influences their motivation to learn. In addition, organisations that value and support employee development influence young people's motivation to learn and career-job beliefs which directly influence their intentions to participate in development activities. While there was some evidence that support from managers may influence the self-efficacy beliefs of younger males, and that co-workers were more important for females, these relationships were unable to be replicated and merit further investigation.

These conclusions have a number of implications for the practice of HRD in organisations. First, it is important that organisations distinguish between different developmental cohorts in order to develop their capability in the most appropriate and effective ways. Understanding which factors have the greatest influence on the development of different groups of employees will enable organisations to make informed decisions about their investments in learning and development.

Second, the significant effects of an individual's beliefs about them self and about learning on their engagement in development activities suggests that organisations need to pay particular attention to these when developing younger workers. Assessing a person's global self-confidence, beliefs about the improvability of skills, knowledge and abilities, and anxiety for learning would help organisations identify employees who will gain the most from training and development activities. Workers who are confident they can achieve general life goals, who believe their skills and abilities are able to be improved and who are not overcome by anxiety are more likely to view learning as a desirable activity, to be confident in learning situations and to participate in learning activities both now and in the future.



It is also important that organisations develop young people who lack confidence in their ability to learn. This is especially important for young people who have had poor experiences of learning in the past, such as at school. Because self-efficacy is central to a person's engagement in learning and development activities, organisations need to look at ways of increasing these evaluations through strategies such as guided mastery, cognitive and behavioural modelling and verbal persuasion (Bandura, 1997; Gist, 1987; Gist & Mitchell, 1992). The results from this study suggest that these beliefs may also be enhanced through supportive learning environments. When learning is valued, emphasised and supported at all levels of the organisation, employees are able to develop their own skills and knowledge as well as supporting the development of others.

This study contributes to the HRD literature in a number of ways. First, the study provides a framework for examining the influence of the work environment on younger workers' engagement in learning and development. This model clarifies the influence of different individual and work environment characteristics on younger workers' engagement in learning and development; an area previously overlooked by HRD scholars. Thus the study extends the somewhat scant literature on younger workers (Elfering, et al., 2007; E. Smith, 2002; A. Taylor, 2002). Second, the study provides general support for extant models of employee development confirming their broad applicability to younger workers. However, the findings suggest that aspects of the development process differ for younger workers compared to more established employees.

Because an individual's characteristics are still being developed during their late teens and early twenties (Arnett, 2000; Kroger, 2000; Roberts & DelVecchio, 2000), organisations have a significant opportunity to influence the development of younger workers by enhancing their beliefs about themselves and about learning. Moreover, because younger workers are crucial to an organisation's capability and success in the future, understanding how they can be most effectively developed deserves attention by scholars and practitioners alike. Further research, particularly

longitudinal, would clarify how young people's beliefs about learning develop over time in their work environment and how these contribute to the development of their capability and, ultimately, organisational growth: a primary goal of human resource development.

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## **APPENDICES**

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# **APPENDIX A:**

## **INFORMATION SHEET FOR ORGANISATIONS**



## **INFORMATION SHEET FOR ORGANISATIONS**

Dear Sir / Madam

### **RE: Learning at Work Study, 16-24 Year-Old Workers**

I am completing a research project for my PhD in Human Resource Management at Massey University, for which your organisation has been randomly selected from the UBD business directory. I would like to tell you a little about what I'm doing and request the support of your organisation for my study.

The study will require only a small amount of time for your organisation, but the findings may provide useful feedback concerning how your organisation trains and develops your younger staff members.

My research has been supported and funded by Massey University, the Department of Labour, and the Human Resources Institute of New Zealand, and has been approved by the Massey University Human Ethics Committee.

### **About the Study**

In brief, the study will examine whether organisations can have a positive effect on young workers' confidence for learning and development. I expect to find that employees who are confident in their ability to learn are more likely to engage in further learning and skill development, which can increase organisational capability, flexibility and performance.

The focus of this research is on employees aged 16-24 who work full-time (in all jobs) in a range of occupations. A pen-and-paper questionnaire, which can be completed by employees in their own time, will be used to explore young worker's experiences of learning at work, their beliefs and attitudes about learning, and their intentions to engage in further learning. The survey does not ask for any sensitive or confidential information about your organisation, and I am happy to provide an

advance copy of the questionnaire to you if you wish to examine this before agreeing to take part.

To ensure that my study includes a broad cross-section of young workers, I am contacting over 2000 organisations around New Zealand that have been randomly selected from the UBD business directory database. These organisations are primarily in the manufacturing, retail, business, and construction sectors, and are located in nine main regions (Auckland, Hamilton, Tauranga, Rotorua, Napier/Hastings, Wellington, Christchurch, Dunedin and Invercargill).

It is hoped that analysis may reveal positive effects of organisational learning environments on the motivation and involvement in continuous development of younger workers in their early working lives. This information may be of particular interest to government, organisations, and industry training organisations for improving the learning and development experiences and opportunities for younger workers, and young people's readiness for continuous learning.

### **Organisational Support**

I am currently seeking organisations in your area that have been randomly selected from the UBD database to take part in the study. As full-time workers aged 16-24 make up only 12% of the workforce, there are often only a few employed at any single organisation. I realise your organisation may only have a few employees that may be able to take part, but any support you can give would be much appreciated.

All organisations that take part will be given a copy of the results when these are available, and if you would like personalised results for your organisation I am happy to do this if such analysis is possible and does not affect participants' anonymity. If you have other worksites from your organisation that you would like to take part in the study, particularly if you are interested in receiving personalised results, I am happy to include them.

Organisations that take part in the study will be assigned a pre-coded unique identifier allowing multi-level analysis to be completed, but providing 'anonymity' to me during analysis of the results. The code will only be used to enable me to cluster the responses of workers from the same worksite or organisation, and will not be used for any another purpose.

Information from this project may be published in relevant forums, but will be presented in such a way that no specific individual or organisation is identified. Confidentiality of any personal or organisational information provided is assured. A summary of the findings of the research will be made available to all participants and organisations at the end of the study.

### **Method**

The study will run from February to December 2008, and there are a number of ways the questionnaires can be distributed. If suitable, I can drop off and pick up surveys personally to employees during a tea break or other suitable time. Or, if you would prefer, it may be more suitable for you to distribute surveys to employees on my behalf. If so I can post these directly to you, or drop them off when I am in your area.

Participants may complete the survey in their own time (e.g. during a lunch break or after work) or, if you agree, during a quiet period in their work. The survey will take about approximately 20 minutes to complete. As a way of saying thank you for their time and effort, participants will be able to go into a draw to win an Apple iPod Classic (80GB) worth \$399 and 1 of 5 gift vouchers worth \$100 each. Individuals who wish to go in the draw will be asked to provide their name and contact details on the last page of the; however this will be removed and stored separately from the survey to ensure confidentiality and anonymity for the purposes of analysis.

Surveys can be returned by placing them in a 'drop box' which I can provide, and will collect a few days later. Alternatively, if you wish to distribute the surveys on my behalf, employees may return the survey to you in a sealed envelope (provided) to maintain anonymity, or they may return this directly to me in the freepost envelope provided.

I would also like some information from each organisation to help me better understand the types of organisations who have supported my study. I am not seeking any sensitive information, but rather some information about learning and development in your organisation. This brief questionnaire should only take about 5-10 minutes for you or a nominated manager to complete. Again, I am happy to make a copy of this available to you should you wish to examine it before proceeding.

**Participant's Rights**

At any stage during the research process participants have the right to decline to participate; refuse to answer any particular questions; withdraw from the study at any time; ask any questions about the study at any time during participation; provide information on the understanding that no individual or organisation names will be used (published); and be given access to a summary of the findings of the study when it is concluded. Completion of the questionnaire by an individual implies their consent.

**Further Arrangements**

I will telephone you in the next week as a follow-up to this letter and, if you would like to take part, can make further arrangements then.

If you have any questions about my research at any stage, please feel free to contact me directly on my mobile or email. I look forward to talking with you soon.

Kind regards,

Robyn Mason (Mrs)

Department of Management  
College of Business  
Private Bag 11-222  
Palmerston North 4442

Mobile: 0274 848 521  
Telephone: (06) 350 5799 extn 2366  
Email: [R.L.Mason@massey.ac.nz](mailto:R.L.Mason@massey.ac.nz)

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This project has been reviewed and approved by the Massey University Human Ethics Committee: Northern, Application 07/049. If you have any concerns about the conduct of this research, please contact Associate Professor Ann Dupuis, Chair, Massey University Human Ethics Committee: Northern, telephone 09 414 0800 x41226, email [humanethicsnorth@massey.ac.nz](mailto:humanethicsnorth@massey.ac.nz).

