

From perception to reaction: An examination of the antecedents and mediators of employee outcomes during organisational change

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From perception to reaction: An examination of the antecedents and mediators of employee outcomes during organisational change

Hionia Achele

Bachelor of Psychology (Hons) Master of Psychology (Organisational)

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Organisational change is a complex process with potentially profound impacts on the employees who are recipients of the change. Understanding the factors that predict an employee's propensity to commit to a change and produce positive change outcomes is, therefore, of great importance to researchers and change practitioners. Across three empirical studies, this research program introduced and examined an efficient and integrated model of employee perceptions, beliefs, commitment and outcomes during significant organisational change.

The first study investigated whether short-form scales could be developed for established measures of variables contained within the proposed model. Data was collected from employees within an Australian organisation (N=110). Systematic analyses across 11 scales demonstrated a 42% item reduction (32 items across eight scales), whilst preserving scale reliability and validity.

Study 2 sought to integrate the research conducted to date on employee perceptions and beliefs to understand how they influence affective commitment to change (ACC). Using the reduced-item measures from Study 1, the cross-sectional study on employees from a second Australian organisation (N=703) explored the development of a comprehensive model examining the relationships and variables governing an individual's ACC. Structural equation modelling (SEM) analyses supported a mediated model, whereby an employee's general disposition to resist change, together with their perception of the change process (change information, change participation) and change context (trust in management, transformational leadership) influenced their beliefs towards change, and subsequently their ACC.

Finally, Study 3 sought to extend the model developed in Study 2 by additionally measuring three employee outcomes during change (job satisfaction, change-supportive behavioural intention, turnover intention). Longitudinal investigations were conducted with employees from a third organisation across the Asia Pacific region (N=750). SEM analyses revealed a mediated model of change, with each outcome variable differentially influenced by change perception, belief and commitment variables over time. Overall, the research reported in this thesis provides support for an efficient manage and predict employee outcomes during change over time. Opportunities to further understand and explore these findings are discussed, as are directions for managing change in the future.

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Table of Contents

Thes	is Diss	ertation Sheeti
Origi	nality	Statementii
Inclu	sion of	Publications Statementiii
Сору	vright a	nd Authenticity Statementsiv
Table	e of Co	ntentsv
List	of Figu	resx
List	of Tabl	esxi
Abbr	eviatio	ns and Symbolsxiv
Ackn	owled	gementsxvi
Abst	ract	xvii
Chap	oter 1:	Overview, Purpose and Contribution of the Research1
1.1.	Macro	and Micro Levels of Analysis in Organisational Change2
1.2.	Emplo	yee Reactions to Change4
1.3.	Literat	ure Gaps in the Understanding of Individual Change Factors4
	1.3.1.	Inconsistency in the Use of Change Terminology5
	1.3.2.	Examination of Change Variables in Isolated or Discrete Groupings7
	1.3.3.	Lack of Empirical Evidence in the Assessment of Comprehensive Models of Change
1.4.	Purpo	se of the Research11
Chap	oter 2:	Theoretical and Empirical Review of the Antecedents of Change Beliefs and Affective Commitment to Change13
2.1.	Organ	isational Commitment and Commitment to Organisational Change13
2.2.	Antec	edents of Change Beliefs and Affective Commitment to Change15
	2.2.1.	Distal Antecedents of Change Beliefs and Affective Commitment to Change
	2.2.2.	Proximal Antecedents of Change Beliefs and Affective Commitment to Change

Chap	oter 3:	Theoretical and Empirical Review of the Antecedents of Employe	ee
		Outcomes During Change	42
3.1.	Job S	atisfaction	43
	3.1.1.	Antecedents of Job Satisfaction	44
3.2.	Chang	ge-Supportive Behavioural Intentions	46
	3.2.1.	Antecedents of Change-Supportive Behavioural Intentions	47
3.3.	Turno	ver Intentions	50
	3.3.1.	Antecedents of Turnover Intentions	50
Chap	oter 4:	Overview of Methodology and Statistical Procedures	53
4.1.	Overv	iew of Methodology	53
4.2.	Overv	iew of Studies	53
4.3.	Statis	tical Procedures	54
	4.3.1.	Software Packages	54
	4.3.2.	Sample Size Requirements	54
	4.3.3.	Missing Data	55
	4.3.4.	Explorative and Descriptive Data Analyses	58
	4.3.5.	Development of Short-Form Measures	58
	4.3.6.	Structural Equation Modelling	61
	4.3.7.	Total, Direct and Indirect Effects in Structural Equation Modelling	64
	4.3.8.	Longitudinal Considerations in Structural Equation Modelling	66
	4.3.9.	Control Variables	67
Chap	oter 5:	Study 1 - Development of Short-form Measures of Employee Cha	ange
		Variables	68
5.1.	Aims	and Hypotheses	70
5.2.	Metho	od	71
	5.2.1.	Securing the Population	71
	5.2.2.	Design and Procedure	71
	5.2.3.	Participants	72
	5.2.4.	Measures	72

5.3.	Resul	ts	76
	5.3.1.	Item Reduction Analyses	76
	5.3.2.	Validity Analyses	79
5.4.	Discu	ssion	81
	5.4.1.	Theoretical Contributions	81
	5.4.2.	Practical Implications	82
	5.4.3.	Strengths and Limitations	83
Cha	oter 6:	Study 2 - Modelling the Antecedents of Affective Commitment to	
		Change	85
6.1.	Aims	and Hypotheses	85
	6.1.1.	Employee Dispositional Resistance to Change Hypotheses	87
	6.1.2.	Change Process Hypotheses	88
	6.1.3.	Change Context Hypotheses	88
	6.1.4.	Change Belief Hypotheses	89
	6.1.5.	Demographic Hypotheses	89
6.2.	Metho	od	89
	6.2.1.	Securing the Population	89
	6.2.2.	Design and Procedure	90
	6.2.3.	Participants	90
	6.2.4.	Measures	90
	6.2.5.	Control Variables	90
6.3.	Resul	ts	91
	6.3.1.	Preliminary Analyses	91
	6.3.2.	Modelling the Predictors of Affective Commitment to Change	95
6.4.	Discu	ssion	110
	6.4.1.	Predictors of Affective Commitment to Change	112
	6.4.2.	Theoretical Contributions	115
	6.4.3.	Practical Implications	116
	6.4.4.	Strengths and Limitations	116

Chapter 7:		Modelling an Integrated Network of Antecedents and Mediators of		
		Employee Outcomes of Change Over Time	118	
7.1.	Aims	and Hypotheses	118	
	7.1.1.	Predicting Variables Over Time	120	
	7.1.2.	Cross-Lagged Relationships	120	
	7.1.3.	Predictors of Affective Commitment to Change	121	
	7.1.4.	Predictors of Employee Outcomes During Change	122	
7.2.	Metho	od	125	
	7.2.1.	Securing the Population	125	
	7.2.2.	Design and Procedure	125	
	7.2.3.	Participants	126	
	7.2.4.	Measures	126	
7.3.	Resul	ts	127	
	7.3.1.	Missing Data	127	
	7.3.2.	Preliminary Analyses	128	
	7.3.3.	Assessment of the Predictors of Employee Outcomes of Change Ove	эr	
		Time	130	
7.4.	Discu	ssion	155	
	7.4.1.	Summary of Findings	155	
	7.4.2.	Autoregressive and Cross-Lagged Effects	156	
	7.4.3.	Predictors of Affective Commitment to Change	157	
	7.4.4.	Predictors of Job Satisfaction	157	
	7.4.5.	Predictors of Change-Supportive Behavioural Intentions	158	
	7.4.6.	Predictors of Turnover Intentions	159	
	7.4.7.	Strengths and Limitations	160	
Chaj	oter 8:	General Discussion	163	
8.1.	Overv	view of Key Findings	163	
	8.1.1.	Aim 1: Scale Efficiency in the Measurement of Change	163	
	8.1.2.	Aim 2: Understanding the Antecedents of Affective Commitment to		
		Change	165	

Арре	endix C	: Supplementary Data Tables for Study 321	7
Арр	endix B	8: Supplementary Data Tables for Study 221	3
Арр	endix A	a: Research Scales and Items Used in the Research Program21	0
Refe	erences	187	
8.7.	Concl	usion	5
8.6.	Future	e Research Directions18	2
8.5.	Practi	cal Implications18	1
8.4.	Gene	ral Limitations	9
8.3.	Stren	gths and Contributions of the Research Program17	7
	8.2.8.	Affective Commitment to Change17	6
	8.2.7.	Change Beliefs17	3
	8.2.6.	Transformational Leadership17	1
	8.2.5.	Trust in Management17	1
	8.2.4.	Change Participation17	0
	8.2.3.	Change Information16	9
	8.2.2.	Dispositional Resistance to Change16	8
	8.2.1.	Demographic Variables (Age, Gender, Level of Seniority)16	7
8.2.	Theor	etical Contributions16	6
	8.1.3.	Aim 3: Understanding the Antecedents of Employee Outcomes During Change	6
	040	Aire O. Hardenstein die nuthe Antennetente of Frenderice Outenance During	

List of Figures

Figure 1.1: A conceptual model of individual change dynamics	4
Figure 4.1: Summary of complete and incomplete data in Study 35	6
Figure 6.1: Study 2 - Proposed cross-sectional model of affective commitment to change	6
Figure 6.2: Study 2 - Structural model of affective commitment to change10	3
Figure 6.3: Study 2 - Final mediated model of affective commitment to change10	8
Figure 7.1: Study 3 - Hypothesised relationships in the proposed model	9

List of Tables

Table 1.1: Definitions of individual change terms. 6
Table 2.1: Overview of the predictors of change beliefs, affective commitment to change and employee outcomes during change. 33
Table 4.1: Model fit indices and their critical value for indicating good model fit63
Table 5.1: Study 1 - item reduction hypotheses. 71
Table 5.2: Study 1 - Summary of scales used
Table 5.3: Study 1 - Goodness-of-fit summary for full-item and reduced-item scales77
Table 5.4: Study 1 - Standardised regression weights for full-item scales
Table 5.5: Study 1 - Convergent validity for reduced-item scales
Table 5.6: Study 1 - Means, standard deviations, zero-order correlation, and composite reliability among variables. 80
Table 6.1: Study 2 - Hypothesised main direct and indirect effects. 87
Table 6.2: Study 2 - Summary demographic variables used. 91
Table 6.3: Study 2 - Goodness-of-fit summary for variables
Table 6.4: Study 2 - Standardised regression weights for full-item scales
Table 6.5: Study 2 - Measurement model goodness-of-fit summary for affective commitment to change
Table 6.6: Study 2 - Composite reliability, average variance explained and correlationsin the 12-factor measurement model.100
Table 6.7: Study 2 - Model fit indices for the default model and re-specified nested models. 101
Table 6.8: Study 2 - Overview of significant and non-significant paths in the final model of affective commitment to change
Table 6.9: Study 2 - Standardised path coefficients and correlations of the final model of affective commitment to change
Table 6.10: Study 2 - Direct, indirect and total effects on employee affectivecommitment to change (ML estimates with bootstrap correction)
Table 7.1: Study 3 - Hypothesised main direct and indirect effects. 124
Table 7.2: Study 3 - Goodness-of-fit summary for variables

Table 7.3: Study 3 - Paired-samples t-tests for variables. 130
Table 7.4: Study 3 - Measurement model goodness-of-fit summary for change outcomes. 133
Table 7.5: Study 3 - Measurement invariance analyses. 134
Table 7.6: Study 3 - Composite reliability, average variance explained and correlations in the 26-factor measurement model. 135
Table 7.7: Study 3 - Model fit indices for the default model and re-specified nested models. 138
Table 7.8: Study 3 - Overview of significant and non-significant paths in the final model of change outcomes. 139
Table 7.9: Study 3 - Standardised path coefficients and correlations of the final model of change outcomes. 140
Table 7.10: Study 3 - Parameter estimates for T1 variables on their respective score at T2141
Table 7.11: Study 3 - Significant parameter estimates for direct cross-lagged relations.
Table 7.12: Study 3 - Direct, indirect and total effects on T2 employee affectivecommitment to change (ML estimates with bootstrap correction).146
Table 7.13: Study 3 - Significant direct, indirect and total effects on T2 employee jobsatisfaction (ML estimates with bootstrap correction).149
Table 7.14: Study 3 - Significant direct, indirect and total effects on T2 behaviouralsupport intentions (ML estimates with bootstrap correction).151
Table 7.15: Study 3 - Significant direct, indirect and total effects on T2 employeeturnover intention (ML estimates with bootstrap correction)154
Table A.1: List of scale items used in Study 1, 2 and 3 of the research program 209
Table B.1: Study 2 - Regression weights estimates derived from ML estimation andbootstrap correction for the final affective commitment model.212
Table B.2: Study 2 - Direct, indirect and total effects on employee affective commitmentto change (ML estimates with bootstrap correction).214
Table C.1: Study 3 - Regression weights estimates derived from ML estimation and bootstrap correction for the final model

Table C.2: Study 3 - Direct	, indirect and total	effects on final	model (ML	estimates	with
bootstrap correction	on)				220

Abbreviations and Symbols

ACC	affective commitment to change
AIC	Akaike Information Criterion
ANOVA	analysis of variance
Арр	change appropriateness
AVE	average variance extracted
b	unstandardised regression weight
BC bootstrap	bias-corrected bootstrap (confidence intervals)
Behav	change-supportive behavioural intentions
β	beta; standardised regression weight
BS	Bollen-Stine correction
CCC	continuance commitment to change
CFI	Comparative Fit Index
Chef	change efficacy
χ ²	test statistic for structural equation models
CI	confidence interval; the range of values around a statistic that
	contains the true value of that statistic (in this research program
	95%Cl used)
CMV	common method variance
CR	composite reliability
df	degrees of freedom
DRtC	dispositional resistance to change
DV	dependent variable(s)
EM algorithm	Expectation Maximisation algorithm
F	test-statistic for ANOVAs
f	female; in models coded as 1
FFM	Five Factor Model of personality
FIML	Full Information Maximum Likelihood
G theory	generalizability theory
HI90	upper limit of 90% confidence interval for the RMSEA
Info	change information
IV	Independent variables
Just	change justice
k	number of bootstrap samples
LO90	lower limit of 90% confidence interval for the RMSEA
Μ	mean

m	male; in models coded as 0
MCAR	missing completely at random
MI	modification index
ML	maximum likelihood
Mod	Structural model
Msup	management support
Ν	total sample size
n.s.	not significant
NCC	normative commitment to change
p	p-value; unless otherwise stated p<0.05 considered statistically
	significant
р./рр.	page/pages
Part	change participation
PCLOSE	p-value associated with RMSEA to indicate close model fit
Pval	personal valence
r	correlation coefficient
ρ	Spearman's rho
R ²	squared multiple correlation
reg	regression
RMSEA	Root Mean Square Error of Approximation
Satis	job satisfaction
SD	standard deviation
SE	standard error
SEM	structural equation modelling
SRMR	Standardised Root Mean Square Residual
stand	standardised
T1	time 1 (applicable to Study 3 only)
T2	time 2 (applicable to Study 3 only)
Tlshp	transformational leadership
ТРВ	Theory of Planned Behaviour
Trust	trust in management
Turn	turnover intentions
unstand	unstandardised
var	variance
VCM	variance-covariance matrix

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Abstract

Organisational change is a complex process with potentially profound impacts on the employees who are recipients of the change. Understanding the factors that predict an employee's propensity to commit to a change and produce positive change outcomes is, therefore, of great importance to researchers and change practitioners. Across three empirical studies, this research program introduced and examined an efficient and integrated model of employee attributes, perceptions, beliefs, commitment and outcomes during significant organisational change.

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Finally, Study 3 sought to extend the model developed in Study 2 by additionally measuring three employee outcomes during change (job satisfaction, change-supportive behavioural intention, turnover intention). Longitudinal investigations were conducted with employees from a third organisation across the Asia Pacific region (N=750). SEM analyses revealed a mediated model of change, with each outcome variable differentially influenced by change perception, belief and commitment variables over time. Overall, the research reported in this thesis provides support for an efficient measurement of employee perceptions, beliefs and commitment during change that can be used to understand, manage and predict employee outcomes during change over time. Opportunities to further understand and explore these findings are discussed, as are directions for managing change in the future.

Chapter 1: Overview, Purpose and Contribution of the Research

In today's business environment, change has become an ever-present feature of organisational life. Organisations are being forced to respond to a number of challenges due to market forces, industry changes, political uncertainty, technological advances and the ever-changing demand driven by consumers. Organisations are no longer seeking to merely 'change', they are looking for 'transform' the way they do business. For organisations in today's world, change is as much about survival as it is about improving performance; change is a dynamic, perennial reality.

Given the pace of change is accelerating, and its magnitude is increasing, organisations are facing increasing pressure to meet their objectives in a timely and cost efficient manner, with minimal disruption to their existing business operations. Moreover, as organisational change often has a profound impact on individuals, organisations are seeking to understand the impact of change on their stakeholders, both within and outside the organisation.

The literature on understanding how organisational change impacts individual employees (or change recipients) is extensive, and the importance of understanding and managing individual employee reactions to change has been widely discussed and examined (e.g., Armenakis, Harris, & Mossholder, 1993; Bouckenooghe, Schwarz, & Minbashian, 2014; Holt, Armenakis, Field, & Harris, 2007a; Morin, Meyer, Belanger, Bourdrias, Gagne, & Parker, 2016; Oreg, Vakola, & Armenakis, 2011). To address these people impacts, organisations are looking to future-proof their workforce, necessitating the allocation of a large investment in time and resources to change initiatives. However, despite this investment, research continues to indicate that there are barriers to the successful delivery of change, and that change initiatives seldom achieve their projected outcomes (Beer & Nohria, 2000; Burke & Jackson, 2011; Cartwright & Schoenberg, 2006; Meaney & Pung, 2008; Mosadeghrad & Ansarian, 2014; Washington & Hacker, 2005). A key determinant of successful change is for change managers to ensure that the organisation and all associated stakeholders are ready, willing and able to change.

The necessity to overcome these challenges during change has led to the need to identify the factors critical to the delivery of successful change. Research spanning decades has sought to uncover the key factors that need to be considered before and during any significant organisational change (for a review see Oreg et al., 2011). Given the large number of potentially influential factors, researchers have naturally tried to

understand and address the complexity of organisational change from a number of perspectives, some of which have proved to be complementary and others contradictory.

1.1. Macro and Micro Levels of Analysis in Organisational Change

Historically, research in organisational change has centred on the macro-level of analysis, which describes research that "largely focuses on organizational and systems-level variables, such as institutional pressures for change, environmental factors, the firm's strategic orientation, age, and size, and various design factors" (Cunningham, 2006, p.29). Within this research perspective, the organisation's capability and capacity to implement change is central to the analysis (Burke & Litwin, 1992), and organisational factors including strategy, structure and control systems are considered critical to a successful change. For example, Thompson, Peteraf, Gamble, and Strickland (2013) provided a model illustrating factors in the immediate market environment (new entrants, customers, suppliers, alternative products) and the macroenvironment (economy, politics, environment, regulations, technology, socio-cultural influences) that are always creating pressure on companies to change in order to stay competitive. Given the constant change evident across each of these domains, there is a need for organisations to understand the change process to successfully adapt to change. Whilst understanding and planning for these organisational factors is important during change, organisations cannot successfully plan, implement and sustain change without considering the impact of the change on their employees (Vakola, 2013).

To address this, researchers considering the micro-level of analysis have adopted a "people-orientated focus" (Cunningham, 2006, p.29). A fundamental characteristic of micro-level change therefore is that changes must be implemented *through* individual employees. Holt et al. (2007a) argued that organisations must implement change by actually altering the way employees do their work; a sentiment shared by numerous researchers (e.g., Eby, Adams, Russell, & Gaby, 2000; Judge, Thoresen, Pucik, & Welbourne, 1999). This argument extends to the conviction that employee opinions, attitudes and reactions towards a specific organisational change play a key role in determining whether that change will succeed (Bartunek, Rousseau, Rudolph, & DePalma, 2006; Harding & Rouse, 2007; Kotter, 1995). Given this perspective, it seems important and appropriate to gauge individual factors relating to change by assessing the individual attributes, perceptions, beliefs and attitudes of those employees who must actually change their behaviour as part of the change (Holt et al., 2007a). Change from a micro perspective therefore centres on the premise that individuals must have change-appropriate perceptions and beliefs in order for them to successfully adopt a given change. In this instance, a belief is defined as an "opinion or a conviction about the truth of something that may not readily be obvious or subject to systematic variation" (Armenakis, Bernerth, Pitts, & Walker, 2007a, p. 483).

At the micro-level of analysis, two main topics have informed the exploration of antecedents and consequences of change: (i) how to persuade people to 'buy into' the change, and (ii) how to manage employee attitudes towards change (Bouckenooghe, 2010). Integrating this research into the realities of business operations, organisations are seeking to develop more defined people measures and metrics, and to apply more quantitative parameters to what is traditionally a qualitative concept. To achieve this, it is argued that the accurate assessment and diagnosis of employee profiles before and during change is required in order to analyse the psychological aspects of organisational change, and to understand the effects of organisational change on employees (Jacobs, van Witteloostuijn, & Criste-Zeyse, 2013). Acknowledging that extensive research has been conducted examining employee attitudes towards change, to date researchers and practitioners alike do not have a comprehensive and integrated understanding of which employee-related variables are most influential in shaping employee outcomes during organisational change (Oreg et al., 2011).

In response to this need, the current research focuses on the micro-level of analysis, and attempts to develop a conceptual model of organisational change examining the dynamic relationships governing an employee's individual attributes, perceptions, beliefs and commitment about organisational change, and how they influence various change-related outcomes. Within the proposed model (depicted in Figure 1.1), it is argued that a putative set of individual attributes (dispositional resistance to change), change perceptions (change process variables, change context variables) can predict an individual's affective commitment to change, which in turn influences a number of employee-related change outcomes. Included within this process model is the role of change beliefs that mediate the relationship between individual attributes, change perceptions and commitment to change.



Figure 1.1: A conceptual model of individual change dynamics.

1.2. Employee Reactions to Change

It has been argued that whilst a failure to implement change in a successful manner may be attributed to a number of factors, few issues are as critical as employees' perceptions towards change (Miller, Johnson, & Grau, 1994). In part, this is due to the fact that individuals experience and react to organisational change in an idiosyncratic manner. Whereas some employees may not be overly concerned with a disruption to their work routine and may view organisational change as a chance to grow and learn, others may react negatively to even the smallest of changes. These negative reactions may be due to feelings of uncertainty with regard to what the future holds, or a fear of failure regarding the new tasks, protocols or processes that come with change (Coch & French, 1948). To address these potential barriers, researchers have examined the factors that promote an individual's likelihood to respond positively to organisational change.

Given the complexity associated with individual sentiments and cognitions about change, research to date has focused on a large number of factors ranging from dispositional to situational (or contextual) characteristics. Whilst these analyses have provided valuable information, their examination in small, discrete groups has not enabled researchers to unpack the interrelationships between the relevant variables. With organisations faced with the challenge of only having finite time, resources and money to implement organisational change, the key question that remains outstanding is: Which employee factors and relationships are most important and relevant to organisational change?

1.3. Literature Gaps in the Understanding of Individual Change Factors

Acknowledging the research that has been conducted to date on employee factors at the micro-level of analysis, there remain three main literature gaps in understanding individual factors during organisational change. Firstly, there is no agreed set of terminology regarding organisational change concepts. Secondly, despite the considerable amount of research that has been conducted in the research area, investigation of employee attributes, change perceptions, beliefs and outcomes has typically occurred in isolated or discrete groupings. Finally, whilst a number of conceptual models have been developed to integrate employee change factors, few of the models have been subjected to empirical testing. The following sections provide a discussion on each of these three literature gaps.

1.3.1. Inconsistency in the Use of Change Terminology

The first gap relates to the inconsistency of change terminology that has been used by researchers, as the consideration of individual attitudes to change is a complex phenomenon. Given the increasing interest by researchers to understand the employee change-related factors that influence change outcomes, it is argued that there is no consistency in the "meanings, labels, and definitions of constructs referring to attitudes toward change (i.e., readiness for change, resistance to change, cynicism about organizational change, commitment to change, openness to change, acceptance of change, coping with change, adjustment to change)" (Bouckenooghe, 2010, p.501). Oreg et al. (2011) and Stevens (2013) also expressed concern in their reviews regarding this conceptual confusion, and likened this disintegration of research terms to Block's (1995) "jingle-jangle" fallacy. The *jingle* fallacy occurs when different constructs are given the same label by different researchers. The *jangle* fallacy occurs when equivalent constructs are given different labels.

In the context of this research program, the *jangle fallacy* is of most relevance, as there is a large amount of inconsistency regarding the terms used to describe organisational change concepts. Theorists and practitioners have often used terms such as change readiness (Choi & Rouna, 2011; Cunningham et al., 2002; Eby et al., 2000; Holt et al., 2007a; Rafferty, Jimmieson, & Armenakis, 2013; Weiner, Amick, & Lee, 2008), openness (Miller et al., 1994; Wanberg & Banas, 2000), and acceptance (Paterson & Cary, 2002) interchangeably to describe what are perhaps conceptually similar and empirically indistinguishable constructs (Bouckenooghe, 2010; Ployhart & Bliese, 2006). Whilst it is not the purpose of this research thesis to conduct a comprehensive analysis of all change-related terms (see Bouckenooghe (2010) and Stevens (2013) for a review), an inspection of the literature reveals the overlap, and Table 1.1 provides indicative definitions of commonly used terms in organisational change research. In each of the respective definitions, common themes involve the need for an individual to be cognitively and behaviourally prepared for change, to perceive the change as necessary, and to have a sense that they have the ability to successfully carry out change. However, given the differences in construct terminology and definitions, there is no agreement regarding which antecedents and outcomes are key to the measurement of individual perceptions to change. In addressing this confusion, the question therefore arises as to whether there is a single descriptor that can appropriately be used to summarise the concepts.

Table 1.1: Definitions	; of	individual	change	terms.
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Term	Definition
Readiness for change	" the extent to which an individual or individuals are cognitively and emotionally inclined to accept, embrace and adopt a particular plan to purposefully alter the status quo" (Holt et al., 2007, p. 235).
Readiness for change	" an individual's perception of a specific facet of his or her work environment - the extent to which the organization is perceived to be ready for change" (Eby et al., 2000, p. 422).
Readiness to change	" a broad construct, reflecting a combination of a number of factors that indicate the likelihood that someone will start or continue being engaged in behaviors associated with change such as support and participation" (Vakola, 2013, p. 97).
Organizational readiness for change	" organizational members' shared resolve to implement a change (change commitment) and shared belief in their collective capability to do so (change efficacy)" (Weiner, 2009, p. 68).
Commitment to change	" a force or the mind-set that binds an individual to a course of action deemed necessary for the successful implementation of a change initiative" (Herscovitch & Meyer, 2002, p. 475).
Openness to change	" support for change, positive affect about the potential consequences of the change, and it is considered a necessary, initial condition for successful planned change" (Miller et al., 1994, p. 60).

In response to this "jingle-jangle" fallacy, several reviews have attempted to clarify the definitional and conceptual diversity that exists within the literature (e.g., Bouckenooghe, 2010; Choi & Ruona, 2011; Holt et al., 2007a; Oreg et al., 2011; Weiner et al., 2008). In a recent review, Stevens (2013) argued that there remains a significant amount of conceptual imprecision in definitions of change readiness. In his review, Stevens highlighted this imprecision by detailing the different conceptualisations of readiness for change (as a change message, stage of change, commitment to change, openness to change, capacity to change and as a multidimensional state). Stevens also argued that although some recent conceptualisations have acknowledged the importance of considering collective and individual levels of analysis (e.g., Gonzalez, 2010; Rafferty, Jimmieson, & Armenakis, 2013), it remains unclear how those levels may interact with each other, as well as what the appropriate measurement should be.

In order to address these issues, the present research considers what organisations truly seek from their employees before and during times of change; that is, an understanding of what individual attributes, perceptions and beliefs cause individuals to react in certain change-consonant or change-resistant behaviours. Whilst the short-term goal for many leaders during change is, most likely, for their employees to be 'ready', 'open' and 'accepting' of the change, it does not provide organisations with any guarantee that the people who are ready and committed in one situation will continue to be so in future situations. In today's business climate, organisations are no longer facing change on a yearly basis, rather they are experiencing and responding to necessary changes more frequently. To maximise the chance of successfully implementing change, alignment is required between the people, processes, systems and structures of an organisation. In doing so, a key requirement is to understand how an employee's attributes and perceptions of change shape their beliefs and commitment, and how these evolve over time to influence change-related outcomes. Throughout this research thesis, t

1.3.2. Examination of Change Variables in Isolated or Discrete Groupings

The second gap identified within the existing literature concerns the investigation of employee attributes, change perceptions, beliefs and outcomes in isolated or discrete groupings. The majority of empirical research has focused on how variables interact within a small network, rather than investigating their influence in a more integrated manner. Traditionally there has been an omission of theories attempting to bring together all relevant components, which is unsurprising when one considers the number and complexity of these components (e.g. Oreg et al., 2011). Whilst discrete research adds a depth of understanding to specific areas of investigation, there is no clarity in how each of the individual variables interact within the broader network.

To address this issue, researchers have proposed integrated approaches for change readiness (e.g., Holt et al., 2007a) and commitment to change (Herscovitch & Meyer, 2002), however extensive research examining the impact of these factors in a collective and integrated manner has not yet been conducted. Given this, it is difficult to understand the key drivers that influence an employee's change beliefs and commitment and how they interact with other factors.