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**APPENDIX B:**

**SURVEY INSTRUCTIONS FOR  
ORGANISATIONS**

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## **SURVEY INSTRUCTIONS FOR ORGANISATIONS**

Dear .....

Thank you for taking part in the study ☺ This research wouldn't be possible without the support and generosity of organisations, and I hope the results are useful to your organisation for the development of younger workers.

### **SURVEY DISTRIBUTION**

Please ask participants to fold and place their survey in the freepost envelope provided to maintain their anonymity and confidentiality. No individual responses or names will be disclosed to the organisation, and no individual or organisational names will be published anywhere in the results.

### **SURVEY RETURN**

Please return surveys by either:

- a) **Individual return** – please ask employees to return their survey in the freepost envelope provided
- b) **Group return** – please return ALL surveys (including any blank surveys) in the courier bag provided (or to the freepost address above) when ready
- c) **Collection** – please have surveys ready at reception for collection by me on:

### **SURPLUS SURVEYS**

As part of the research process it is important to track participant response rates. If there are any blank surveys leftover, can you please indicate how many of these were **surplus** (i.e. undistributed or excess surveys) so I can adjust my records accordingly.

**# Employee surveys provided:** \_\_\_\_\_

**# Surplus surveys:** \_\_\_\_\_

**ORGANISATIONAL QUESTIONNAIRE**

If you are happy to complete the Organisational Questionnaire (attached) on behalf of your organisation, please also return this as soon as convenient.

If you have any questions or need more surveys please don't hesitate to telephone or email me.

Thanks again,  
Robyn

**Mobile:**       **0274 848 521**  
**Telephone:**   (06) 350 5799 extn 2366  
**Email:** [R.L.Mason@massey.ac.nz](mailto:R.L.Mason@massey.ac.nz)



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# **APPENDIX C:**

## **INFORMATION SHEET FOR PARTICIPANTS**

## **INFORMATION SHEET FOR PARTICIPANTS**

### **Learning at Work Study**

#### **Information for Participants**

Hi! I'm Robyn. I'm a student at Massey University in Palmerston North, and am doing a research project for my postgraduate degree. If you are between 16-24 years old and work 30 hours or more a week, I'd love for you to take part!

The questionnaire will take approximately 20 minutes to do, and includes questions about:

- What training and development activities you've done recently
- What activities you intend on doing in the future
- How confident you feel about learning and developing new skills at work
- How supportive your organisation is for your skill development

Please know that you are not under any requirement to take part in my study, and should not feel pressured to do so. If you do take part, you can refuse to answer any question(s) if you wish.

If your manager has agreed, you will be able to complete this during work time or in a lunch break. If you are not able to answer the questions at work, you can complete it at home. Please place your completed questionnaire in the envelope attached, and put this in the 'drop box' provided. Alternatively you may return it to me in the freepost envelope provided.

If you choose to complete the questionnaire, this means you have given your consent to take part in the study.

As a way of saying thank you for your time and effort, everyone who takes part will be given the option to enter a prize draw to win an Apple iPod Classic (80GB) valued at \$399 or 1 of 5 gift vouchers valued at \$100 each. So that I can post the winners

their prizes, I will require your name and postal address. These details will be stored separately from the questionnaire so I can't identify individual responses. These details will then be destroyed, unless you have agreed for me to contact you for a follow-up discussion or if you wish to receive a summary of the results directly.

In a few months I would also like to meet personally with a few workers to find out more about your experiences of learning at work. If you are happy to do this, there is a box you can tick at the end of the questionnaire.

Any information you provide me is assured to remain confidential and effectively anonymous, and will not be given to your organisation or anyone else. Summary results from the study will be posted to you directly if you wish, and will also be available via your organisation from which you cannot be identified. These results may be published in relevant forums in the future, but will be presented in a way that no specific individual or organisation will be able to be identified.

Please take some time to decide if you would like to take part in my study. If you are happy to participate please complete and return the attached survey in the freepost envelope provided as soon as possible.

If you have any questions about my research at any stage, please feel free to contact me directly by phone or email. My contact details are at the top of the first page.

Kind regards,

Robyn Mason

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This project has been reviewed and approved by the Massey University Human Ethics Committee: Northern, Application 07/049. If you have any concerns about the conduct of this research, please contact Associate Professor Ann Dupuis, Chair, Massey University Human Ethics Committee: Northern, telephone 09 414 0800 x41226, email [humanethicsnorth@massey.ac.nz](mailto:humanethicsnorth@massey.ac.nz).

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# **APPENDIX D:**

## **LEARNING AT WORK SURVEY**

## **LEARNING AT WORK SURVEY**

Before you begin, please answer the following questions:

Are you aged between 16-24 years? ☐ Yes ☐ No  
Do you work 30hrs or more per week in all paid jobs? ☐ Yes ☐ No

If you answered **YES** to BOTH questions, please continue with the survey.

If you answered **NO** to ANY question, please do not continue

Thank you 😊

Robyn Mason

If you have any questions, please phone me on 027 4848 521.

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## WORK & EMPLOYMENT DETAILS

OVERVIEW / INSTRUCTIONS: This section asks a number of questions about your current job and employment details. Please indicate your answer with a tick (✓).

Do you currently work:

- ☐ Full time (30+ hours per week for all paid jobs)  
☐ Part time (less than 30 hours per week for all paid jobs)

In total, how many different organisations do you currently work for?

- ☐ 1 ☐ 2 ☐ 3 or more

Is this organisation your main employer? ☐ Yes ☐ No

How long have you worked for this organisation?

- ☐ Less than 1 year  
☐ 1 or 2 years  
☐ 3 or 4 years  
☐ 5 years or more

Which of the following best describes your job or occupation in this organisation?

- ☐ Sales or Customer Service Worker  
☐ Clerical, Secretarial, or Administrative Worker  
☐ Qualified Technician or Trades Worker  
☐ Skilled or Semi-Skilled Labourer (e.g. Apprentice)  
☐ Machinery Operator or Driver  
☐ Community or Personal Service Worker  
☐ Manager or Supervisor  
☐ Professional (e.g. Accountant)  
☐ Other (please state):

### *Career-Job Congruence*

Please indicate (✓) how strongly you agree or disagree with the following statements about your current job/occupation.

---

My job / occupation...

- Is one I want to keep getting better at  
 Is the type of job I'd like as a career-job\*  
 Is related to my work interests and goals\*  
 Is one I want to be an expert in\*  
 Is the type of work I'd like to do in the future\*
- 

Note: \* indicates items selected for SEM analyses.



Likert Scale:

- 1 = Strongly Disagree
- 2 = Disagree
- 3 = Neutral
- 4 = Agree
- 5 = Strongly Agree

*Developmental Intentions*

OVERVIEW / INSTRUCTIONS: Below is a list of different activities people can do to develop their skills for their current job and for future jobs, both at work and away from work.

If you had the opportunity in the next three (3) months, how likely are you to:

- 
- Do some training *at work* for a new task, process, or equipment\*
  - Do a formal training course or workshop *away* from work
  - Ask my manager for feedback, coaching or advice\*
  - Ask a workmate for training or advice\*
  - Spend time with a 'buddy' or mentor at work\*
  - Temporarily take on a different job, role or task
  - Temporarily join a special workgroup, taskforce or committee
  - Talk to my manager about my career interests
  - Talk to a workmate about my career interests
  - Talk to a training advisor about my career interests
  - Search the internet for information about my job or career
  - Read a manual, magazine or book related to my job or career
  - Attend a community or adult education course
- 

Likert Scale:

- 1 = Not at all likely
- 2 = Probably not
- 3 = Possibly
- 4 = Probably
- 5 = Very likely

## BELIEFS AND ATTITUDES

OVERVIEW / INSTRUCTIONS: This section asks a number of questions about your beliefs and attitudes regarding learning and about you as a learner. Please indicate (✓) how strongly you agree or disagree with the following statements.