1.3.3. Lack of Empirical Evidence in the Assessment of Comprehensive Models of Change

In an attempt to address the second gap, researchers have proposed a number of models relating to individual change attributes, perceptions and outcomes. The following section presents an overview of the main conceptual models that have been developed in the literature. The intention is not to present a critical review of each model. Rather, whilst these models and frameworks have sought to achieve integration, a third research gap has resulted, as to date, few of the models have been subjected to empirical testing.

For example, Oreg et al. (2011) developed a model identifying the antecedents of, and consequences to, explicit reactions to change. Following an inductive literature review spanning 60 years, the researchers proposed a model for organising the various themes. Oreg et al. developed a model of change, which they conceptualised as a series of tridimensional attitudes: reaction antecedents, comprising pre-change antecedents (through change recipient characteristics and internal context) and change antecedents (through change process, perceived benefit/harm, and change content); explicit reactions to change (including affective, cognitive and behavioural reactions), and change consequences (that includes work-related and personal consequences). Through their review, Oreg et al. considered the variables that underpin each of the tridimensional attitudes. For example, demographics and personality represent prechange antecedents, participation and communication in change represent change process antecedents, and job satisfaction and turnover represent work-related change consequences. Oreg et al. postulated that analysing change through this model would provide organisations with a practical approach to improving change recipients' responses to change. As it was not the intention of their review, no empirical analysis was conducted on their conceptual model. However, since the publication of this review, no further research (by the authors or other researchers) has sought to empirically examine the model.

Another model of change readiness includes the multi-level model presented by Rafferty et al. (2013). This model was developed to fill two main literature gaps; the lack of attention directed toward affective and cognitive judgments, and the absence of a multi-level conceptualisation of change readiness. In their model, Rafferty et al. distinguished between antecedents (external pressures, internal context enablers, personal characteristics) and outcomes of change readiness (change supportive behaviours, job performance, attitudes to change) across three layers (individual, work group, and organisational). The researchers proposed the antecedents and consequences of change readiness are likely to differ at each level of analysis and that consideration should be given to each level. For example, at the individual level of analysis, the effective use of various organisational processes during change (e.g., communication, participation, and leadership) is positively associated with positive change beliefs and affect, which contributes to an overall judgment that an employee is ready for change. At the work group level, Rafferty et al. suggested that work group leaders who articulate a group-level vision and display *emotional aperture*¹ develop positive group beliefs about change and positive group affective responses to change, thereby contributing to a positive overall evaluative judgment that the group is ready for change.

A third model includes the multi-level model of change readiness proposed by Holt and Vardaman (2013). This model examines a number of change factors including psychological (i.e., characteristics of those being asked to change), structural (the circumstances under which the change is occurring within the organisation), and those at individual and organisational levels of analysis. Their conceptual framework suggests that readiness for change is comprised of both individual difference and structural factors, reflecting the extent to which the organisation and its employees are inclined to accept, embrace and adopt a particular plan to purposefully alter the status quo (Armenakis et al., 1993; Beer & Walton, 1987; Wanberg & Banas, 2000). Holt and Vardaman also considered how conceptualisations of change readiness should move beyond single, episodic change, and expand to consider change as a number of complex interactions occurring within organisations simultaneously. A detailed discussion of the variables critical to each of the models was not provided, however Holt and Vardaman (2013) encouraged future researchers to explore the limits and boundaries of readiness, namely how focal, episodic change differs from general change; the importance of context in shaping readiness; and how awareness can be incorporated into the conceptual definition of change readiness.

Finally, Holt et al. (2007a) presented a conceptual model of change readiness², following an analysis of 32 instruments purporting to measure change quantitatively (Holt, Armenakis, Harris & Feild, 2007b). Each of the three previously mentioned models (i.e., Oreg et al., 2011; Rafferty et al., 2013; Holt & Vardaman, 2013) contain elements described by Holt et al. Depicted as a cognitive model, an individual's readiness for change is said to reflect the extent to which they are inclined to accept, embrace, and adopt a change initiative. In their model, Holt et al. argued that four factors collectively influence an individual's beliefs about change and subsequently

¹ Rafferty et al. (2013) used the Sanchez-Burks & Huy (2009) definition of emotional aperture, which refers to the "the perceptual ability to adjust one's focus from a single individual's emotional cues to the broader patterns of shared emotional cues that comprise the emotional composition of a collective" (p. 22).

² Holt et al. (2007) used the terms *readiness* and *beliefs* towards change interchangeably. For the purposes of this research, change beliefs will be used throughout.

influence the degree to which they display adoptive change behaviours. The four factors include *content* (i.e., what is being changed), the *process* (i.e., how the change is being implemented), the *context* (i.e., circumstances under which the change is occurring), and the *individuals* (i.e., the characteristics of those being asked to change). Whilst an individual's commitment to change is not explicitly specified in their model, the authors made subsequent mention of the complementary link between change beliefs and commitment to change (in particular affective commitment), specifying that if an individual does not demonstrate adequate levels of commitment to change, the reasons may be contained within the respective change belief dimensions. Thus, it can be inferred that commitment is a consequence of change beliefs.

The concept of individual commitment to change has received a great deal of research attention for over two decades. Researchers have investigated the antecedents and outcomes of individual commitment from an array of organisational perspectives. The dominant model of organisational commitment is Meyer and Allen's (1991) model. Meyer and Allen defined organisational commitment as a psychological state, or mind-set that increases the likelihood that an employee will maintain membership in an organisation. The authors proposed a multidimensional framework, whereby affective commitment reflects a desire to remain at the organisation, continuance commitment is a form of commitment stemming from the perceived cost of leaving, and normative commitment reflects an individual's perceived obligation to remain at the organisation. Meyer and Herscovitch (2001) argued that the concept of organisational commitment could be refined, and that commitment can centre on a variety of work-related focal points. Translating organisational commitment to the context of organisational change, Herscovitch and Meyer (2002) developed the concept of commitment to change, defined as a mindset that "binds an individual to a course of action deemed necessary for the successful implementation of a change initiative" (p.475). Commitment to change differs in its conceptualisation to other change-related attitudes, such as readiness and openness to change. Where these concepts centre on an individual's belief towards a change, commitment to change represents an action-orientated state whereby employees are aligned with the change, and demonstrate a proactive willingness to work on behalf of its successful implementation (Herold, Fedor & Caldwell, 2007).

Given the large number of potential variables influencing employee perceptions, understanding and reactions to organisational change, each of the models described above differ slightly in their approach. However at the centre of each model is the way in which individuals perceive, understand and react to organisational change. Other commonalities between the models include the multidimensional nature of employeerelated factors. Considering each of the aforementioned models, the model presented by Oreg et al. (2011) provides the most comprehensive account of employee-related factors. Whereas some models (e.g., Holt et al., 2007a) present a model of change readiness, Oreg et al. considered the importance of the antecedents, and subsequent outcomes of this construct.

Despite a number of researchers seeking to integrate research in the field of organisational change, to date few empirical assessments have been conducted on the predictive value of the models outlined above. For example, some work has been conducted on the model presented by Oreg et al. (2011) (e.g., Ghitulescu, 2012; Johnson, 2016; Kirrane, Lennon, O'Connor, & Fu, 2016; Nguyen, 2016). However within each of these studies, only selected components of the model have been examined. Moreover, research investigating the Holt et al. (2007a) model has separately considered components of the change beliefs (Holt et al., 2007a), their antecedents (McKay, Kuntz, & Naswall, 2013) and their relationship to commitment to change (Adil, 2016), although the analyses have not been extended to consider these components together, or to also consider the consequences and outcomes of change. Finally, it could be argued that commitment to change has received the greatest amount of attention out of the proposed models. As will be outlined in Chapter 2, a number of empirical studies have been undertaken to understand the antecedents, correlates and outcomes of commitment to change. However as with previous models, research is limited in conducting the analyses in a comprehensive manner.

1.4. Purpose of the Research

To address these gaps, the present research has three key aims: What are the key antecedents in predicting an individual's commitment to change? How do an individual's attributes, perceptions, beliefs and commitment interact to influence their reactions to change? How can organisations assess these variables and interactions in an efficient manner?

In proposing a model for this research, elements have been drawn from the model of change beliefs presented by Holt et al. (2007a), with significant input derived from the Herscovitch and Meyer (2002) model of commitment to change, and the Oreg et al. (2011) model integrating the notion of change attributes, perceptions, beliefs, commitment and outcomes of organisational change. Across three studies, this research program integrates previous research and attempts to develop, both a model

and a new quantitative diagnostic tool that can be used to understand employee perceptions, and predict employee outcomes during organisational change.

Throughout this thesis, the term *individual attribute* is used to define the enduring features or qualities that are unique to an employee experiencing change. Change perceptions refer to the way in which individuals understand and interpret the change. Contained within this definition are the perceptions that employees have towards the change process, in addition to the context in which the change is being implemented. The term change beliefs refer to the cognitions employees have regarding a particular change, which underlies their motivations to support a change. Whereas some researchers (e.g., Holt et al., 2007a) have used the terms change beliefs and change readiness interchangeably, others (e.g., Armenakis et al., 1993) conceive beliefs as a component of readiness, and this conceptualisation has been applied throughout the research program. The conceptualisation of *commitment to* change developed by Herscovitch and Meyer (2002) is used throughout this research program to describe the "force (mind-set) that binds an individual to a course of action deemed necessary for the successful implementation of a change initiative" (p.475). Finally, the term employee outcomes during change is used to describe the consequences of change from an individual perspective, which includes both workrelated and personal outcomes.

In developing the proposed model, it is argued that an employee's beliefs about organisational change mediate the relationship between their individual attributes, perceptions of change (i.e., change process variables and change context variables) and affective commitment to change (as discussed next in Chapter 2), which subsequently predicts a number of employee-related change outcomes (see Chapter 3).

Chapter 2: Theoretical and Empirical Review of the Antecedents of Change Beliefs and Affective Commitment to Change

This chapter presents a review of the predominant theoretical bases and empirical research relating to the antecedents and mediators of affective commitment to change (ACC) as related to the proposed research model. The chapter is organised around three sections. The first section begins with a consideration of employee commitment to change. The second section provides a discussion of theoretical and empirical work relating to dispositional resistance to change (DRtC), change perceptions, namely change process variables and different aspects of the change context, together with their relationship to ACC. The third section brings together the theories and concepts of the first two sections, and concludes with a discussion of the antecedents of the four change beliefs, and an analysis of the mediating role of change beliefs in predicting ACC. In each of the sections, key variables are discussed which form the basis of the research model. In addition, Table 2.1, presented at the end of this chapter provides a summary discussion within this chapter relating to the empirical evidence surrounding individual attributes, perceptions, beliefs and commitment to organisational change.

2.1. Organisational Commitment and Commitment to Organisational Change

The concept of organisational commitment has been used to investigate a number of work-related outcomes, including lower absenteeism (Blau, Tatum, & Cook, 2004), retention (Meyer, Allen, & Smith, 1993; Cohen, 1993), role performance (Shore, Bommer, & Shore, 2008), and job satisfaction (Ford, Weissbein, & Plamondon, 2003).

When considering the difference between organisational commitment and commitment to change, Herscovitch and Meyer (2002) found the success or failure of an organisational change is more strongly predicted by commitment to change than organisational commitment. In other words, the level of commitment an employee has towards particular changes within an organisation is more important and informative, in terms of implementing an important organisational change, than is their commitment to the actual organisation *per se.* In keeping with Meyer and Allen's (1991) original conceptualisation of organisational commitment, Herscovitch and Meyer (2002) suggested commitment to change comprises three factors: *affective commitment* (*ACC*); the desire to support a change based on a belief in its inherent benefits), *continuance commitment* (*CCC*); the recognition that there are costs associated with failure to support a change), and *normative commitment* (*NCC*); a sense of obligation

to provide support for a change). Herscovitch and Meyer argued that employees are committed to a change because they believe the change is valuable, they consider it would be costly not to change, or because they feel an obligation to support it.

Considering the research relating to commitment to change, it is represented as an outcome variable in a number of organisational research contexts. To understand the elements that influence commitment to change, Jaros (2010) conducted a metaanalysis and considered both the antecedents and outcomes of commitment to change. Jaros concluded that the research surrounding the core psychological processes that may inhibit or facilitate commitment to change is mixed. Research on the antecedents of commitment to change has demonstrated support for many variables, including change appropriateness (Neves, 2009), supervisory support (Ford et al., 2003), change schema and general attitudes to change (Lau & Woodman, 1995), change efficacy (Neubert & Cady, 2001), favourableness of change (Fedor, Caldwell, & Herold, 2006), experience with similar changes (Ford et al., 2003), quality of change management history, quality of change information (Rafferty & Restubog, 2009), transformational leadership (Herold, Fedor, Caldwell, & Liu, 2008) and leader communication style (Luo, Song, Gebert, Zhang, & Feng, 2016). However, he majority of this research has investigated the variables in isolation, which causes difficulties in ascertaining which antecedent(s) are most influential in predicting commitment to change.

Another area of the commitment research that requires further clarification relates to whether commitment to change is a uni-dimensional or multidimensional construct. The disagreement across researchers is evident in the literature reviewed in Table 2.1 and was also identified by Jaros (2010) in his review. A significant amount of research has considered organisational commitment and commitment to change as a uni-dimensional factor (e.g., Fedor et al., 2006; Herold et al., 2008; Lau & Woodman, 1995). However, in the present research it is considered important to view commitment to change as a multidimensional factor, as each of the three facets of commitment have been shown to influence individual outcomes of change differently. For example, Herscovitch and Meyer (2002) suggested that all three elements relate positively to cooperative and compliant behaviours, however only ACC and NCC are positively associated with higher levels of championing and supportive behaviours. When considering the role of CCC, a number of studies have demonstrated that CCC is either negatively related or unrelated to desirable outcomes including job performance (Meyer, Stanley, Herscovitch, & Topolnytsky, 2002; Parish, Cadwallader, & Busch, 2008) and championing behaviours (Adil, 2016). Moreover, in their meta-analysis,

14

Bouckenooghe et al. (2014) found ACC and NCC consistently demonstrated strong correlations with measures of behavioural support, whereas CCC only showed smaller negative correlations.

Considering ACC and NCC, the bulk of research attention continues to focus on ACC, with some researchers arguing that employees need to believe in the change and want to contribute to it (i.e., exhibited through ACC), in order to do what is required to achieve the benefits of change (Shin, Seo, Shapiro, & Taylor, 2015; Soumyaja, Kamlanabhan, & Bhattacharyya, 2015). Whilst this sentiment alone does not justify focusing on only one of the commitment dimensions, research has consistently demonstrated that ACC is the stronger predictor of change-supportive behaviours (e.g., Adil, 2016; Herscovitch & Meyer, 2002; Meyer et al., 2007; Parish et al., 2008; Soumyaja et al., 2015). Recognising the crucial role employees play in the change process, organisations want to understand what they can do to increase their likelihood of engaging in change-supportive, productive and proactive behaviours. Moreover, given the overarching goal of this research program is to predict change-related outcomes (including employee behaviour), it is considered appropriate to focus on an understanding of the antecedents of ACC, rather than CCC and NCC. It is for these reasons that ACC has been selected as one of the central constructs of this thesis. The following sections present a discussion of the antecedents of ACC.