Likert Scale:

- 1 = Strongly Disagree
- 2 = Disagree
- 3 = Neutral
- 4 = Agree
- 5 = Strongly Agree

### *General Self-Efficacy*

---

I will be able to achieve most of the goals that I have set for myself  
 Compared to other people, I can do most tasks very well  
 I believe I can succeed at almost any thing to which I set my mind\*  
 I will be able to successfully overcome many challenges\*  
 When facing difficult tasks, I am certain that I will accomplish them\*  
 In general, I think that I can obtain outcomes that are important to me  
 Even when things are tough, I can perform quite well  
 I'm confident I can perform effectively on many different tasks\*

---

### *Personal Improvability Beliefs*

---

I have the skills and abilities needed to continually grow and develop  
 I have what it takes to keep learning new things\*  
 I'm able to keep developing my skills and abilities\*  
 I'm able to keep improving my knowledge  
 I have what it takes to develop skills needed in the future  
 I don't really see myself as someone who is able to keep learning

---

### *Development Self-Efficacy*

---

I'm confident I can succeed at training  
 I'm sure I can do well in a variety of learning activities  
 I'm confident doing different types of development activities  
 I'm certain I can learn new skills for my job\*  
 I'm confident I can do well in training courses that deal with people skills  
 I'm confident I can do well in training courses that deal with information or ideas  
 I'm confident I can do well in training courses that deal with practical or physical things  
 I'm confident learning things I've never done before\*  
 When I take training courses for unfamiliar tasks, I'm sure I can do well\*  
 When I'm given new work to do I usually feel confident I can do it\*  
 I'm pretty sure I can learn something at work even if it's hard to start with

---

---

*Development Self-Efficacy (continued)*

---

I'm sure I can learn something at work if someone shows me how  
I'm confident I can learn something difficult if I'm encouraged by those around me  
I'm confident learning new things if I'm given training or guidance  
I know I can learn a new skill if I don't give up  
I can improve my job skills if I put in lots of effort  
I know I can learn a new task that seems difficult if I set my mind to it  
If I work really hard, I can improve my ability  
I can improve my knowledge if I try hard  
If I work hard at learning a new task I can eventually do it

---

---

*Attitudes towards Continuous Learning*

---

The opportunity to learn new things at work is important to me  
I think learning new skills throughout my life would be enjoyable and stimulating  
Training and development activities are very worthwhile  
I want to keep developing my skills in the future\*  
It's important I have the chance to keep learning and improving my skills at work  
I want to keep developing my skills, no matter what job I do\*  
Being able to improve my qualifications at work is important to me  
Improving my skills and abilities is something I want to do over the rest of my life\*  
I want to keep developing my abilities over my career\*

---

---

*Motivation to Learn*

---

I try to learn as much as I can from development activities  
I continually look for ways to improve my job knowledge\*  
I look for opportunities to develop new skills\*  
I try to learn as much as I can from training courses\*  
I'm usually keen to take part in training or development activities\*  
I'm usually keen to learn new things at work  
I actively try to improve my qualifications

---

---

*Learning-related Anxiety*

---

Learning something difficult makes me feel flustered or upset  
Training assessment makes me anxious even when I have prepared well\*  
Worrying about failing affects my ability to do well in assessment\*  
I feel anxious about learning new things\*  
On training courses I often worry I won't do well\*

---

---

## THE WORK ENVIRONMENT

### *Organisational Support for Learning & Development*

---

#### My organisation...

- Believes learning is important for all workers
  - Offers excellent training opportunities\*
  - Encourages everyone to develop their skills\*
  - Provides employees time to learn things away from their jobs
  - Encourages people to take on tasks that challenge them
  - Encourages people to try different approaches to solve problems
  - Tolerates mistakes when someone is learning a new task or skill
  - Provides workers opportunities to gain qualifications for their job or career\*
  - Encourages people to learn new skills that prepare them for future jobs\*
- 

### *Manager Support for Learning & Development*

---

#### My supervisor / manager...

- Gives me training, coaching or guidance when I need it
  - Encourages me to believe I'm capable of learning new things
  - Encourages me to do training & development activities
  - Encourages me not to give up when I'm finding something difficult\*
  - Congratulates me when I've put lots of effort into learning something difficult
  - Encourages me to see mistakes as part of the learning process
  - Encourages me to use new skills or knowledge at work\*
  - Gives me useful feedback on my performance\*
  - Encourages me to believe I can improve my skills and abilities\*
  - Talks to me about my career interests and goals
  - Encourages me to gain qualifications for my job/career
  - Encourages me to develop skills for future jobs
- 

### *Co-Worker Support for Learning & Development*

---

#### My workmates...

- Believe that learning and training activities are important
  - Often do training courses and development activities
  - Talk about what they have learnt from training
  - Encourage me to do training and development activities
  - Encourage me to practice skills I've learned\*
  - Often show me how to do things for my job
  - Are happy for me to ask them for help or advice\*
  - Encourage me not to give up when I'm finding something difficult\*
  - Don't mind if I make mistakes when I'm doing something new\*
  - Encourage me to believe I can improve my skills\*
-

## PARTICIPANT CHARACTERISTICS

I would like to find out some general information about you to make sure I have contacted a diverse group of young workers for this study. Please indicate (✓) in the appropriate box:

### Personal Details

Are you:            ☐ Male   ☐ Female

What is your current age?        \_\_\_\_\_ years

How old were you when you left school?        \_\_\_\_\_ years

Which ethnic group do you most closely identify with?

- ☐ NZ European / Pakeha
- ☐ NZ Maori
- ☐ Cook Island Maori
- ☐ Samoan
- ☐ Asian
- ☐ Other Pacific Island (please specify): \_\_\_\_\_
- ☐ Other (please specify): \_\_\_\_\_

Are you currently working towards a formal qualification?

- ☐ Yes    ☐ No (please go to Q25)

If yes, please indicate (✓) what type of qualification:

- ☐ Basic Vocational Qualification (e.g. Foundation Certificate, NCEA Level 1-3)
- ☐ Skilled Vocational Qualification (e.g. Apprenticeship, Trade Certificate, NCEA Level 4)
- ☐ Intermediate or Advanced Vocational Qualification (e.g. Advanced Trade Certificate, Undergraduate Certificate or Diploma, NCEA Level 5-7)
- ☐ Bachelors Degree
- ☐ Postgraduate Qualification
- ☐ Other Qualification (please specify): \_\_\_\_\_

---

Do you intend on working towards a formal qualification in the next 12 months?

- ☐ Yes      ☐ No (please go to Q26)

If yes, please indicate (✓) what type of qualification:

- ☐ Basic Vocational Qualification (e.g. Foundation Certificate, NCEA Level 1-3)
- ☐ Skilled Vocational Qualification (e.g. Apprenticeship, Trade Certificate, NCEA Level 4)
- ☐ Intermediate or Advanced Vocational Qualification (e.g. Advanced Trade Certificate, Undergraduate Certificate or Diploma, NCEA Level 5-7)
- ☐ Bachelors Degree
- ☐ Postgraduate Qualification
- ☐ Other Qualification (please specify): \_\_\_\_\_

Have you finished a formal qualification since leaving high school?

- ☐ Yes      ☐ No (please go to Q27)

If yes, did you do complete this mainly through:

- ☐ Full-time study (20 hours+ /week)      ☐ Part-time study (less than 20 hours/week)

If yes, which qualification(s) have you completed?

- ☐ Basic Vocational Qualification (e.g. Foundation Certificate, NCEA Level 1-3)
- ☐ Skilled Vocational Qualification (e.g. Apprenticeship, Trade Certificate, NCEA Level 4)
- ☐ Intermediate or Advanced Vocational Qualification (e.g. Advanced Trade Certificate, Undergraduate Certificate or Diploma, NCEA Level 5-7)
- ☐ Bachelors Degree
- ☐ Postgraduate Qualification
- ☐ Other Qualification (please specify): \_\_\_\_\_

What is your highest school qualification (or overseas equivalent)?

- ☐ No formal qualification
- ☐ 6<sup>th</sup> Form Certificate / NCEA Level 2
- ☐ Other (please specify): \_\_\_\_\_
- ☐ School Certificate / NCEA Level 1
- ☐ Bursary / University Entrance / NCEA Level 3

Did you complete any skills-based or vocational qualification(s) at high school?

- ☐ Yes      ☐ No (please go to Q29)

If yes, what qualification or certificate(s) did you complete?