2.2. Antecedents of Change Beliefs and Affective Commitment to Change

Much of the research relating to individual attributes, change perceptions and beliefs suggests that both individual characteristics and aspects of the change situation can play key roles in shaping individuals' reactions to change (e.g., Judge et al., 1999). Considering the multidimensional nature of individual factors related to change, Caldwell and Liu (2011) argued that use of the Interactionist Perspective (House, Shane, & Herold, 1996; Vansteelandt & Van Mechelen, 1999) is one of the most effective ways of understanding organisational change. House et al. (1996) used the Interactionist Perspective to describe how behaviour in any given situation is comprised of both dispositional and situational factors. This perspective is considered a useful framework for individual sentiments towards organisational change, as change is a complex organisational phenomenon and requires consideration across multiple levels. The relationship between the dispositional and situational factors is also important, as organisationally related responses are often a function of the interaction between the individual and situational cues. Given this, the dispositional and situational factors are brought together to understand how individual variables interact in evoking
behaviour, how the behaviour manifests, and the conditions under which the outcomes can be predicted, enhanced or suppressed.

In a literature review considering this perspective, House et al. (1996) noted that in many studies both dispositional and situational variables significantly predicted a number of organisationally relevant variables (e.g., job performance, absenteeism). Moreover, when considering the stability of factors over time, research showed that individual characteristics (e.g., personality, intelligence, abilities) were largely permanent and stable. On the other hand, situational characteristics (e.g., emotions, perceptions) were considered more proximal, and therefore malleable and susceptible to change across situations (Kirrane et al., 2016). The current research uses the Interactionist perspective as a guiding framework to allow for a comprehensive investigation into how employee dispositions and situational variables interact with each other to influence individual beliefs and commitment to organisational change. When considering the extensive number of potential variables related to ACC, the variables investigated in this research program have been selected on the basis that a theoretical relationship is evident between the variables, change beliefs and ACC. Additionally, selection is based on whether a psychometric scale has been developed for the variable, and whether the scale has demonstrated adequate psychometric properties.

Drawing on the conceptual model presented by Holt et al. (2007a), the present model proposes that a set of variables relating to an employee's individual attributes (here called dispositional resistance to change, DRtC), perceptions of the change process and the change context shape their beliefs about the change, and influence ACC, thereby providing the foundation for change outcomes. Table 2.1 presents a summary of the empirical research relating to each of the study variables. Considering the role of dispositional resistance to change, researchers have primarily examined individual difference variables relating to personality and enduring individual characteristics. When considering the more proximal constructs in the proposed model, an employee's perception of the change process and the change context is critical. It is argued that the way in which individuals interact with, and experience change influences their beliefs about change, and subsequently their behaviour. The following sections provide a discussion of the theoretical and empirical work relating to dispositional resistance to change process variables and different aspects of the change context.

16

2.2.1. Distal Antecedents of Change Beliefs and Affective Commitment to Change

2.2.1.1 Dispositional Resistance to Change

When considering the role of DRtC (i.e., the enduring features or qualities that are unique to an employee experiencing change) within the context of the proposed research model, an individual's personality or predispositions are the main characteristics considered. The central premise of this research rests on the foundation that individuals vary in their personal disposition towards stability and change. It is this focus that explains why individuals may react differently to the same message (Armenakis et al., 1993). Employee personality is also said to influence how an individual responds to change (Judge et al., 1999; Oreg, 2006). When ascertaining what components of personality influence an individual's perceptions and reactions to change, researchers have considered a number of dimensions, including personality traits (Oreg, 2006), positive self-concept and risk aversion (Judge et al., 1999), coping styles (Cunningham, 2006), as well as optimism and perceived control (Wanberg & Banas, 2000).

In an attempt to understand individual personality differences, there has been an evolution in theories and approaches investigated. The prevailing approach generally focuses on understanding how various traits influence behaviour. The Five Factor Model (FFM) of Personality (Costa & McCrae, 1992) continues to be the most widely cited taxonomy. The FFM posits that there are five key dimensions (or factors) of personality (extraversion, agreeableness, conscientiousness, neuroticism and openness to Change). These five factors have been validated across multiple cultures and languages, and have been shown to account for the majority of variances in personality measures (McCrae & Costa, 1987). The FFM has been used to understand a variety of organisational constructs including job performance (Barrick & Mount, 1991), and job satisfaction and work adjustment (Costa, 1996). A natural extension of the FFM research would be to use it as a framework for studying the relationship between individual differences and perceptions of change. However, despite its popularity as a general model of personality, researchers (Hough, 1998) have been critical of the FFM's ability to understand behaviour in more specific contexts (e.g., during organisational change). Hough argued that given the level of measurement of the FFM is so broad, and the constructs are so heterogeneous, the ability to predict behaviour in specific contexts is often sacrificed. This notion is further supported by researchers (Herold & Fedor, 1998; House et al., 1996), who argue that domainspecific individual differences have greater potential to explain variance in the

investigation of domain-specific attitudes or behaviours, compared to general measures.

To this end, Oreg (2003) considered how individual predispositions could be considered in a more targeted context, specifically with regards to change. Unlike the FFM that is designed for more general purposes, Oreg's approach considers the individual dispositions that are likely to influence a person's likelihood of resisting change. Oreg adopted a non-specific, dispositional approach to change, assessing an individual's general tendency to "resist and avoid changes, devalue change in general, and find change aversive across different contexts and types of change" (2003, p.680). Individual dispositions to resist change are described in terms of four key factors and attitudes: emotional reaction to imposed change (combining factors of psychological resilience and the reluctance of employees to lose control), short-term focus (the immediate inconvenience and resistance that arises with change in spite of an employee's awareness of the potential long-term benefits), cognitive rigidity (the ease and frequency with which individuals change their minds) and routine seeking (the reluctance of employees to give up old habits and routine). Together, the four components are said to represent the affective, cognitive and behavioural dimensions of an individual's DRtC. Although Oreg has never provided an operational definition of what is meant by "dispositional characteristics", it appears to be implicit in his concept that resistance to change is an enduring tendency to hold a certain negative, trait-like attitude towards change, which has developed over the lifespan of the individual.

Considering the interplay between DRtC and the FFM, research has found individuals scoring high on neuroticism and low on openness to experience are more likely to report greater DRtC (Oreg, 2003; Saksvik & Hetland, 2009). Moreover, Saksvik and Hetland also found positive relationships between conscientiousness and DRtC, whereas scores on extraversion and agreeableness were negatively related to DRtC. Whilst using a general personality measure such as the FFM to assess individual differences in change research may be useful, Saksvik and Hetland (2009) argued that DRtC consists of different tendencies than the general FFM measure, and in an organisational context, assessing DRtC provides greater detail about the individual dispositions that may be influencing the complex and integrative processes of organisational change.

A number of researchers have investigated the role of DRtC in the context of organisational change. This research has shown DRtC to be negatively associated with supportive attitudes towards large-scale organisational change (Nov & Ye, 2008; Oreg, 2006; Stewart, May, McCarthy, & Puffer, 2009). When considering the role of employee dispositions in the context of commitment to change, results have also demonstrated the influence of individual dispositions. For example, Fugate and Kinicki (2008) found that individuals who were predisposed to display proactive adaptability and behaviours were more likely to report higher ACC, compared to individuals displaying resistant tendencies. Additionally, Foster (2010) reported that during a series of organisational changes (ownership change, performance improvement, merger), there was a negative (albeit non-significant) relationship between employee DRtC and ACC scores.

2.2.2. Proximal Antecedents of Change Beliefs and Affective Commitment to Change

Whereas distal antecedents are considered enduring tendencies, proximal antecedents to change are influenced by situational cues and experiences, and therefore are believed to be more malleable (Herold et al., 2007). This concept of learning through experience is embedded within Bandura's (1977) social learning theory. While social learning theory lends its foundations to classical conditioning and operant conditioning, Bandura included a number of factors in his theory. Firstly, learning is a cognitive process, and a number of variables mediate the processes between contextual stimuli and an individual's responses. Behaviour in a specific situation depends on the interpersonal networks and expectancies individuals have with peers, leaders and others within an organisation. Secondly, individual behaviour is learned through observation. In addition to the reinforcement value attached to the outcome, Bandura suggested that through the observation of others, individuals form generalised expectancies concerning the extent to which their own actions determine the outcomes they experience.

In reflecting upon Bandura's social learning theory in the context of organisational change, Holt et al. (2007a) argued for the importance of process and context in the consideration of antecedents of an employee's readiness for change. Process-based factors relate to the way in which the change is managed. Considering the connection between Bandura's theory, change process factors (such as participation in change) provide employees with the ability to understand and experience the change first-hand, whilst also providing an opportunity to observe the behaviour of others (a key component of social learning theory). Context-based factors on the other-hand relate to the internal circumstances and/or conditions under which change occurs. Inherent in the understanding of contextual variables (such as trust in management and transformational leadership) is how an individual perceives, navigates and responds to the interpersonal networks within the organisation. Finally,

the confidence an individual has to undertake a new task (or self efficacy) is another element in Bandura's (1982) social learning theory. In shaping an individual's self efficacy, there is a need to take into account an individual's experiences and contextual surroundings. The following sections extend this discussion of change process and change context factors, highlighting their importance in the development of positive change beliefs and ACC.

2.2.2.1 Change Process Factors

Change process refers to the necessary steps an organisation undertakes during the planning, design and implementation of organisational change. Investigations regarding change process variables have commonly considered the type of change being implemented, the extent to which employee participation in the design and/or decision-making is permitted, and the type, relevance and frequency of information received. Compared to dispositional and individual difference variables, these change process variables are typically more proximal and context-specific, and therefore are more malleable and responsive to organisational intervention efforts (Ghitulescu, 2012; Herold et al., 2007). In their review, Oreg et al. (2011) noted that a significant amount of research has been conducted on understanding the impact of the change process on employee reactions to change. They explicitly cited change information, participation in change and perceptions of justice during change as some of the key variables influencing ACC, therefore these three antecedents have been selected as the change process factors for investigation. The following sections provide a discussion of the empirical evidence relating to each of the change process factors and ACC.

2.2.2.1.1. Change Information

Change information typically describes the level and adequacy of changerelated information that employees receive during change. In defining change information, Den Hartog, Shippers, and Koopman (2002) distinguished between information content (*what* the message is about) and its composition or structure (*how* the message is framed). Applying this conceptualisation, high-quality change communication is typically defined as providing accurate, timely and complete information addressing employee concerns (Miller & Monge, 1986; Miller et al., 1994). In the workplace, this information is often delivered through a variety of communication channels, some of which include team briefings, meetings, discussion between coworkers, emails, and intranet announcements. By its very nature, organisational change implies a great deal of uncertainty, therefore information is critical during this period. Research suggests that a lack of timely, relevant and useful information during change can lead to individuals feeling uncertain about how to respond to the change (Milliken, 1987). To overcome this, employees often devote time to various processes, including "sensemaking". Weick, Sutcliffe and Obstfeld (2005) defined sensemaking as a relatively transient process whereby circumstances in a situation are converted explicitly to meaningful words, which then serve as a springboard for an individual's perceptions and behaviour. By providing employees with information regarding how the change will affect them, individuals are armed with details that allow them to make sense of the situation. Doing so has been shown to reduce anxiety and uncertainty during change (Bordia, Hobman, Jones, Gallois, & Callan, 2004; Schweiger & DeNisi, 1991).

Recognising the importance of information during the change process, researchers have investigated how this variable influences the manner in which employees react and respond to change. Miller et al. (1994) suggested that individuals working within a 'poor' information environment (thus receiving less or erroneous information about a change) might develop feelings of hostility towards the change and/or organisation. Considering the impact of change information during an organisational restructure and major role transformation, Miller et al. found that employees receiving 'quality' information about the change viewed the change favourably. Specifically, announcements of change seen as timely, useful, answering questions, and conveyed by an appropriate communication mechanism positively reflected on employee attitudes about the transformation.

In relation to a quality or rich information environment, researchers have also demonstrated that receiving timely, informative and useful information predicts higher levels of openness to change and change acceptance (Wanberg & Banas, 2000) and lower levels of resistance to change (Oreg, 2006; Oreg et al., 2011). In a longitudinal study, Wanberg and Banas (2000) asked employees from a number of organisations a series of questions designed to identify whether individual differences (i.e., self-esteem, optimism, perceived control) or context-specific factors (i.e., information received, change self efficacy, participation in change, social support, personal impact) predicted openness to change. Tested across a two-month period, results indicated that receiving adequate information about the change significantly predicted an employee's likelihood of accepting change ahead of other the factors.

The importance of providing quality change information extends into the change commitment research. It has been suggested that providing high-quality change

communication, as well as offering opportunities for participation in decision making are both widely recommended strategies to increase involvement and perceived relevance of the change, and as such influence an individual's commitment to change (Armenakis & Bedeian, 1999; Beer & Nohria, 2000; Choi, 2011; Herscovitch & Meyer, 2002' Soumyaja et al., 2015). Given that organisational change is typically characterised by uncertainty (leading to anxiety), change for some individuals can elicit emotional responses. For example, in a sample of Belgian police forces, Rogiest, Segers, and van Witteloostuijin (2015) found that perceptions of quality change information positively influenced individuals' ACC. Additionally, Rafferty and Restubog (2009) found that an individual's perception of the quality of change information provided by the organisation was significantly associated with both decreased anxiety about the change and increased ACC.

2.2.2.1.2. Change Participation

The ability to contribute, participate in, and influence the outcome of an organisational change has also been considered a key factor in the facilitation of positive beliefs and commitment to change. Change participation refers to the act of allowing recipients of change (other than change leaders) to have input into the planning and/or implementation of an organisational change (Parent, Sullivan, Hardway, & Butterfield, 2012).

It is acknowledged that the practical realities of organisational change often do not permit participation by the broad employee group due to timing, cost constraints or sensitivities associated with the change (Caldwell, 2013). However it has been demonstrated that providing employees with a voice and enabling participation during change can benefit both organisations and employees (Abbasi & Hollman, 1993). For example, including employees from different teams within the workforce can enable the identification of any problems associated with the change, and provide employees with an opportunity to suggest areas for improvement. Additionally, by enabling people to be heard and to express their concerns, employees are more likely to feel more positive about a decision in which they played a part. Hence, involvement in change facilitates employee commitment and makes it easier to for senior leaders to 'sell' the idea of change.

Extending this notion, allowing employees to participate in change is also an important tool for enabling them to understand, manage and learn how to apply components of the change. Doing so can reduce feelings of uncertainty and fears about how the change will affect them (Bordia et al., 2004). Coch and French (1948)

provided an early indication that participation in the planning and implementation of change influences an individual's resistance to change and work performance. In their study, employees in a manufacturing factory who were given the opportunity to participate in the design and development of a change and to influence new work processes demonstrated lower levels of change resistance and lower rates of turnover. More recently, several studies have demonstrated that employee participation during change is also central to increasing their acceptance of the change (Armenakis & Bedeian, 1999; Cunningham et al., 2002; Devos, Buelens, & Bouckenooghe, 2007; Eby et al., 2000; Holt et al., 2007; Oreg et al., 2011; Wanberg & Banas, 2000;), leading to greater commitment to change (Armenakis & Harris, 2002). Research has also confirmed that when given the opportunities to participate in change, individuals are more likely to adapt to the change (Parent et al., 2012).

When considering the role participation plays in developing an employee's commitment to change, it could be argued that feeling 'part of' the change process is an important precondition. The research in this area however, is somewhat mixed. For example, in an investigation of employees who recently underwent a merger within their organisation, Rogiest et al. (2015) found no significant relationship between change participation and ACC (when taking into account the role of change information). On the other hand, providing employees with opportunities to provide input and feedback to the change has demonstrated positive associations with ACC (McKay et al., 2013; Soumyaja et al., 2015), and positively influenced their acceptance of the change, resulting in higher levels of organisational commitment (Lines, 2004) and commitment to change (Devos, Vanderheyden, & Van den Broeck, 2001).

2.2.2.1.3. Change Justice

Justice, in an organisational context refers to the conditions of employment that lead individuals to believe they are being treated fairly or unfairly (Folger & Cropanzano, 1998). The basic premise of organisational justice is that fair procedures enhance employee acceptance of organisational outcomes (Greenberg, 1990). When considering the notion of justice during change, a similar logic applies, in that employees assess the fairness of all aspects of the change design, development and implementation. Change justice is conceptualised as three distinct yet related components: distributive, procedural and interactional justice (Cropanzano & Ambrose, 2015). *Procedural justice* relates to the perceived fairness associated with the processes involved in an initiative. *Interactional justice* reflects employees' perceptions of the quality of interpersonal treatment related to the implementation of procedures.

Finally, *distributive justice* refers to an individual's perception of the fairness of outcome distributions and allocations.

By its very nature, organisational change is bound to raise justice-related questions. For employees, organisational change creates a heightened sensitivity to what is going on and whether they are being treated fairly (Rodell & Colquitt, 2009). When organisations embark on a change journey or transformation, employees often raise questions regarding the equity of the proposed outcomes and the fairness of the process through which change is being undertaken. Linking perceptions of justice with the particular context of organisational change, researchers agree that when organisations appropriately manage the process, information and outputs of change, individuals tend to view the change as being fair and just (e.g., Colquitt, Conlon, Wesson, Porter, & Ng, 2001).

Typically, researchers have focused on the unique contribution of each justice facet to the prediction of organisational outcomes (Ambrose & Arnaud, 2005). Recent work however, has (re)introduced researchers to the concept of overall justice. For example, in his discussion of the fairness heuristic theory, Lind (2001) asserted that although individuals can distinguish between different types of justice, it might be their overall justice experience that drives their behaviour. Thus, researchers have suggested a shift in focus to considering global assessments of fairness in addition to the individual justice facets (Hauenstein, McGonigle, & Flinder, 2001). In one study, Suurd Ralph and Holmvall (2016) found that overall justice acted as a mediator between the justice facets and workplace strain (i.e., burnout, depression), suggesting that employee reactions to individual justice events and even different sources of justice (the organisation, co-workers, and supervisors) exert their effects on strain indirectly through their impact on a global evaluation of the fairness of their work environment. The researchers concluded that using an overall measure of justice may provide a more parsimonious approach to the study of justice and may capture justice processes in organisations more clearly.

Nevertheless, when considering the individual facets of justice, procedural and interactional justice have demonstrated the strongest influence on organisational change perceptions, when compared to distributive justice (Brockner, 2002, Caldwell, Liu, Fedor, & Herold, 2009). A number of researchers have demonstrated that procedural justice has the strongest relationship with positive reactions, acceptance and commitment to organisational change (Armenakis et al., 2007a; Cobb, Wooten, & Folger, 1995; Karriker, 2007; Korsgaard, Sapiensa, & Schweiger, 2002). Procedural

justice has also been linked to perceptions of overall effectiveness of the change (Karriker, 2007), and participation in change (Leventhal, 1980).

In their investigation of an organisation that had undergone a sale of one of its divisions, Bernerth, Armenakis, Field, and Walker (2007) found that levels of distributive justice mediated the positive relationship between employee perceptions of procedural justice and ACC. Bernerth et al. argued that simply carrying out change in a fair and just manner is not sufficient to elicit ACC; organisational leaders also need to ensure that the reasons behind the change are communicated and explained in a sincere manner in order to maximise employee ACC. Other investigations have also demonstrated support for the positive association between justice and ACC (Foster, 2010; Herold, Fedor, & Caldwell, 2007), suggesting that employees who perceive a change process to be fair and just (across all dimensions) are more likely to believe in the value of the change and want to commit to its execution (i.e., high ACC).

2.2.2.2 Change Context Factors

Unlike change process factors that refer specifically to the procedures adopted during the design, development and implementation of change, change context factors refer to the environmental conditions within the organisation under which the change is being implemented. Change context variables typically include trust in management, organisational culture, leadership style, change history and type of organisation. As Kotter (1995) asserted, it has been largely acknowledged that readiness for change can be undermined when the behaviour exhibited by important role models (e.g., leaders) is inconsistent with their spoken word. Whilst most of the research investigating the antecedents of change beliefs and commitment has centred on change process factors, consideration of change process factors cannot be ignored (Oreg et al., 2011). Aligned with the research of Oreg et al. (2011), this research considers it important to also consider both the influence of leadership style (specifically the degree of transformational leadership) possessed by an organisation's senior members, and employee perceptions of trust in management.

2.2.2.2.1. Transformational Leadership

Academics and researchers have long recognised the important role of leaders in the facilitation of organisational change (e.g., Nadler & Tushman, 1990). Given the ongoing research in this area, leadership theory has significantly evolved since its inception. Where early research focused on identifying a set of leadership traits (e.g., Geier, 1967), more recent research has seen an investigation of different leadership styles, including the contingency approach (Smith & Peterson, 1988) and the path-goal theory of leadership (House, 1971). In more recent years, transactional and transformational leadership styles have also been explored (e.g., Bass, 1990).

Transactional leadership typically focuses on specific tasks, with reward (and punishment) used to motivate employees. Bass (1990) defined four key behavioural dimensions of transactional leadership: contingent reward (rewarding of good performances and desired behaviours), active management-by-exception (searching for poor performance to correct), passive management-by-exception (waiting for poor performance to occur before taking corrective action), and laissez-faire (no action at all). Transactional leadership is based on the assumptions that (i) employees are motivated by reward and punishment, (ii) employees have to obey the orders of their leader, and (iii) employees are not self-motivated (i.e., they have to be closely monitored and controlled to get work done) (Bass, 1990). In contrast, transformational leadership is based on the notion that a successful leader exhibits behaviours that raise their followers' aspirations beyond their self-interests (Bass, 1985). In transformational leadership theory (Bass, 1990), transformational leaders are said to engage in four key behaviour types: charisma (providing a clear vision and instilling pride), *inspiration* (communicating high expectations and leading by example), intellectual stimulation (promoting lateral and innovate thinking), and individualised consideration (providing personal coaching, mentoring, and advice to individuals).

When considering both leadership styles, it is argued that transformational leadership is particularly relevant to change management, because at it's core, it requires the initiation of change and persuading followers to accept change (Bass & Riggio, 2006; Cai, Loon & Wong, 2018; Young, 2010). For transactional leadership however, adopting a reward-based approach may lend itself to short-term success (in the form of compliance), but it is less likely to inspire employees to go above and beyond their core requirements in the longer-term, an attribute critical for the development of ACC. It is for this reason that transformational leadership is the leadership style focused on in this study. The aim of investigating this style of leadership is to understand why and how leaders can stimulate followers to change their beliefs, values, capabilities, and motives to raise the performance of employees beyond their self-interest for the benefit of the organisation (Avolio, 1999).

Historically there has not been an extensive examination of the relationship between transformational leadership and change attitudes, however empirical research in this area is growing. For example, Herold et al. (2008) reported positive relationships between transformational leadership and employee commitment to change. Other researchers have found that readiness to change is enhanced when senior figures display transformational leadership characteristics (Cai et al., 2018; Mayner, 2017; Young, 2010). Positive relationships have also been demonstrated between transformational leadership and lowered employee cynicism about organisational change (Bommer, Gregory, & Rubin, 2005; Wu, Neubert & Yi, 2007).

2.2.2.2.2. Trust in Management

Extending the importance of leaders during organisational change, another factor discussed in the literature includes the trust between employees and their management team. Cook and Wall (1980) define trust as "the extent to which one is willing to ascribe good intentions to and have confidence in the words and actions of other people" (p. 39). The importance of trust in management during change has been discussed both by researchers (Devos et al., 2007; Cook and Wall, 1980; Eby et al., 2000; Oreg & Sverdlik, 2011; Oreg, 2006; Stanley, Meyer, & Topolnytsky, 2005), and organisational business practitioners (Kotter, 1995).

Holt et al. (2007) proposed that employee trust in an organisation's systems are an important input in equipping individuals with the necessary knowledge and skills during change. It has also been argued that the trust between individuals and groups within an organisation influences the long-term stability of an organisation (Cook & Wall, 1980). The importance of a trusting relationship during change has been found in several studies, such that if an individual trusts their management team, they are more likely to display positive attitudes towards organisational change (Rafferty & Simons, 2006; Stanley et al, 2005). Oreg (2006) also suggested that supervisors who are able to inspire employees and instil in them a sense of trust appear to be most effective in circumventing resistance to change. In his study, Oreg found that trust in management was negatively correlated with the affective, cognitive, and intentional components of resistance to change.

The relationship between trust and positive change reactions can be extended to the concept of ACC. It has been argued that employees who trust their senior leaders and managers have greater belief in the value of change and believe that the organisation will benefit from it (Michaelis, Stegmaier, & Sonntag, 2009). Exploring this notion, Michaelis et al. (2009) found trust in management to positively predict ACC during organisational change, a finding supported by other researchers (e.g., Soumyaja et al., 2015). In another study, Neves and Caetano (2009) took a different approach to the examination of trust in management and ACC. In their study, they investigated how trust could mediate the relationship between ACC and a number of work-related outcomes (turnover intentions, organisational citizenship behaviours, and perceived performance). It was found that across a number of organisations, trust in the supervisor fully mediated the relationship between ACC and the three work outcomes. These results supported the researcher's argument that an employee's belief in the inherent benefits of a change (i.e., ACC) influences the quality of their social relationships within the workplace.

2.2.2.3 The Mediating Role of Change Beliefs

The ability to understand employee beliefs about change is a key criterion in guiding organisational leaders prior to and during change to determine the best strategy for implementing change. In the context of organisational change, Holt et al. (2007) defined change readiness as a "comprehensive attitude that is influenced simultaneously by the content, the process, the context and the individuals involved" (p. 235). Based on the foundations of Bandura's (1982) social influence theory, Holt et al. (2007a) argue that in order to ensure that employees have the positive beliefs required to successfully implement change, change managers must ensure that the drivers and antecedents of the change beliefs are positively influenced. Holt et al. (2007a) described a set of four cognitive beliefs that comprise an individual's likelihood of being ready for specific organisational change are described: *appropriateness* (the proposed change is appropriate for the organisation), *change efficacy* (employees feel capable of implementing the proposed change), *management support* (the leaders are committed to the proposed change), and *personal valence* (the proposed change is beneficial to employees).

These beliefs are derived from the set of five beliefs first defined by Armenakis et al. (1993, 1999). In their model, Armenakis et al. (1993) stressed the importance of change beliefs in the diagnosis, creation of readiness, and adoption of change. The change beliefs identified underlie the employee motivations to support change efforts. The main distinction between the model developed by Armenakis et al. (1993) and subsequently revised by Holt et al. (2007a) is the refinement of the Armenakis model. Specifically, three factors from the original model were retained (i.e., change efficacy, management support, personal valence), and an additional factor (appropriateness) was developed, which combined the original two factors of discrepancy and organisational valence.

The model of change beliefs is intentionally practical, intending to provide leaders and managers of change with information about what they need to do (aligned to the beliefs) in order to convince employees to buy into the change (Armenakis & Harris, 2009). The utility of examining an employees' change beliefs about situational factors is that it allows change practitioners to identify areas of potential misalignment between employee attitudes and beliefs, in addition to the attitudes and beliefs required to achieve the desired change outcomes (Holt et al., 2007a). Such information facilitates the development of strategies to enhance employee readiness for change and to reduce any resistance ahead of implementing an organisational change.

Considering the relationship between the four change beliefs and ACC, a number of studies have demonstrated strong links between the concepts. For example, Holt et al. (2007a) found that combining the four beliefs positively predicted ACC. Considering the unique contribution of each of the specific change belief dimensions, the following sections describe each of the beliefs in more detail, in addition to the evidence for their role in increasing employee ACC.

2.2.2.3.1. Appropriateness

As noted above, the concept of change appropriateness is derived from combining two components of Armenakis et al's (1993) original model of change; confidence that the change will lead to long-term benefits for the organisation (organisational valence), and a recognition of the need for change (discrepancy). Taken together, a central element in assessing the perceived appropriateness of an initiative is the need to focus on its legitimacy, potential benefits and efficiency (Holt et al., 2007a). If employees are to support and commit to change, they must believe that what is being proposed is the correct solution for the current situation, and will effectively address the needs of their organisation (Armenakis, Harris, Cole, Fillmer, & Self, 2007b).

When considering the antecedents of appropriateness, a number of determinants have been noted, including perceived adequacy of information received about a change (Mckay et al., 2013), and creative behaviour and previous change experience (Soumyaja et al., 2015).

In examining the outcomes of change appropriateness, research suggests that appropriateness is most strongly associated with ACC compared to the other change beliefs. Across a number of studies, an employee's belief that a change is relevant and appropriate for the organisation has been positively linked with levels of ACC (Adil, 2016; Holt et al., 2007a; Neves, 2009). That is, if employees perceive the proposed change will address the needs of the organisation, their resulting belief in the inherent value and benefits of the change will increase. Further affirming this link, in their research, Holt et al. (2007a) proposed that if an individual's ACC is not deemed to be at an acceptable level, reasons for this might be identified through the change belief dimensions, particularly change appropriateness.