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

Family Details

Please indicate your parents' or guardians' employment status:

- | Father / Guardian  | Mother / Guardian  |
|--|--|
| <input type="radio"/> Employed full-time (30+ hours/ week in all jobs) | <input type="radio"/> Employed full-time (30+ hours/ week in all jobs) |
| <input type="radio"/> Employed part-time (<30 hours/ week)             | <input type="radio"/> Employed part-time (<30 hours/ week)             |
| <input type="radio"/> Self-Employed or Owner/Operator                  | <input type="radio"/> Self-Employed or Owner/Operator                  |
| <input type="radio"/> Unemployed                                       | <input type="radio"/> Unemployed                                       |
| <input type="radio"/> None of the above                                | <input type="radio"/> None of the above                                |

Please indicate your parents' or guardians' highest qualification:

- | Father / Guardian                                       | Mother / Guardian                                       |
|---|---|
| <input type="radio"/> No qualification                  | <input type="radio"/> No qualification                  |
| <input type="radio"/> School Qualification              | <input type="radio"/> School Qualification              |
| <input type="radio"/> Vocational Certificate or Diploma | <input type="radio"/> Vocational Certificate or Diploma |
| <input type="radio"/> Bachelor Degree or higher         | <input type="radio"/> Bachelor Degree or higher         |
| <input type="radio"/> Don't know                        | <input type="radio"/> Don't know                        |

**COMMENTS**

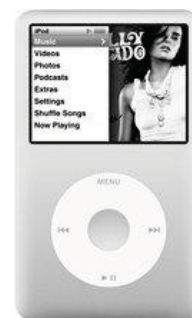
If you would like to make any other comments about your experiences of learning, please feel welcome to share these here:

## PRIZE DRAW

Participants who have completed this survey are able to go in a draw to win an Apple I-Pod Classic (80GB) valued at \$399 and 1 of 5 retail vouchers valued at \$100 each.

If you wish to go in this draw, please provide your name and postal address in the section below so I can send the prizes to the winning participants. If you do NOT wish to go in the draw, please indicate below.

☐ I do NOT wish to enter the prize draw



## RESULTS OF THIS SURVEY

If you would like to personally receive a summary of the results of this research, please tick (✓) the box below, and provide your name and postal or email address in the section below.

☐ YES, I would like to personally receive a summary of the research results



## FOLLOW-UP INTERVIEW

In a few months I would like to meet with a few participants to learn more about your experiences of learning at work. If you are happy to be contacted for an interview, please tick (✓) the box below, and provide your name and contact details in the section below.

☐ YES, I am happy to be contacted for a follow-up interview



## CONTACT DETAILS

Name: \_\_\_\_\_

Email: \_\_\_\_\_

Street Address / PO Box: \_\_\_\_\_

City / Town: \_\_\_\_\_

Mobile / Telephone: \_\_\_\_\_

Thank you very much for participating in this survey. I appreciate your time and effort!

Robyn Mason, Researcher



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**APPENDIX E:**

**PARAMETER ESTIMATES FOR**

**MEASUREMENT MODEL**

## **PARAMETER ESTIMATES FOR MEASUREMENT MODEL**

A complete list of parameter estimates, standard errors and factor loadings for observed variables (the 'measurement model').

Observed Variable		Latent Variable	Unstand- ardised Estimate	Standard Error	Critical Ratio	Significance Level ( $p <$ )	Standardised Regression Weights
<i>Perceived Organisational Support for Learning (POSL)</i>							
Q15b	<---	POSL	1.00				0.83
Q15c	<---	POSL	0.85	0.04	24.57	.001	0.79
Q15h	<---	POSL	0.91	0.04	22.61	.001	0.74
Q15i	<---	POSL	0.92	0.04	24.40	.001	0.79
<i>Perceived Manager Support for Learning (PMSL)</i>							
Q16d	<---	PMSL	0.77	0.03	24.83	.001	0.74
Q16g	<---	PMSL	0.79	0.03	27.13	.001	0.79
Q16h	<---	PMSL	0.97	0.04	27.63	.001	0.80
Q16i	<---	PMSL	1.00				0.89
<i>Perceived Co-Worker Support for Learning (PCWSL)</i>							
Q17g	<---	PCWSL	0.61	0.03	18.52	.001	0.62
Q17i	<---	PCWSL	0.78	0.04	20.47	.001	0.67
Q17e	<---	PCWSL	0.89	0.04	22.15	.001	0.71
Q17j	<---	PCWSL	1.01	0.04	28.54	.001	0.87
Q17h	<---	PCWSL	1.00				0.84
<i>General Self-Efficacy (GSE)</i>							
Q10n	<---	GSE	1.03	0.04	24.13	.001	0.77
Q10o	<---	GSE	1.00				0.86
Q10p	<---	GSE	1.04	0.04	23.82	.001	0.76
Q10s	<---	GSE	0.73	0.04	19.90	.001	0.66
<i>Personal Improvability Beliefs (PIB)</i>							
Q10b	<---	PIB	1.00				0.85
Q10c	<---	PIB	1.04	0.03	35.45	.001	0.92
Q10d	<---	PIB	1.04	0.03	34.03	.001	0.90
Q10e	<---	PIB	1.01	0.03	30.31	.001	0.84
<i>Learning Anxiety (ANX)</i>							
Q14b	<---	ANX	0.90	0.05	17.46	.001	0.67
Q14c	<---	ANX	1.00				0.76
Q14d	<---	ANX	0.80	0.05	17.63	.001	0.68
Q14e	<---	ANX	1.02	0.05	19.81	.001	0.78

Observed Variable		Latent Variable	Unstand- ardised Estimate	Standard Error	Critical Ratio	Significance Level ( $p <$ )	Standardised Regression Weights
<i>Development Self-Efficacy (DSE)</i>							
Q11d	<---	DSE	0.48	0.04	12.03	.001	0.45
Q11h	<---	DSE	1.00				0.80
Q11i	<---	DSE	0.99	0.05	20.67	.001	0.85
Q11j	<---	DSE	0.74	0.04	17.70	.001	0.65
<i>Motivation to Learn (MTL)</i>							
Q13c	<---	MTL	0.88	0.05	18.60	.001	0.45
Q13f	<---	MTL	1.00				0.80
Q13g	<---	MTL	0.95	0.05	20.25	.001	0.85
Q13i	<---	MTL	0.89	0.05	18.97	.001	0.65
<i>Attitudes to Continuous Learning (ATCL)</i>							
Q12d	<---	ATCL	1.00				0.76
Q12f	<---	ATCL	1.08	0.05	20.52	.001	0.73
Q12h	<---	ATCL	1.33	0.06	23.23	.001	0.82
Q12i	<---	ATCL	1.28	0.05	24.16	.001	0.86
<i>Career-Job Congruence (CJC)</i>							
Q7b	<---	CJC	1.00				0.90
Q7c	<---	CJC	0.79	0.03	31.10	.001	0.82
Q7d	<---	CJC	0.85	0.03	31.42	.001	0.82
Q7e	<---	CJC	0.97	0.03	38.81	.001	0.92
<i>Intentions to Participate in Development Activities (INT)</i>							
Q8a	<---	INT	1.00				0.57
Q8c	<---	INT	1.32	0.10	13.52	.001	0.70
Q8d	<---	INT	1.38	0.10	13.89	.001	0.77
Q8e	<---	INT	1.40	0.11	12.79	.001	0.63

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**APPENDIX F:**

**PARAMETER ESTIMATES FOR  
FULLY-MEDIATED STRUCTURAL MODEL**

## **PARAMETER ESTIMATES FOR FULLY-MEDIATED STRUCTURAL MODEL**

A complete list of parameter estimates, standard errors, and significance values for observed variables and latent constructs for the fully-mediated structural model (model 1).