2.2.2.3.2. Change Efficacy

Change-related self-efficacy (referred to here as change efficacy), relates to the confidence individuals have in their personal abilities and professional competencies to successfully implement the organisational change (Armenakis et al., 2007a). During organisational change, the question employees often asked is 'do I believe that I have the skills/abilities to successfully implement the change?' Differentiating between generalised concepts of self-efficacy and more domain-specific concepts, researchers (e.g., Herold et al., 2007; House et al., 1996) argued that the use of domain-specific conceptualisations of efficacy are more suited to the investigation of proximal perceptions and beliefs, and have the potential to explain more variance in the outcome variable compared to general self efficacy. An individual's sense of efficacy is also a key element in Bandura's (1982) social learning theory, which indicates that individuals form generalised expectancies relating to the extent to which their actions lead to a desired outcome. In this context, individuals must be confident in their abilities in order to be comfortable that they can successfully implement the change (Conner, 1992).

Researchers investigating the antecedents of change efficacy have found that enabling participative decision-making increases an individual's perception of change efficacy (Kuijpers, Joosten, & de Natris, 2012), as does providing individuals with quality information and communication during change (Bordia et al., 2004; Mckay et al., 2013; Schweiger & DeNisi, 1991). When considering the influence of change efficacy on overall attitudes to change, researchers have also found positive associations with overall openness to change (Wanberg & Banas, 2000), and readiness for change (Cunningham et al., 2002).

The role of change efficacy in enhancing employee ACC has also been demonstrated. For example, in the development of the scale, Holt et al. (2007) also found change efficacy positively related to ACC. In another investigation across 25 organisations undergoing change in the United States, Herold et al. (2007) found that change efficacy was positively linked with change commitment. Moreover, when considering the perceived level of turbulence in the organisation (resulting from the change), researchers found a moderating relationship, such that employees who had low change efficacy and were working in turbulent environments reported the lowest levels of change commitment. In a longitudinal investigation, Neubert and Cady (2001) found that employee change efficacy was a strong, positive indicator of levels of change commitment over time. Demonstrating the significant relationship with commitment to change over 18 months, the researchers argued for the importance of establishing employee confidence in the change during the initial stages of a change program, and ensuring that these levels are maintained over the course of the change program.

2.2.2.3.3. Management Support

In the eyes of employees, management support is viewed as the belief that change agents, organisational leaders, one's immediate manager and/or one's respected peers demonstrate that they support the organisational change and are motivated to see it through to success (Armenakis et al., 2007b). Employee support for change can often be undermined by the belief that leaders do not fully support change implementation or by the thought that respected others do not support the change. The salience of management support is found in both social-information processing theory (Salancik & Pfeffer, 1978) and social-learning theory (Bandura, 1986), which highlight the importance of interpersonal networks within an organisation in influencing employee beliefs and attitudes.

It is important to distinguish management support from trust in management. Whilst related, Eby et al. (2000) distinguished the two variables as being part of individual attitudes to change (management support) and contextual change (trust in management) respectively. An individual's perception of having support from management has been demonstrated as a statistically significant predictor of readiness for change (Cunningham et al., 2002; Eby et al., 2000).

When considering the impact of managerial support for change on an employee's commitment, research conducted to date is not extensive. For example, Ford et al. (2003) found strong positive relations between managerial support and organisational commitment. However when considering commitment to change, both Adil (2016) and Holt et al. (2007a) found no significant relationship between levels of management support and ACC.

2.2.2.3.4. Personal Valence

Finally, personal valence refers to the perceived personal benefit (or personal loss) an individual may reasonably expect as a result of an organisational change (Armenakis et al., 2007a). Often reflecting the 'what's in it for me' sentiment, personal valence during organisational change may be a function of both extrinsic and intrinsic outcomes. The importance of valence as a factor in change originated with Vroom's

(1964) motivation theory. Vroom suggested that the behaviour of individuals is driven by the expectation that a desired outcome will be received. In the context of organisational change, it has been suggested that the attractiveness of the outcome (perceived or real) associated with an organisational change initiative influences change beliefs (Armenakis et al., 2007b).

When considering the precursors to personal valence, researchers have demonstrated that active participation in change (Armenakis & Harris, 2009; Bartunek et al, 2006) and participative decision-making (Kuijpers et al., 2012) lead to increased perceptions of personal valence. In examining the role that personal valence plays in shaping an individual's ACC, once again results are mixed in the few studies that have been conducted. For example, Adil (2016) and Holt et al. (2007a) each found no significant association between levels of personal valence and ACC.

Conceptualising personal valence in a different way, Neves (2009) described it as a belief about the positive and negative outcomes of change, taking into account intrinsic and extrinsic benefits, and its fairness. In doing so, Neves suggested that personal valence could be operationalised through an employee's ACC, since it reflects a desire to provide support for the change based on a belief on its inherent benefits. In another investigation, McKay et al. (2013) considered how the change beliefs could be influenced by an employee's ACC. McKay et al. found that an employee's ACC positively influenced levels of personal valence during change (an effect that was not demonstrated with the other three change beliefs). While there have been no extensive analyses examining the empirical relationships between personal valence and ACC, the limited research to date suggests that the two variables are related in some way.

To summarise, the results from multiple studies (as discussed above, and described below in Table 2.1) indicate that understanding employee ACC to change is complex, and that consideration needs to be given to a number of variables. Although understanding this network of variables, and the pathways that link employee attributes and perceptions to commitment to change is crucial, gaining employee commitment it is not the ultimate goal. Senior organisational leaders are seeking to understand what they can do in order to maximise the likelihood of change success. The next chapter builds on the concept of employee attributes, perceptions, beliefs and commitment, and discusses how each of the study variables interacts in the achievement of employee-related change outcomes.

32

A	Ohan wa hallafa	Affective commitment	Fundamenta esta esta el como
Antecedent	Change beliefs	to change	Employee outcomes of change
Demographics			
Age	Holt et al. (2007a) found no age group differences across change appropriateness, change efficacy, management support and personal valence. Other researchers (Cordery, Sevstos, Mueller & Parker, 1993; Furst & Cable, 2008) have	Rogiest et al. (2015) found age not to be a predictor of ACC, whilst Kalyal, Sverke & Saha (2007) found age negatively associated with ACC.	Job satisfaction Older employees have greater job satisfaction than younger employees (Spector, 1985). Behavioural outcomes Older employees reported increased
	found older individuals are less supportive of organisational change.		intentions to demonstrate change behaviours (Jimmieson, Peach, White, 2008).
Gender	No gender differences found across the four change beliefs (Holt et al., 2007a). Iverson (1996), Vakola et al. (2004) and Shah	Females are more likely to display higher levels of affective commitment than males (Rogiest et al., 2015).	<i>Job satisfaction</i> No gender differences (Rusbult & Farrell, 1983; Spector, 1985).
	(2011) support this finding, finding no differences in overall attitudes to change. Other research suggests males are less supportive of organisational change than females (Corderv et al., 1991: Decker et al.,		<i>Turnover</i> No gender differences (Griffeth, Hom, & Gaertner, 2000; Rusbult & Farrell, 1983).
	2001; Klecker and Loadman, 1999; Vakola & Nikolaou, 2005).		Change behaviour Females reported increased intentions to demonstrate change behaviours, compared to males (Jimmieson et al., 2008).

Table 2.1: Overview of the predictors of change beliefs, affective commitment to change and employee outcomes during change.

	• • • • •	Affective commitment	
Antecedent	Change beliefs	to change	Employee outcomes of change
Level of seniority	Senior employees have higher levels of appropriateness, change efficacy, management support and personal valence (Holt et al., 2007). Jones et al. (2008) found supervisory and non- supervisory staff expressed more negative attitudes toward change, than executive staff.	Level of seniority is a positive predictor of ACC Rogiest et al. (2015).	N/A
Dispositional resistance to change	Negatively associated with positive attitudes towards organisational change (Nov & Ye, 2008; Oreg, 2006; Stewart et al., 2009).	No relationship with ACC (Foster, 2010). Conversely, Fugate & Kinicki (2008) found general disposition to accept change is positively associated with ACC.	Job satisfaction Disposition to accept change is associated with higher job satisfaction (Caldwell & Liu, 2011; Judge et al., 1999; Wanberg & Banas, 2000).
			<i>Change behaviour</i> Disposition to accept change is positively related to behavioural intentions (Kwahk & Kim, 2008), whereas disposition to resist change is associated with behavioural intentions to resist change (Oreg, 2006).

Antecedent	Change beliefs	Affective commitment to change	Employee outcomes of change
Change process	variables		
Change information	Increases overall change readiness (Chawla & Kelloway, 2004; Miller et al., 1994; Soumyaja et al., 2015; Vakola, 2014; Wanberg & Banas, 2000), adaptive attitudes (Van den Heuvel et al., 2013), and reduces resistance to change (Oreg, 2006; Oreg et al., 2011#). Positively related with increased self-efficacy, reduced uncertainty and reduced anxiety (Bordia et al., 2004; Schweiger & DeNisi, 1991). Holt et al. (2007a) and McKay et al. (2013) also found positive communication climate was positively associated with each of the four change beliefs.	Positively associated with ACC (Conway & Monks, 2008; Rafferty & Restubog, 2009; Rogiest et al., 2015; Soumyaja et al., 2015)	<i>Turnover & job satisfaction</i> Reduces intention to quit and increases job satisfaction through change acceptance (Wanberg & Banas, 2000), organisational commitment (Schweiger & DeNisi, 1991) and change self-efficacy (Jimmieson et al., 2004). Poorly managed change communication is associated with increased turnover (Johnson, Bernhagen, Miller, & Allen, 1996). <i>Change behaviour</i> Increases planned change behaviour (Jimmieson et al., 2008), facilitates employee adaptive attitudes and adaptive behaviour over time (van den Heuvel et al., 2013). Poor change communication associated with widespread rumors (DiFonzo, Bordia, & Rosnow, 1994), increased cynicism and resistance (Stanley et al., 2005).

Antecedent	Change beliefs	Affective commitment	Employee outcomes of change
Change participation	Increases acceptance of change (Armenakis and Bedeian, 1999; Coch & French, 1948; Cunningham et al., 2002; Devos et al., 2007; Eby et al., 2000; Oreg et al., 2011#; Sagie & Koslowski, 1996; Wanberg & Banas, 2000), readiness for change (Armenakis et al., 1993;	Positively associated with overall commitment to change (Devos et al., 2001; Lines, 2004) and ACC (Soumyaja et al., 2015). No influence on ACC (Rogiest	<i>Turnover & job satisfaction</i> Reduces intention to quit and increases job satisfaction through change acceptance (Wanberg & Banas, 2000).
	Holt et al., 2007a; Soumyaja et al., 2015), and openness to change (Chawla & Kelloway, 2004). No predictive impact on change beliefs when the quality of change information is considered (McKay et al., 2013).	et al., 2015).	<i>Change behaviour</i> Increases planned behavioural change (Jimmieson et al., 2008).
	<i>Change efficacy:</i> Increases an individual's perception of change efficacy (Kuijpers et al., 2012).		
	<i>Management support:</i> Positively impacts trust in management and perceptions of supervisory support (Weber & Weber, 2001).		
	<i>Personal valence:</i> Increases perceptions of personal valence (Armenakis & Harris, 2009; Bartunek et al., 2006; Kuijpers et al., 2012).		-

		Affective commitment	
Antecedent	Change beliefs	to change	Employee outcomes of change
Change justice	Procedural justice (Armenakis et al., 2007a; Chawla & Kelloway, 2004; Shah, 2011) and distributive justice (Shah, 2011) are positively associated with acceptance to organisational change.	Perceptions of fairness are positively related to ACC (Bernerth, Armenakis, Field, & Walker, 2007; Foster, 2010).	<i>Turnover</i> Change justice is negatively associated with turnover intention (Aghaei, Moshiri & Shahrbanian, 2012; Korsgaard et al., 2002; Suurd Ralph & Holmvall, 2016).
			<i>Job satisfaction</i> Change justice is positively related to job satisfaction (Colquitt et al., 2001#).
			Change behaviour Positively associated with participative behaviours during change (Leventhal, 1980), and organisational citizenship behaviours (Colquitt et al., 2001#).
Trust in management	Positively associated with readiness towards organisational change (Devos et al., 2007; Oreg, 2006; Rafferty & Simons, 2006; Stanley et al., 2005; Soumyaja et al., 2015; Vakola, 2014). Conversely, Farahana, Ghaffari, Nazri, and Kasuma (2017) found no relationship found between trust and readiness for organisational change.	Positively associated with ACC (Michaelis et al., 2009; Neves & Caetano, 2009; Soumyaja et al., 2015).	<i>Turnover</i> Negatively associated with turnover intentions (Bordia et al., 2011; Chawla & Kelloway, 2004; Neves & Caetano, 2009). <i>Job satisfaction</i> Lack of trust is related to lower job satisfaction (Bordia et al., 2011).
			<i>Change behaviour</i> Negatively correlated with the affective, cognitive, and intentional components of resistance to change (Oreg, 2006).

		Affective commitment	
Antecedent	Change beliefs	to change	Employee outcomes of change
Transformational leadership	Senior figures displaying transformational leadership characteristics positively influences readiness to change (Santhidran, Chandran & Borromeo, 2013; Young, 2010).	Positively related to general employee commitment to change (Herold et al., 2008; Hill, Seo, Kang, & Taylor, 2012), ACC (Howarth & Rafferty, 2009; Michaelis et al., 2009; Santhidran et al., 2013), and levels of affective commitment over time (Shin et al., 2015).	<i>Turnover</i> Negatively influences turnover intention (Griffith, 2004; Tse, Huang, & Lam, 2013). <i>Job satisfaction</i> Positively related to employee job satisfaction (Braun et al., 2013; Erktulu, 2008; Judge and Piccolo, 2004#).
			Change benaviour Positively related to organisational citizenship behaviours (Carter, Armenakis, Field, Mossholder, 2013; Podsakoff, Mackenzie, Moorman, & Fetter, 1990) and change behaviour (Penava & Sehic, 2014), and negatively related to cynicism about change (Wu et al., 2007).

Antooodont	Change heliefe	Affective commitment	
Change boliefs	Change beliefs	to change	Employee outcomes of change
Change beliefs Appropriateness	N/A	Positively related to affective commitment (Adil, 2016; Holt et al., 2007a; Neves, 2009)	TurnoverLinked with lower turnover intention(Cole, Stanley, Harris & Bernerth,2006; Neves 2009; Rafferty & Griffin,2006). No relation with turnoverintention (Holt et al., 2007a).Job satisfactionPositively related to job satisfaction(Cole, et al., 2006; Holt et al., 2007a;Rafferty & Griffin, 2006).Mardhatillah, Abdul & Khamsiah(2017) found no relationship with jobsatisfaction.Change behaviourPositively related to change-supportive behaviour (Neves, 2009)and negatively to behaviouralintentiona to resist obactor (MeKav et
			al., 2013).