Observed Variable		Latent Variable	Unstand- ardised Estimate	Standard Error	Critical Ratio	Significance Level ( $p <$ )	Standardised Regression Weights
<i>Structural Weights</i>							
DSE	<---	GSE	0.70	0.05	13.30	.001	0.66
DSE	<---	ANX	-0.10	0.02	-4.14	.001	-0.15
DSE	<---	PMSL	0.08	0.03	2.40	.02	0.11
DSE	<---	POSL	-0.03	0.03	-1.01	.31	-0.04
DSE	<---	PCWSL	0.08	0.03	2.68	.01	0.10
DSE	<---	PIB	0.11	0.04	2.69	.01	0.10
ATCL	<---	DSE	0.35	0.03	11.09	.001	0.47
MTL	<---	DSE	0.49	0.04	11.27	.001	0.49
MTL	<---	ATCL	0.47	0.05	8.63	.001	0.35
MTL	<---	CJC	0.05	0.02	2.87	.01	0.09
INT	<---	CJC	0.20	0.02	8.38	.001	0.36
INT	<---	MTL	0.27	0.05	5.76	.001	0.25
<i>Factor Loadings</i>							
Q15b	<---	POSL	1.00				0.82
Q15c	<---	POSL	0.85	0.04	24.36	.001	0.79
Q15h	<---	POSL	0.91	0.04	22.38	.001	0.74
Q15i	<---	POSL	0.92	0.04	24.18	.001	0.79
Q16d	<---	PMSL	0.77	0.03	24.75	.001	0.74
Q16g	<---	PMSL	0.79	0.03	27.10	.001	0.79
Q16h	<---	PMSL	0.97	0.04	27.55	.001	0.79
Q16i	<---	PMSL	1.00				0.89
Q17e	<---	PCWSL	0.89	0.04	22.09	.001	0.71
Q17g	<---	PCWSL	0.61	0.03	18.44	.001	0.62
Q17h	<---	PCWSL	1.00				0.84
Q17i	<---	PCWSL	0.78	0.04	20.48	.001	0.67
Q17j	<---	PCWSL	1.01	0.04	28.54	.001	0.87
Q10n	<---	GSE	1.04	0.04	23.56	.001	0.76
Q10o	<---	GSE	1.00				0.83
Q10p	<---	GSE	1.09	0.05	24.30	.001	0.78
Q10s	<---	GSE	0.78	0.04	20.70	.001	0.69
Q10b	<---	PIB	1.00				0.85
Q10c	<---	PIB	1.04	0.03	35.30	.001	0.92

Observed Variable		Latent Variable	Unstand-ardised Estimate	Standard Error	Critical Ratio	Significance Level ( $p <$ )	Standardised Regression Weights
Q10d	<---	PIB	1.03	0.03	33.97	.001	0.90
Q10e	<---	PIB	1.02	0.03	30.35	.001	0.84
Q14b	<---	ANX	0.89	0.05	17.36	.001	0.66
Q14c	<---	ANX	1.00				0.77
Q14d	<---	ANX	0.80	0.05	17.66	.001	0.68
Q14e	<---	ANX	1.02	0.05	19.82	.001	0.78
Q11d	<---	DSE	0.60	0.04	14.48	.001	0.53
Q11h	<---	DSE	1.00				0.77
Q11i	<---	DSE	0.95	0.04	21.37	.001	0.78
Q11j	<---	DSE	0.78	0.04	17.70	.001	0.65
Q13c	<---	MTL	0.89	0.05	18.80	.001	0.70
Q13f	<---	MTL	1.00				0.77
Q13g	<---	MTL	0.92	0.05	19.83	.001	0.74
Q13i	<---	MTL	0.90	0.05	19.14	.001	0.71
Q12d	<---	ATCL	1.00				0.76
Q12f	<---	ATCL	1.08	0.05	20.39	.001	0.73
Q12h	<---	ATCL	1.32	0.06	23.09	.001	0.82
Q12i	<---	ATCL	1.28	0.05	24.08	.001	0.86
Q7b	<---	CJC	1.00				0.90
Q7c	<---	CJC	0.79	0.03	31.12	.001	0.82
Q7d	<---	CJC	0.85	0.03	31.57	.001	0.82
Q7e	<---	CJC	0.97	0.03	38.78	.001	0.92
Q8a	<---	INT	1.00				0.61
Q8c	<---	INT	1.25	0.09	14.22	.001	0.71
Q8d	<---	INT	1.24	0.09	14.45	.001	0.73
Q8e	<---	INT	1.29	0.10	13.14	.001	0.62

*Squared Multiple Correlations*

Dependent Variable	R <sup>2</sup>
DSE	.67
ATCL	.22
MTL	.53
INT	.21



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**APPENDIX G:**

**PARAMETER ESTIMATES FOR  
FINAL STRUCTURAL MODEL**

### **PARAMETER ESTIMATES FOR FINAL STRUCTURAL MODEL**

A complete list of parameter estimates, standard errors, and significance values for observed variables and latent constructs for the final partially-mediated structural model (model 4;  $n = 817$ ).

Observed Variable		Latent Variable	Unstand- ardised Estimate	Standard Error	Critical Ratio	Significance Level ( $p <$ )	Standardised Regression Weights
<i>Structural Weights</i>							
DSE	<---	GSE	0.72	0.05	13.26	.001	0.67
DSE	<---	ANX	-0.11	0.03	-4.30	.001	-0.16
DSE	<---	PMSL	0.07	0.03	2.12	.03	0.10
DSE	<---	POSL	-0.04	0.03	-1.45	.15	-0.06
DSE	<---	PCWSL	0.09	0.03	2.71	.01	0.11
DSE	<---	PIB	0.06	0.04	1.40	.16	0.06
ATCL	<---	DSE	0.18	0.03	5.61	.001	0.25
ATCL	<---	P I B	0.30	0.04	8.42	.001	0.36
CJC	<---	POS	0.60	0.05	12.10	.001	0.46
MTL	<---	DSE	0.45	0.04	10.94	.001	0.46
MTL	<---	ATCL	0.49	0.05	9.42	.001	0.38
MTL	<---	CJC	0.02	0.02	1.14	.25	0.04
MTL	<---	POSL	0.08	0.03	2.34	.02	0.12
MTL	<---	PMSL	0.03	0.04	0.76	.45	0.04
MTL	<---	PCWSL	-0.03	0.03	-0.88	.38	-0.04
INT	<---	CJC	0.20	0.02	8.49	.001	0.36
INT	<---	MTL	0.27	0.05	5.80	.001	0.25
<i>Factor Loadings</i>							
Q15b	<---	POSL	1.00				0.82
Q15c	<---	POSL	0.85	0.04	24.20	.001	0.79
Q15h	<---	POSL	0.92	0.04	22.47	.001	0.74
Q15i	<---	POSL	0.93	0.04	24.36	.001	0.79
Q16d	<---	PMSL	0.77	0.03	24.77	.001	0.74
Q16g	<---	PMSL	0.79	0.03	27.14	.001	0.79
Q16h	<---	PMSL	0.97	0.04	27.51	.001	0.79
Q16i	<---	PMSL	1.00				0.89
Q17e	<---	PCWSL	0.89	0.04	22.08	.001	0.71
Q17g	<---	PCWSL	0.61	0.03	18.44	.001	0.62
Q17h	<---	PCWSL	1.00				0.84
Q17i	<---	PCWSL	0.78	0.04	20.48	.001	0.67
Q17j	<---	PCWSL	1.01	0.04	28.54	.001	0.87
Q10n	<---	GSE	1.04	0.04	23.54	.001	0.76
Q10o	<---	GSE	1.00				0.83
Q10p	<---	GSE	1.09	0.05	24.30	.001	0.78
Q10s	<---	GSE	0.78	0.04	20.68	.001	0.69

Observed Variable	Latent Variable	Unstand-ardised Estimate	Standard Error	Critical Ratio	Significance Level ( $p <$ )	Standardised Regression Weights
<i>Factor Loadings (continued)</i>						
Q10b	<--- PIB	1.00				0.85
Q10c	<--- PIB	1.04	0.03	35.21	.001	0.92
Q10d	<--- PIB	1.04	0.03	33.93	.001	0.90
Q10e	<--- PIB	1.02	0.03	30.27	.001	0.84
Q14b	<--- ANX	0.89	0.05	17.37	.001	0.66
Q14c	<--- ANX	1.00				0.77
Q14d	<--- ANX	0.80	0.05	17.65	.001	0.68
Q14e	<--- ANX	1.02	0.05	19.83	.001	0.78
Q11d	<--- DSE	0.56	0.04	13.94	.001	0.51
Q11h	<--- DSE	1.00				0.78
Q11i	<--- DSE	0.96	0.04	22.27	.001	0.80
Q11j	<--- DSE	0.77	0.04	18.16	.001	0.65
Q13c	<--- MTL	0.89	0.05	18.73	.001	0.70
Q13f	<--- MTL	1.00				0.77
Q13g	<--- MTL	0.92	0.05	19.72	.001	0.73
Q13i	<--- MTL	0.90	0.05	19.00	.001	0.71
Q12d	<--- ATCL	1.00				0.77
Q12f	<--- ATCL	1.07	0.05	20.80	.001	0.73
Q12h	<--- ATCL	1.30	0.06	23.40	.001	0.81
Q12i	<--- ATCL	1.25	0.05	24.42	.001	0.85
Q7b	<--- CJC	1.00				0.90
Q7c	<--- CJC	0.79	0.03	31.43	.001	0.82
Q7d	<--- CJC	0.85	0.03	31.68	.001	0.82
Q7e	<--- CJC	0.97	0.03	38.95	.001	0.91
Q8a	<--- INT	1.00				0.61
Q8c	<--- INT	1.25	0.09	14.27	.001	0.71
Q8d	<--- INT	1.23	0.09	14.49	.001	0.73
Q8e	<--- INT	1.29	0.10	13.18	.001	0.62

*Squared Multiple Correlations*

Dependent Variable	R <sup>2</sup>
DSE	.63
ATCL	.28
MTL	.54
CJC	.21
INT	.22

---

**APPENDIX H:**

**PARAMETER ESTIMATES FOR  
CROSS-VALIDATION OF STRUCTURAL  
MODEL**

## **PARAMETER ESTIMATES FOR CROSS-VALIDATION OF STRUCTURAL MODEL**

A complete list of parameter estimates, standard errors, and significance values for observed variables and latent constructs for the cross-validation of the final partially-mediated structural model ( $n = 393$ ).

Observed Variable		Latent Variable	Unstand- ardised Estimate	Standard Error	Critical Ratio	Significance Level ( $p <$ )	Standardised Regression Weights
<i>Structural Weights</i>							
DSE	<---	GSE	0.77	0.07	10.83	.001	0.67
DSE	<---	ANX	-0.18	0.04	-5.07	.001	-0.27
DSE	<---	PMSL	0.00	0.03	0.12	.90	0.01
DSE	<---	PCWSL	0.10	0.04	2.37	.02	0.13
ATCL	<---	DSE	0.14	0.05	2.88	.01	0.18
ATCL	<---	PIB	0.37	0.06	6.52	.001	0.42
MTL	<---	DSE	0.41	0.06	7.34	.001	0.43
MTL	<---	ATCL	0.62	0.08	8.02	.001	0.48
CJC	<---	POSL	0.56	0.07	8.38	.001	0.45
MTL	<---	POSL	0.08	0.03	2.99	.01	0.14
INT	<---	CJC	0.12	0.03	4.58	.001	0.29
INT	<---	MTL	0.28	0.06	4.67	.001	0.32
<i>Factor Loadings</i>							
Q15b	<---	POSL	1.00				0.84
Q15c	<---	POSL	0.79	0.05	17.43	.001	0.78
Q15h	<---	POSL	0.97	0.05	18.73	.001	0.82
Q15i	<---	POSL	0.84	0.05	17.18	.001	0.77
Q16d	<---	PMSL	0.81	0.04	19.51	.001	0.77
Q16g	<---	PMSL	0.78	0.04	20.16	.001	0.79
Q16h	<---	PMSL	0.88	0.05	18.66	.001	0.75
Q16i	<---	PMSL	1.00				0.93
Q17e	<---	PCWSL	0.80	0.07	11.90	.001	0.60
Q17g	<---	PCWSL	0.57	0.06	10.31	.001	0.53
Q17h	<---	PCWSL	1.00				0.82
Q17i	<---	PCWSL	0.76	0.06	13.18	.001	0.66
Q17j	<---	PCWSL	1.00	0.06	16.75	.001	0.83

Observed Variable		Latent Variable	Unstand- ardised Estimate	Standard Error	Critical Ratio	Significance Level ( $p <$ )	Standardised Regression Weights
<i>Factor Loadings (continued)</i>							
Q10n	<---	GSE	1.05	0.07	14.48	.001	0.72
Q10o	<---	GSE	1.00				0.80
Q10p	<---	GSE	1.16	0.08	15.57	.001	0.76
Q10s	<---	GSE	0.99	0.06	15.70	.001	0.77
Q10b	<---	PIB	1.00				0.83
Q10c	<---	PIB	1.04	0.05	20.57	.001	0.87
Q10d	<---	PIB	1.04	0.05	20.96	.001	0.88
Q10e	<---	PIB	0.97	0.05	18.13	.001	0.79
Q14b	<---	ANX	0.90	0.07	12.76	.001	0.68
Q14c	<---	ANX	1.00				0.77
Q14d	<---	ANX	0.93	0.07	14.32	.001	0.76
Q14e	<---	ANX	1.05	0.07	14.93	.001	0.80
Q11d	<---	DSE	0.55	0.06	9.94	.001	0.53
Q11h	<---	DSE	1.00				0.77
Q11i	<---	DSE	0.98	0.07	15.07	.001	0.79
Q11j	<---	DSE	0.90	0.07	12.80	.001	0.67
Q13c	<---	MTL	0.87	0.08	11.40	.001	0.63
Q13f	<---	MTL	1.00				0.74
Q13g	<---	MTL	0.95	0.07	13.41	.001	0.75
Q13i	<---	MTL	0.91	0.07	12.32	.001	0.68
Q12d	<---	ATCL	1.00				0.76
Q12f	<---	ATCL	1.04	0.08	13.10	.001	0.69
Q12h	<---	ATCL	1.27	0.08	15.41	.001	0.80
Q12i	<---	ATCL	1.19	0.08	15.62	.001	0.82
Q7b	<---	CJC	1.00				0.91
Q7c	<---	CJC	0.83	0.04	23.17	.001	0.84
Q7d	<---	CJC	0.84	0.04	24.07	.001	0.86
Q7e	<---	CJC	0.92	0.04	25.75	.001	0.88
Q8a	<---	INT	1.00				0.50
Q8c	<---	INT	1.55	0.19	8.12	.001	0.68
Q8d	<---	INT	1.68	0.20	8.34	.001	0.76
Q8e	<---	INT	1.57	0.20	7.71	.001	0.61

*Squared Multiple Correlations*

Dependent Variable	R <sup>2</sup>
DSE	.69
ATCL	.29
MTL	.61
CJC	.20
INT	.20



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**APPENDIX I:**

**PARAMETER ESTIMATES FOR  
MODERATED STRUCTURAL MODEL**

## **PARAMETER ESTIMATES FOR MODERATED STRUCTURAL MODEL**

Complete list of parameter estimates, standard errors, and significance values for observed variables and latent constructs for the testing of the moderated structural model.

### **MALES**

(*n* = 442)

Observed Variable		Latent Variable	Unstand- ardised Estimate	Standard Error	Critical Ratio	Significance Level ( <i>p</i> <)	Standardised Regression Weights
<i>Structural Weights</i>							
DSE	<---	GSE	0.68	0.06	11.05	.001	0.68
DSE	<---	ANX	-0.07	0.03	-2.17	.03	-0.11
DSE	<---	PMSL	0.12	0.04	3.13	.01	0.18
DSE	<---	PCWSL	0.01	0.04	0.25	.81	0.01
ATCL	<---	DSE	0.18	0.05	3.73	.001	0.23
ATCL	<---	PIB	0.28	0.05	5.86	.001	0.34
MTL	<---	DSE	0.45	0.06	7.03	.001	0.42
MTL	<---	ATCL	0.46	0.07	6.15	.001	0.34
CJC	<---	POSL	0.11	0.03	3.45	.001	0.16
MTL	<---	POSL	0.49	0.06	7.64	.001	0.40
INT	<---	CJC	0.20	0.04	5.80	.001	0.35
INT	<---	MTL	0.25	0.06	3.99	.001	0.24
<i>Factor Loadings</i>							
Q15b	<---	POSL	1.00				0.82
Q15c	<---	POSL	0.89	0.05	18.39	.001	0.80
Q15h	<---	POSL	0.87	0.05	16.19	.001	0.73
Q15i	<---	POSL	0.95	0.05	18.18	.001	0.80
Q16d	<---	PMSL	0.76	0.04	17.34	.001	0.72
Q16g	<---	PMSL	0.75	0.04	18.73	.001	0.76
Q16h	<---	PMSL	0.97	0.05	19.56	.001	0.78
Q16i	<---	PMSL	1.00				0.89
Q17e	<---	PCWSL	0.89	0.06	16.24	.001	0.72
Q17g	<---	PCWSL	0.62	0.05	13.44	.001	0.62
Q17h	<---	PCWSL	1.00				0.83
Q17i	<---	PCWSL	0.81	0.05	14.98	.001	0.68
Q17j	<---	PCWSL	0.98	0.05	20.12	.001	0.86
Q10o	<---	GSE	1.00				0.83
Q10p	<---	GSE	1.03	0.06	17.07	.001	0.77
Q10s	<---	GSE	0.75	0.05	14.25	.001	0.66

(Males continued)