Antroatant	Change holiefe	Affective commitment	Employee outcomes of change
Antecedent Change efficacy	N/A	to change Positively linked with affective commitment (Holt et al., 2007a) and overall change commitment (Herold et al., 2007; Neubert & Cady, 2001). Adil (2016) and Neves (2009) found no significant relationship with ACC.	Employee outcomes of changeTurnoverAssociated with lower turnoverintention Neves (2009). No relationwith turnover intention (Holt et al.,2007)Job satisfactionPositively related with job satisfaction(Holt et al., 2007a; Mardhatillah et al.,2017).Change behaviourRelated to greater involvement inchange activities (Cunningham et al.,2002). McKay et al. (2013) found norelation with behavioural intentions to
Management support	N/A	Positively related to commitment to change (Ford et al., 2003). Adil (2016) and Holt et al. (2007a) found no significant relation.	Telation with behavioural mentions to resist change.Turnover No relation with turnover intentions (Holt et al., 2007a).Job satisfaction Positive relation with job satisfaction (Ford et al., 2003; Mardhatillah et al., 2017). No relation with satisfaction (Holt et al., 2007a).Change behaviour No relation with behavioural intentions to resist change (Holt et al., 2007a; McKay et al., 2013).

		Affective commitment	
Antecedent	Change beliefs	to change	Employee outcomes of change
Personal valence	N/A	Holt et al. (2007a) and Adil, (2016) found no relationship between personal valence and affective commitment, however Fedor et al. (2006) found a positive link.	<i>Turnover and job satisfaction</i> No relationship found relating to turnover intention or job satisfaction (Holt et al., 2007). <i>Change behaviour</i> No relation with behavioural intentions to resist change (Holt et al., 2007a; McKay et al., 2013).
Affective commitment to change	N/A	N/A	<i>Turnover</i> Negatively related to turnover intention (Rafferty & Restubog, 2009; Shin et al. 2015). <i>Job satisfaction</i> Positively associated with job satisfaction (Armstrong-Stassen, 2004; Bouckenooughe et al., 2014#; Rafferty & Restubog, 2009). <i>Change behaviour</i> Positively related with behavioural support for change (Bouckenooghe et al., 2014#; Koller, 2014; Shin et al., 2015), change compliance (Adil, 2016; Herscovitch & Meyer, 2002), cooperation and championing

Legend: #: systematic literature review or meta-analysis.

Chapter 3: Theoretical and Empirical Review of the Antecedents of Employee Outcomes During Change

This chapter presents a review of the central theoretical bases and empirical research relating to the antecedents of individual change outcomes, as detailed in the model developed and tested in the research. The chapter is organised around three sections. The first section begins with a consideration of employee job satisfaction. The second section provides a discussion of theory and empirical work relating to change supportive behaviours. The third concludes with an analysis of employee turnover intentions during change. In each of the sections, the key change-related antecedents of each outcome variable are discussed, which form the basis of the final research model. Table 2.1 in the preceding chapter provides a succinct summary of the empirical findings as they relate to the antecedents and mediating factors of each of the change-related outcomes.

When examining individual attributes, perceptions, beliefs and commitment related to organisational change, there is a need to understand which of these variables are related to outcomes of organisational change. There are two main classifications of change outcomes: individual and organisational. From an organisational perspective, it is argued that successful adoption of change is reflected in a number of different work outcomes (Parent et al., 2012). For example, common indicators of success include program cost, on-time delivery and the realisation of efficiencies. Acknowledging the fact these indicators provide the organisation with a tangible metric by which to assess change success, they do not provide a view of how the change impact employees and their subsequent reactions. Therefore whilst success indicators for many organisations may be to realise cost benefits, in order to achieve these outcomes, leaders ultimately require their employees to behave in new or different ways. The investigation of outcomes from an employee perspective, considers either positive outcomes (e.g., receptivity to change, proactive behaviour, job satisfaction), negative outcomes (e.g., expressions of resistance, stress, voluntary resignation), or outcomes that lie somewhere in-between, such as ambivalence (Armenakis & Bedeian, 1999; Piderit, 2000). Oreg et al. (2011) provided another view of individual change outcomes (labelling them consequences of change). Oreg et al. considered employee consequences from two perspectives: work-related (e.g., job satisfaction, performance, turnover) and personal (e.g., psychological well-being, anxiety, depression).

It is not the intention of this research to replicate the review conducted by Oreg et al. (2011) on change outcomes. Rather, the current research considers the investigation of work-related outcomes as critical to the successful implementation of organisational change, as empirical and theoretical research (as detailed in the following sections) suggests that individuals who adapt well to organisational change will be more satisfied with their work, perform better, be less likely to leave their organisation, and miss less work than individuals who do not adapt well to change. It is for this reason that the employee outcomes selected for investigation in the research model are employee job satisfaction, change-supportive behavioural intentions, and turnover intentions.

As detailed in Chapter 2, a great deal of research has sought to understand individual change attributes, perceptions, beliefs and commitment to change. However, few researchers have extended their evaluations to include an understanding of the consequences of these variables. A question of practical and theoretical importance is therefore: How can organisational leaders obtain and maintain desired employee outcomes during organisational change? In the context of the proposed research model (see Figure 1.1). the following sections present a discussion of each of the selected change outcomes, in addition to their antecedents.

3.1. Job Satisfaction

A frequent area of interest for senior business leaders is the satisfaction of their employees during change. Research into job satisfaction has spanned decades, and continues to receive a significant degree of research attention. Job satisfaction represents the pleasurable or positive emotional state resulting from the appraisal of one's job or job experiences (Locke, 1976). Research investigating the organisational benefits of satisfied workers has found positive associations with job performance (laffaldano & Muchinsky, 1985) and reduced intentions to leave (see section 3.3.1), each of which is a desired outcome during times of change.

When considering what drives an employee's satisfaction in today's workplace, new challenges are being faced due to the continued evolution of the nature of work, employment and workplace conditions. Combined with these complexities, and the ever-changing landscape that organisational change brings, there is a need to further understand the antecedents of job satisfaction and the conditions by which it can be enhanced.

3.1.1. Antecedents of Job Satisfaction

Researchers have consistently demonstrated the importance of job satisfaction during organisational change (e.g., Bordia et al., 2011; Rafferty & Restubog, 2009; Wanberg & Banas, 2000). During change, employees often feel a loss of territory, are uncertain about what the future holds and may fear failure as they are faced with new tasks (Coch & French, 1948). The uncertainty stemming from large-scale changes has been shown to negatively impact an individual's job satisfaction at work (e.g., Amiot, Terry, Jimmieson, & Callan, 2006; Rafferty & Griffin, 2006). Attempting to understand how important work outcomes, such as job satisfaction are shaped, researchers have used the interactionist perspective (House *et al.*, 1996) to consider how situational factors and personal characteristics interact.

When considering employees attributes, researchers have found that dispositional characteristics play a role in shaping an employee's job satisfaction For example, researchers have found that the interaction between an individual's dispositions (e.g., open to experience, conscientiousness) and their perceptions of procedural fairness during change shapes job satisfaction (Caldwell & Liu, 2011). Additionally, Judge et al. (1999) found that employee dispositional factors (positive self concept, risk tolerance) were related to job satisfaction, and this effect was partially mediated by an individual's ability to cope with change. Considering dispositions from a more negative mindset, it is argued that individuals who are predisposed to not accept change are more likely to experience negative emotional reactions (such as anxiety, anger, fear) when change is imposed upon them (Oreg, 2006). Given this, it is argued that individuals with a preference for stability and continuity demonstrate a strong (negative) emotional response during change (Oreg, 2003), which has a resulting negative impact on their job satisfaction (Oreg, 2006).

Regarding the more proximal variables relating to the change process, researchers have consistently found that the positive perceptions individuals have towards the change process directly and indirectly influence job satisfaction. For example, a well managed change communication plan (Jimmieson, Terry, & Callan, 2004; Wanberg & Banas, 2000), and having the ability to participate in the change process (Wanberg & Banas, 2000) increase an individual's job satisfaction through acceptance of change and positive change beliefs. Considering change justice, in their meta-analysis Colquitt et al. (2001) found that individuals who perceived the design and implementation of change in a fair and just manner were more likely to be satisfied with their job compared to individuals with negative perceptions of fairness. With regard to the change context variables, the presence of a supportive, trusting and inspiring workplace also influences an individual's level of satisfaction. Research has demonstrated the positive influence of having trust in management (Bordia et al., 2011; Chawla & Kelloway, 2004) and a leader who embodies transformational qualities (Braun et al., 2013; Erktulu, 2008) on an individual's job satisfaction. Considering the interrelationships between these two antecedents, Den Hartog et al. (2002) sought to test whether transformational leadership qualities are related to trust in leaders, management and co-workers. As expected, trust in the leader and management were highly positively related to leaders possessing transformational qualities and less so to transactional-style leadership. The same pattern was found for trust in colleagues, although these relationships were less strong. Extending these results, Braun, Leus, Weisweiler, and Frey (2013) found that both trust in management and trust in teams acts as a mediator between individual perceptions of a supervisor's transformational leadership qualities and job satisfaction.

The beliefs that individuals have about change can impact their satisfaction with work. From a general perspective, researchers have found that job satisfaction is predicted by overall change acceptance (Wanberg & Banas, 2000), readiness (Cunningham et al., 2002), and attitudes towards change (Schweiger & DeNisi, 1991). Considering the more specific dimensions of change beliefs, confidence in the ability to execute change (i.e., high self efficacy) has consistently been found to influence an individual's job satisfaction (Holt et al., 2007a; Mardhatillah et al., 2017). The evidence is mixed in relation to the perceived appropriateness of change and positive perceptions of management support. For change appropriateness, some researchers have found a positive relationship with job satisfaction (Cole, et al., 2006; Holt et al., 2007; Rafferty & Griffin, 2006). More recently however, Mardhatillah et al. (2017) found no significant relationship between the two variables. A similar pattern of results exists for management support. Although Holt et al. (2007a) found no association between management support and job satisfaction, in a more recent study, Mardhatillah et al. (2017) demonstrated significant positive associations. Finally, whilst extensive research has not been conducted, the available evidence has not found personal valence to influence job satisfaction (Holt et al., 2007a).

In terms of the relationship between ACC and job satisfaction, strong links have been demonstrated between the two concepts (Bouckenooughe et al., 2014; Rafferty & Restubog, 2009). Reasons for these positive links can be deduced from early applications of commitment research, in which commitment to the organisation is reflected in behavioural outcomes such as job satisfaction (e.g., Meyer & Allen, 1991; Meyer et al., 1993). Moreover, Armstrong-Stassen (2004) reported that over time, employees with high levels of ACC are more likely report higher job satisfaction during organisational change than those with lower ACC.

3.2. Change-Supportive Behavioural Intentions

Change-supportive behaviour can vary from individual to individual in terms of the effort and energy invested (Bouckenooghe et al., 2014). From a theoretical perspective, a number of approaches have been used to inform an understanding of behavioural support for change. Firstly, the Theory of Planned Behaviour (TPB), which has its origins in the Theory of Reasoned Action (Ajzen & Fishbein, 1980), predicts an individual's intention to engage in a particular behaviour at a specific time and place. The TPB specifies that individuals make conscious decisions to engage in certain behaviours, influenced by (a) personal beliefs regarding the behaviour and evaluations of its outcomes (*attitude*), (b) normative beliefs regarding its social desirability and perceived social pressure to carry it out (*subjective norm*), and (c) control beliefs regarding the ability and opportunity to perform the respective behaviour (*perceived behavioural control*) (Ajzen, 1991). A number of researchers have utilised TPB in organisational change research, demonstrating that all three dimensions are related to employees' behavioural intentions to support change (Jimmieson et al., 2008) and actual change supportive behaviour (Kim, Hornung, & Rousseau, 2011).

While TPB is concerned with how an individual's intended behaviour can be predicted from attitudes towards that behaviour, another framework of behavioural support towards change is that of Herscovitch and Meyer (2002), who focused on how the type of commitment to change can influence different forms of behaviour. Extending their model of organisational commitment to change, Herscovitch and Meyer (2002) proposed the different types of commitment (ACC, CCC, NCC) had different implications for the nature and level of employees' behavioural support for a change. In developing their model, two forms of change-relevant behaviour were described: focal behaviour and discretionary support. Herscovitch and Meyer described focal (or compliance) behaviour as representing the course of action to which an individual is bound by their commitment (e.g., remaining with the organisation). As this type of behaviour is indicative of the minimum explicit requirements for change, an individual reporting any form of commitment should demonstrate the relevant compliance behaviour. On the other hand, discretionary behaviour includes any course of action that can be undertaken at the discretion of the individual (e.g., exerting extra effort). Discretionary behaviour comprises both *cooperation* (behaviour that involves going along with the spirit of the change, with modest personal sacrifices), and *championing*

(behaviour that requires considerable personal sacrifice or is intended to promote the value of the change to others inside or outside the organisation). Unlike focal behaviour, it has been argued that the extent to which employees engage in discretionary behaviour is dependent on the mind-set (i.e., desire, cost, obligation) that accompanies the type of commitment (Herscovitch & Meyer, 2002; Meyer, Srinivas, Lal, & Topolyntsky, 2007). It is for this reason that change practitioners consider it important to understand the variables that enhance the likelihood of an individual demonstrating discretionary change behaviour.

When considering both theoretical models, there is alignment between the TPB and the Herscovitch and Meyer approach. For example, there is a common understanding that an individual's personal and normative beliefs shape their behavioural intentions. However as the the focus of this research program is to understand the conditions that support employee's propensity to commit to a change and produce positive change outcomes (including discretionary behaviour), it is considered appropriate to apply the approach presented by Herscovitch and Meyer (2002) to the research model, rather than the TPB.

3.2.1. Antecedents of Change-Supportive Behavioural Intentions

In examining the influence different types of change commitment can have on change-supportive behaviour, research has consistently demonstrated the importance of ACC in developing employee support for change, particularly cooperation and championing behaviours. For example, Herscovitch and Meyer (2002) found that individuals with a desire to support a change (i.e., high ACC) are more likely to exhibit discretionary behaviour, as opposed to employees who feel committed due to a sense of obligation (NCC) or cost (CCC). Since ACC reflects recognition of the importance and value of the change (Herscovitch & Meyer, 2002), and is a positive manifestation of employee attitudes toward change, it has been demonstrated that ACC positively influences individual change behaviours (McKay et al., 2013).

Additionally, in a meta-analysis across 17 studies that used Herscovitch and Meyer's (2002) three-component model of change commitment, Bouckenooughe et al. (2014) found that ACC was consistently correlated with behavioural support for change. More specifically, strong positive correlations were found between ACC and cooperation and discretionary behaviours. Subsequent to this meta-analysis, Shin et al. (2015) found ACC to be a stronger predictor of compliance behaviour (turnover intention) and discretionary behaviour (behavioural support for change) compared to both NCC and CCC. Shin et al. suggested that their results were due to the fact that ACC tends to be more malleable because it is explained by more state-like variables (such as emotions), whereas NCC tends to be more stable because it is explained by relatively stable personality characteristics such as agreeableness (Erdheim, Wang, & Zickar, 2006).