Observed Variable	Latent Variable	Unstand-ardised Estimate	Standard Error	Critical Ratio	Significance Level ( $p <$ )	Standardised Regression Weights
<i>Factor Loadings (continued)</i>						
Q10b	<--- PIB	1.00				0.85
Q10c	<--- PIB	1.04	0.04	26.03	.001	0.92
Q10d	<--- PIB	1.00	0.04	24.25	.001	0.88
Q10e	<--- PIB	0.97	0.05	21.17	.001	0.81
Q10n	<--- GSE	1.08	0.07	16.05	.001	0.73
Q14b	<--- ANX	0.89	0.07	12.87	.001	0.67
Q14c	<--- ANX	1.00				0.78
Q14d	<--- ANX	0.76	0.06	12.79	.001	0.67
Q14e	<--- ANX	0.98	0.07	14.24	.001	0.76
Q11d	<--- DSE	0.55	0.06	8.69	.001	0.46
Q11h	<--- DSE	1.00				0.74
Q11i	<--- DSE	0.95	0.07	13.54	.001	0.74
Q11j	<--- DSE	0.81	0.07	12.03	.001	0.64
Q13c	<--- MTL	0.94	0.07	14.10	.001	0.73
Q13f	<--- MTL	1.00				0.75
Q13g	<--- MTL	0.98	0.07	14.87	.001	0.77
Q13i	<--- MTL	0.86	0.06	13.38	.001	0.69
Q12d	<--- ATCL	1.00				0.74
Q12f	<--- ATCL	1.08	0.08	14.04	.001	0.71
Q12h	<--- ATCL	1.35	0.09	15.82	.001	0.80
Q12i	<--- ATCL	1.27	0.08	16.54	.001	0.84
Q7b	<--- CJC	1.00				0.88
Q7c	<--- CJC	0.78	0.04	20.58	.001	0.79
Q7d	<--- CJC	0.85	0.04	21.69	.001	0.81
Q7e	<--- CJC	1.04	0.04	26.76	.001	0.92
Q8a	<--- INT	1.00				0.59
Q8c	<--- INT	1.27	0.13	9.48	.001	0.67
Q8d	<--- INT	1.26	0.13	9.72	.001	0.71
Q8e	<--- INT	1.26	0.14	8.72	.001	0.58

*Squared Multiple Correlations*

Dependent Variable	R <sup>2</sup>
DSE	.56
ATCL	.24
MTL	.45
CJC	.16
INT	.20

**FEMALES**

(n = 442)

Observed Variable		Latent Variable	Unstand- ardised Estimate	Standard Error	Critical Ratio	Significance Level ( $p <$ )	Standardised Regression Weights
<i>Structural Weights</i>							
DSE	<---	GSE	0.82	0.07	11.88	.001	0.71
DSE	<---	ANX	-0.15	0.04	-3.60	.001	-0.19
DSE	<---	PMSL	-0.02	0.04	-0.48	.63	-0.03
DSE	<---	PCWSL	0.15	0.05	3.22	.001	0.17
ATCL	<---	DSE	0.20	0.04	4.58	.001	0.28
ATCL	<---	PIB	0.32	0.05	6.25	.001	0.38
MTL	<---	DSE	0.44	0.05	8.34	.001	0.48
MTL	<---	ATCL	0.56	0.07	7.65	.001	0.43
CJC	<---	POSL	0.07	0.03	2.25	.02	0.10
MTL	<---	POSL	0.67	0.08	8.99	.001	0.50
INT	<---	CJC	0.23	0.03	6.64	.001	0.41
INT	<---	MTL	0.30	0.07	4.39	.001	0.27
<i>Factor Loadings</i>							
Q15b	<---	POSL	1.00				0.81
Q15c	<---	POSL	0.84	0.05	16.00	.001	0.78
Q15h	<---	POSL	0.95	0.06	15.15	.001	0.75
Q15i	<---	POSL	0.91	0.06	16.04	.001	0.78
Q16d	<---	PMSL	0.78	0.04	17.72	.001	0.76
Q16g	<---	PMSL	0.82	0.04	19.84	.001	0.82
Q16h	<---	PMSL	0.98	0.05	19.80	.001	0.82
Q16i	<---	PMSL	1.00				0.89
Q17e	<---	PCWSL	0.90	0.06	15.10	.001	0.71
Q17g	<---	PCWSL	0.59	0.05	12.67	.001	0.62
Q17h	<---	PCWSL	1.00				0.84
Q17i	<---	PCWSL	0.75	0.05	14.03	.001	0.67
Q17j	<---	PCWSL	1.05	0.05	20.59	.001	0.89
Q10n	<---	GSE	1.03	0.06	17.39	.001	0.80
Q10o	<---	GSE	1.00				0.83
Q10p	<---	GSE	1.13	0.07	16.77	.001	0.78
Q10s	<---	GSE	0.82	0.06	14.95	.001	0.71
Q10b	<---	PIB	1.00				0.84
Q10c	<---	PIB	1.04	0.04	23.80	.001	0.92
Q10d	<---	PIB	1.07	0.05	23.57	.001	0.92
Q10e	<---	PIB	1.07	0.05	21.42	.001	0.87
Q14b	<---	ANX	0.88	0.08	11.53	.001	0.65
Q14c	<---	ANX	1.00				0.75
Q14d	<---	ANX	0.84	0.07	12.08	.001	0.68
Q14e	<---	ANX	1.07	0.08	13.72	.001	0.80

(Females continued)

Observed Variable		Latent Variable	Unstand-ardised Estimate	Standard Error	Critical Ratio	Significance Level ( $p <$ )	Standardised Regression Weights
<i>Factor Loadings (continued)</i>							
Q11d	<---	DSE	0.56	0.05	10.49	.001	0.54
Q11h	<---	DSE	1.00				0.82
Q11i	<---	DSE	0.96	0.05	17.75	.001	0.84
Q11j	<---	DSE	0.73	0.06	13.18	.001	0.66
Q13c	<---	MTL	0.82	0.07	12.22	.001	0.65
Q13f	<---	MTL	1.00				0.78
Q13g	<---	MTL	0.88	0.07	13.18	.001	0.70
Q13i	<---	MTL	0.95	0.07	13.73	.001	0.73
Q12d	<---	ATCL	1.00				0.79
Q12f	<---	ATCL	1.06	0.07	15.47	.001	0.76
Q12h	<---	ATCL	1.25	0.07	17.53	.001	0.84
Q12i	<---	ATCL	1.25	0.07	18.09	.001	0.86
Q7b	<---	CJC	1.00				0.91
Q7c	<---	CJC	0.80	0.04	22.64	.001	0.83
Q7d	<---	CJC	0.83	0.04	21.70	.001	0.82
Q7e	<---	CJC	0.93	0.03	27.29	.001	0.91
Q8a	<---	INT	1.00				0.63
Q8c	<---	INT	1.27	0.12	10.89	.001	0.77
Q8d	<---	INT	1.19	0.11	10.75	.001	0.75
Q8e	<---	INT	1.32	0.13	9.92	.001	0.66

*Squared Multiple Correlations*

Dependent Variable	R <sup>2</sup>
DSE	.70
ATCL	.32
MTL	.63
CJC	.25
INT	.25

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**APPENDIX J:**

**PARAMETER ESTIMATES FOR  
CROSS-VALIDATION OF MODERATED  
STRUCTURAL MODEL**



## **PARAMETER ESTIMATES FOR CROSS-VALIDATION OF MODERATED STRUCTURAL MODEL**

Complete list of parameter estimates, standard errors, and significance values for observed variables and latent constructs for the cross-validation of the moderated structural model.

### **MALES**

(*n* = 497)

<b>Observed Variable</b>		<b>Latent Variable</b>	<b>Unstand- ardised Estimate</b>	<b>Standard Error</b>	<b>Critical Ratio</b>	<b>Significance Level (<i>p</i> &lt;)</b>	<b>Standardised Regression Weights</b>
<i>Structural Weights</i>							
DSE	<---	GSE	0.70	0.06	12.07	.001	0.73
DSE	<---	ANX	-0.10	0.03	-3.41	.001	-0.16
DSE	<---	PMSL	0.03	0.03	1.22	.23	0.06
DSE	<---	PCWSL	0.07	0.03	2.13	.03	0.10
ATCL	<---	DSE	0.21	0.05	3.87	.001	0.22
ATCL	<---	PIB	0.42	0.05	7.97	.001	0.44
MTL	<---	DSE	0.48	0.06	8.21	.001	0.43
MTL	<---	ATCL	0.57	0.06	9.68	.001	0.49
CJC	<---	POSL	0.11	0.02	4.51	.001	0.18
MTL	<---	POSL	0.68	0.05	12.54	.001	0.57
INT	<---	CJC	0.17	0.03	6.35	.001	0.37
INT	<---	MTL	0.35	0.06	6.22	.001	0.39
<i>Factor Loadings</i>							
Q15b	<---	POSL	1.00				0.85
Q15c	<---	POSL	0.83	0.04	21.14	.001	0.80
Q15h	<---	POSL	0.95	0.05	20.70	.001	0.79
Q15i	<---	POSL	0.91	0.04	21.14	.001	0.80
Q16d	<---	PMSL	0.84	0.04	22.08	.001	0.78
Q16g	<---	PMSL	0.79	0.04	22.82	.001	0.80
Q16h	<---	PMSL	0.88	0.04	21.42	.001	0.77
Q16i	<---	PMSL	1.00				0.91
Q17e	<---	PCWSL	0.83	0.06	15.06	.001	0.65
Q17g	<---	PCWSL	0.58	0.05	12.81	.001	0.57
Q17h	<---	PCWSL	1.00				0.83
Q17i	<---	PCWSL	0.74	0.05	15.24	.001	0.66
Q17j	<---	PCWSL	0.95	0.05	20.30	.001	0.85
Q10n	<---	GSE	0.94	0.06	15.01	.001	0.67
Q10o	<---	GSE	1.00				0.81
Q10p	<---	GSE	1.04	0.07	16.04	.001	0.71
Q10s	<---	GSE	0.88	0.05	17.20	.001	0.75

(Males continued)

Observed Variable	Latent Variable	Unstand- ardised Estimate	Standard Error	Critical Ratio	Significance Level ( $p <$ )	Standardised Regression Weights
<i>Factor Loadings (continued)</i>						
Q10b	<--- PIB	1.00				0.85
Q10c	<--- PIB	1.00	0.04	23.29	.001	0.84
Q10d	<--- PIB	1.03	0.04	25.12	.001	0.88
Q10e	<--- PIB	1.01	0.04	23.54	.001	0.85
Q14b	<--- ANX	0.86	0.07	12.33	.001	0.63
Q14c	<--- ANX	1.00				0.73
Q14d	<--- ANX	0.93	0.07	14.04	.001	0.73
Q14e	<--- ANX	1.06	0.07	14.42	.001	0.76
Q11d	<--- DSE	0.66	0.06	10.86	.001	0.54
Q11h	<--- DSE	1.00				0.72
Q11i	<--- DSE	1.05	0.07	14.51	.001	0.75
Q11j	<--- DSE	0.87	0.07	12.20	.001	0.61
Q13c	<--- MTL	0.89	0.06	14.68	.001	0.68
Q13f	<--- MTL	1.00				0.79
Q13g	<--- MTL	0.93	0.06	15.77	.001	0.73
Q13i	<--- MTL	0.79	0.06	12.75	.001	0.60
Q12d	<--- ATCL	1.00				0.80
Q12f	<--- ATCL	1.14	0.06	18.43	.001	0.78
Q12h	<--- ATCL	1.26	0.07	19.00	.001	0.80
Q12i	<--- ATCL	1.18	0.06	19.87	.001	0.83
Q7b	<--- CJC	1.00				0.92
Q7c	<--- CJC	0.81	0.03	24.35	.001	0.80
Q7d	<--- CJC	0.81	0.03	26.30	.001	0.84
Q7e	<--- CJC	0.95	0.03	30.67	.001	0.90
Q8a	<--- INT	1.00				0.50
Q8c	<--- INT	1.46	0.16	9.14	.001	0.68
Q8d	<--- INT	1.48	0.16	9.32	.001	0.72
Q8e	<--- INT	1.52	0.17	8.82	.001	0.63

*Squared Multiple Correlations*

Dependent Variable	R <sup>2</sup>
DSE	.66
ATCL	.34
MTL	.66
CJC	.33
INT	.32

**FEMALES**

(n = 396)

Observed Variable		Latent Variable	Unstand- ardised Estimate	Standard Error	Critical Ratio	Significance Level ( $p <$ )	Standardised Regression Weights
<i>Structural Weights</i>							
DSE	<---	GSE	0.76	0.08	9.86	.001	0.65
DSE	<---	ANX	-0.16	0.04	-4.34	.001	-0.24
DSE	<---	PMSL	-0.03	0.04	-0.68	.50	-0.04
DSE	<---	PCWSL	0.04	0.05	0.77	.44	0.04
ATCL	<---	DSE	0.17	0.05	3.77	.001	0.24
ATCL	<---	PIB	0.27	0.05	5.47	.001	0.34
MTL	<---	DSE	0.40	0.06	6.61	.001	0.39
MTL	<---	ATCL	0.65	0.09	7.56	.001	0.46
CJC	<---	POSL	0.08	0.03	2.67	.01	0.13
MTL	<---	POSL	0.39	0.07	5.60	.001	0.30
INT	<---	CJC	0.09	0.03	3.39	.001	0.20
INT	<---	MTL	0.34	0.07	5.08	.001	0.35
<i>Factor Loadings</i>							
Q15b	<---	POSL	1.00				0.86
Q15c	<---	POSL	0.86	0.04	19.71	.001	0.84
Q15h	<---	POSL	0.96	0.05	17.78	.001	0.78
Q15i	<---	POSL	0.83	0.05	16.82	.001	0.75
Q16d	<---	PMSL	0.83	0.04	18.79	.001	0.78
Q16g	<---	PMSL	0.82	0.04	20.04	.001	0.81
Q16h	<---	PMSL	0.94	0.05	18.31	.001	0.76
Q16i	<---	PMSL	1.00				0.90
Q17e	<---	PCWSL	0.79	0.07	11.11	.001	0.58
Q17g	<---	PCWSL	0.56	0.05	10.49	.001	0.55
Q17h	<---	PCWSL	1.00				0.80
Q17i	<---	PCWSL	0.79	0.06	12.35	.001	0.64
Q17j	<---	PCWSL	0.98	0.06	15.56	.001	0.81
Q10n	<---	GSE	1.10	0.08	14.28	.001	0.73
Q10o	<---	GSE	1.00				0.77
Q10p	<---	GSE	1.22	0.08	15.18	.001	0.78
Q10s	<---	GSE	0.91	0.07	13.61	.001	0.70
Q10b	<---	PIB	1.00				0.85
Q10c	<---	PIB	1.05	0.05	23.26	.001	0.90
Q10d	<---	PIB	0.97	0.05	21.51	.001	0.85
Q10e	<---	PIB	0.99	0.05	19.94	.001	0.82

(Females continued)

Observed Variable	Latent Variable	Unstand- ardised Estimate	Standard Error	Critical Ratio	Significance Level ( $p <$ )	Standardised Regression Weights
<i>Factor Loadings (continued)</i>						
Q14b	<--- ANX	0.94	0.07	13.13	.001	0.70
Q14c	<--- ANX	1.00				0.77
Q14d	<--- ANX	0.85	0.06	13.64	.001	0.72
Q14e	<--- ANX	1.07	0.07	15.02	.001	0.81
Q11d	<--- DSE	0.46	0.06	7.63	.001	0.42
Q11h	<--- DSE	1.00				0.76
Q11i	<--- DSE	0.96	0.07	14.10	.001	0.77
Q11j	<--- DSE	0.89	0.07	12.15	.001	0.66
Q13c	<--- MTL	0.93	0.07	12.89	.001	0.69
Q13f	<--- MTL	1.00				0.77
Q13g	<--- MTL	0.86	0.07	12.85	.001	0.69
Q13i	<--- MTL	0.87	0.07	12.86	.001	0.69
Q12d	<--- ATCL	1.00				0.73
Q12f	<--- ATCL	1.09	0.09	12.57	.001	0.68
Q12h	<--- ATCL	1.30	0.09	14.82	.001	0.81
Q12i	<--- ATCL	1.23	0.08	14.85	.001	0.81
Q7b	<--- CJC	1.00				0.90
Q7c	<--- CJC	0.80	0.04	22.84	.001	0.83
Q7d	<--- CJC	0.88	0.04	24.86	.001	0.87
Q7e	<--- CJC	0.94	0.03	27.37	.001	0.91
Q8a	<--- INT	1.00				0.53
Q8c	<--- INT	1.51	0.17	8.68	.001	0.75
Q8d	<--- INT	1.31	0.15	8.52	.001	0.69
Q8e	<--- INT	1.30	0.17	7.59	.001	0.55

*Squared Multiple Correlations*

Dependent Variable	R <sup>2</sup>
DSE	.64
ATCL	.25
MTL	.53
CJC	.09
INT	.17