Whilst there has been a great deal of research regarding the relationship between ACC and change-supportive behaviours, there has not been as much focus on the role of change beliefs in shaping employee behaviour. In the development of the change beliefs model (see section 1.3.3, and 2.2.2.3), Holt et al. (2007a) provided a conceptual framework of change readiness, suggesting that their specified set of beliefs provide the foundation for either resistance or adoptive behaviours. In another study, Neves (2009) found an indirect link between appropriateness and changesupportive behaviours through their relationship with ACC. Research has also found that individuals with high levels of change self-efficacy are more likely to participate in a greater number of change activities (Cunningham et al., 2002). In their study, Cunningham et al. demonstrated that individuals with higher levels of self-efficacy reported increased readiness for organisational change, participated in a greater number of redesign activities during the following year, and felt that they made a greater contribution to organisational change. More recently, using the Holt et al. (2007a) model, McKay et al. (2013) found a positive relationship between appropriateness and an individual's likelihood to behaviourally support the change, however no other relationships were found for the remaining change belief variables (i.e., change efficacy, management support, personal valence).

Whilst the research relating to the role of change beliefs in predicting change behaviour is limited, a number of researchers have sought to understand whether other change variables influence an individual's likelihood of displaying change-supportive behaviours. In a recent investigation, Vakola (2016) used a critical incident methodology to examine employee behavioural reactions to large-scale change and the reasons employees adopted these particular reactions. Vakola found that a number of variables influenced an employee's initial reasons to support change, with anticipated benefits the most frequently cited reason (ahead of cost of reaction, lack of alternatives, job satisfaction, and trust in management). Vakola also considered the influence of these variables over time, and suggested that the reason employees demonstrated active support at a later stage of the change was due to levels of perceived supervisory support, open communication, and a positive team climate toward the change

48

Investigating the role that employee DRtC plays in behavioural support, Oreg (2006) found that individuals who demonstrated higher dispositional tendencies to resist change were more likely to have behavioural intentions to resist (rather than support) change. Moreover, DRtC has also been found to moderate the relationship between both attitudes towards the change agent and ambivalence to change (Oreg & Sverdlik, 2011). With regard to change process factors, the results from many studies indicate that individuals with positive perceptions of change are more likely to engage in change-supportive behaviours. For example, in a longitudinal study conducted over a 12-month period, van den Huevel, Demerouti, Bakker, and Schaufeli (2013) demonstrated that the provision of detailed change information facilitated both employee adaptive attitudes and adaptive behaviour over time. Specifically, information provided to employees before change implementation had a positive effect on adaptive behaviour during change implementation. Ongoing information received during the implementation process was also found to positively influence change-adaptive attitudes one year after change implementation. Additionally, in their investigation involving an office relocation, Jimmieson et al. (2008) found that individuals who received sufficient information about the office relocation, and individuals who actively participated in the change process reported stronger behavioural intentions to support the change, an effect that was partially mediated via perceived social pressure (to perform the behaviours) and perceived control (of being able to carry out the behaviours).

When considering change resistant behaviours, the perception of poorly managed change communications is associated with widespread rumours (DiFonzo et al., 1994), and increased cynicism and resistance to the change (Stanley et al., 2005). Positive perceptions of change justice have also been linked with participative behaviours during change (Leventhal, 1980), and organisational citizenship behaviours (Colquitt et al., 2001). Perceptions of organisational justice have also been shown to predict employees' work attitudes (e.g., organisational commitment and job involvement) and behaviours (e.g., willingness to support decisions and decisionmakers) and even severe stress-related health outcomes (Elovainio, Leino-Arjas, Vahtera, & Kivimäki, 2006).

Finally, when considering change context variables, trust in management has been found to negatively correlate with change resistant intention (Oreg, 2006). Employees working alongside transformational leaders have also demonstrated positive associations with organisational citizenship behaviours (Carter et al., 2013; Podsakoff et al., 1990), and less cynicism about change (Wu, Neubert, & Yi, 2007).

3.3. Turnover Intentions

Turnover intention is one of the most frequently assessed employee variables within organisational research (Chen et al., 2012; Cohen, 1993). Whereas turnover represents the situation of an employee actually terminating employment with an organisation (either voluntarily or involuntarily), turnover intention reflects the desire of an individual to voluntarily leave an organisation. Turnover intention has been shown to strongly indicate actual turnover (Firth, Mellor, Moore, & Loquet, 2004). Given actual turnover has a number of direct implications for an organisation with regard to headcount, cost and productivity losses, researchers have invested much time in understanding predictors of turnover intention.

Two major theoretical perspectives have provided insights into the turnover process. The first approach pioneered by Mobley (1977), is the intermediate linkages model of voluntary turnover. Mobley's model, or variations on this model (e.g., Bluedorn, 1982; Griffeth et al., 2000), outlines the cognitive processes influencing an individual's decision to resign from an organisation. The model identifies a number of antecedents to turnover, including job dissatisfaction, thoughts of quitting, search intentions and turnover intentions. The results of a meta-analysis conducted by Griffeth et al. (2000), supported the model and found that proximal precursors to the withdrawal process (i.e., job satisfaction, organisational commitment, job search, comparison of alternatives, withdrawal cognitions, and turnover intention) were the best predictors of turnover.

Another approach developed by Lee and Mitchell (1994) is the unfolding model of turnover. This model has three core features, (i) the use of image theory to assist in decision-making, (ii) the role of shocks (i.e., events or experiences) that prompt the consideration of leaving, and (iii) the five mutually exclusive decision paths leading an individual to leave. These pathways include the presence or absence of a shock, job dissatisfaction, a script for leaving, image violation, search for alternatives, and other job offers. Lee and Mitchell's model has received mixed empirical support, with some researchers suggesting the model does not specify all potential paths for leaving (Morrell, Loan-Clarke, Arnold, & Wilkinson, 2008).

3.3.1. Antecedents of Turnover Intentions

Whilst both of these models do not specifically consider employee turnover in the context of organisational change, as described above, a number of the components (e.g., commitment, job satisfaction) are associated with organisational change. Moreover, applying Lee and Mitchell's (1994) unfolding model of turnover, it could be argued that an organisational change could be a considered a 'shock event', depending on its type, complexity and size, and this event may prompt some employees to consider leaving the organisation. Given this, the overarching theme of this research program suggests that individuals with positive views of an organisational change are less likely to have intentions to resign.

Considering empirical findings, research has consistently demonstrated an inverse correlation between ACC and turnover intentions across cross-sectional (Meyer et al., 2002; Neves, 2009) and longitudinal studies (Rafferty & Restubog, 2009; Shin et al., 2015). When considering other change-related variables, turnover intention has been associated with the more proximal variables in the research model proposed in this program. Specifically, change information (Johnson et al., 1996; Wanberg & Banas, 2000), change participation (Wanberg & Banas, 2000), and trust in management (Bordia et al., 2011; Chawla & Kelloway, 2004) have all consistently demonstrated significant negative relationships with turnover intention.

Furthermore, negative relationships between beliefs about change and turnover intention have been found by a number of researchers. In one study with university staff, Neves (2009) found both change appropriateness and change efficacy were negatively related to turnover intentions. As part of the implementation of a new performance appraisal system, Neves (2009) demonstrated that turnover intention was directly influenced by change self-efficacy, and indirectly by change appropriateness (through ACC). In other research, appropriateness has been directly linked with turnover intention (Cole, Stanley, Harris, & Bernerth, 2006). Considering the relationship between management support and turnover intentions, researchers have found that individuals with more supportive managers during change are less likely to have intentions to leave the organisation (Rafferty & Griffin, 2006). Despite the evidence supporting the three previously mentioned change beliefs, in their analysis, Holt et al. (2007a) found no relationship between personal valence and turnover intention.

Finally, the relationship between job satisfaction and turnover intention has been extensively investigated. Researchers frequently call out low job satisfaction as an initiator of turnover, which makes practical and theoretical sense, as job satisfaction is generally understood as a pleasurable emotional state an individual experiences in their job (Locke, 1969). With this is mind, many researchers have demonstrated the negative relationship between job satisfaction and turnover intention (e.g., Amiot et al., 2006; Bordia, et al., 2011; Griffeth et al., 2000; Kumar et al., 2018; Rafferty & Restubog, 2009; Wanberg & Banas, 2000). Furthermore, most theoretical approaches
to turnover note the role of job dissatisfaction as an initiator of the turnover process (Morley, 1977), although as mentioned above, Lee and Mitchell's (1994) unfolding model of turnover argues that job dissatisfaction is not strictly necessary for an employee to leave the organisation.

In summary, obtaining a better understanding of how individual attributes, perceptions, beliefs and change commitment influence outcomes associated with change is important for a number of reasons. Given the speed at which the business landscape is evolving, organisational change is no longer considered a 'one-off' event. Organisations are transforming themselves at pace, and there is a need to ensure that the people component of change is understood and managed to maximise the chances of change success. Whilst this may be the overarching goal, leaders face a number of barriers to success, as organisations have only a finite amount of time, resources and money to carry out change. It is therefore of practical significance to understand the key pathways that predict change-related outcomes to allow organisational leaders to appropriately focus their attention in order to maximise the benefits of change. The current research program aims to close the gap by considering the network of variables that are related in organisational change research. The next chapter provides detail of the research methodology, which forms the basis of analysing the proposed research model.

Chapter 4: Overview of Methodology and Statistical Procedures

4.1. Overview of Methodology

To test the model proposed in the current research program, three field-based empirical studies were conducted. The sequence of studies was designed to examine the hypothesised effects in field-based organisational settings. Using this approach and building on previous research, this research program aims to contribute significantly to organisational change research by:

- Studying a large sample, derived from a population-based study of individuals who are employed in organisations undergoing change.
- Modelling employee attributes, perceptions, beliefs, commitment to, and outcomes during organisational change over time. Rather than comparing responses based only on a single point in time, employee attributes, perceptions and beliefs of change were modelled over time using a range of indicators (e.g., participation in change, trust in management, change efficacy). By doing so, this research is statistically better suited to analyse the changing nature of putative variables associated with affective commitment than previous studies.
- Applying a multi-dimensional framework of change to account for the complexity of the change process. Employee attributes, perceptions and beliefs about a number of change-related variables were combined with demographic details to predict their commitment and reactions to change over a six-month period. Direct and indirect effects on employee outcomes are modelled simultaneously, and as a result, potential causal pathways are modelled more comprehensively than in previous studies.

The University of New South Wales Human Research Ethics Committee approved all studies within this research program (Approval numbers 1881, 2939).

4.2. Overview of Studies

Study 1 is reported in Chapter 5 and uses a cross-sectional field design with employees from an Australian organisation. The objective of Study 1 was to determine whether shortened forms of a number of measures of change-related constructs (considered important in the examination of employee attributes, perceptions, beliefs and commitment to organisational change) could be derived. A major barrier to the use of surveys in organisational and field studies is the duration of time taken to complete them. Thus, the development of a valid, shorter form of assessment has obvious practical implications (see Chapter 5 for further discussion).

Having established the utility and validity of a shortened form of assessment that includes the most apparent influencing variables in organisational change, Study 2 is presented in Chapter 6 and provides an initial cross-sectional test of the core elements in the hypothesised model. Study 2 utilised employees from one Australian organisation. The shortened measures derived in Study 1 were used to empirically test the cross-sectional research model. The mediating role of change beliefs was examined in the relationship between DRtC, change process and context factors, and ACC.

The final empirical study in this program of research is Study 3, which is reported in Chapter 7. Study 3 extends the hypotheses tested in Study 2 by utilising a longitudinal field design with employees from one organisation across 12 countries in the Asia Pacific region. Data from employees was collected on two occasions separated by six months. Study 3 offers an important empirical extension of the model by examining the model's predictive ability on a series of change-related outcomes (i.e., employee satisfaction, turnover intentions and change-supportive behavioural intentions).

4.3. Statistical Procedures

4.3.1. Software Packages

Two software packages were used to conduct the research: IBM® SPSS® Statistics Version 25 for explorative and descriptive data analyses, and IBM® AMOS[™] Version 25 for structural equation modelling (SEM) applications.

4.3.2. Sample Size Requirements

Determination of what constitutes a sufficiently large sample is a point of ongoing contention among researchers. Whilst the rule of thumb is considered to be (at a minimum) five observations to one free parameter, more commonly, researchers consider ten observations to one free parameter as an optimal threshold level (Davcik, 2014).

Model complexity is another factor that should be considered in determining an appropriate sample size. Whilst complex models can be tested with larger samples, the SEM test statistic (χ^2) inflates in the presence of large samples, yielding highly significant p-values. The effect of a large sample on χ^2 makes it very likely that the null hypothesis is rejected in a potentially plausible model because large samples yield

enough power to detect very small, and at times practically meaningless differences between the proposed model and the observed data (Hair, Black, Babin, & Anderson 2010). Therefore, normed χ^2 values (χ^2/df) are considered appropriate because both χ^2 and df increase as a function of the number of variables (parameters).

Additionally, given the research hypotheses for Studies 2 and 3 require the consideration of indirect effects (see sections 6.1 and 7.1 in Chapter 6 and 7 respectively), bootstrapping analyses are required (see section 4.3.7.3). As bootstrapping analyses rely on the accuracy of estimates from the original sample (Byrne, 2016), small sample sizes are not desirable. The recommended sample size is N = 500 when small indirect effects are expected, however if researchers are seeking medium to large indirect effects, sample sizes as small as N = 100 have also yielded acceptable results (Cheung & Lau, 2008; Yung & Bentler, 1994).

To preserve degrees of freedom, researchers have applied a number of different approaches to modelling analyses, including using item parcels and latent factor scores. Item parcelling involves using the sum or average of a group of items to create 'parcels'. These parcels are then used in SEM analyses, rather than all the individual items (e.g., Amiot et al., 2006). The use of latent factor scores on the other hand requires a confirmatory factor analysis (CFA) to first be conducted on all items, and then the latent factor scores derived from the CFA are used for SEM analyses (e.g., van den Heuvel et al., 2013). Undertaking either of these methods is considered appropriate when there are a large number of items in the full research model (Bargozzi & Heatherton, 1994). For the purposes of this research program, the second approach (i.e., latent factor score) was adopted as it allowed the unique contribution of each item to influence the factor, rather than assuming equality of items (as is the case with summation or averaging).

Acknowledging the above, the present research utilised variable to participant ratios of 11:110, 12:703 and 26:750 for Studies 1, 2 and 3 respectively.

4.3.3. Missing Data

Within the research program, missing data was only an issue for Study 3. The challenge of missing data in empirical research has long been discussed, and historically, common practice has been to retain only those participants with complete data sets (i.e., listwise deletion). This is problematic, particularly when research is conducted across multiple waves, as research findings do not take into account all collected data. Given this, more recently researchers have sought to use all available data to conduct their investigations, and have argued that using all available data is

more accurate and less prone to bias than traditional methods such as listwise deletion (Little & Rubin, 1987). The use of all available data is also a preferred method of reducing selection biases derived through attrition or drop-out (Allison, 2010). In multi-wave studies, this approach includes utilising the data collected from all participants, irrespective of completeness (e.g., Bollen & Curran, 2006; Enders, 2010).

Figure 4.1 summarises the complete and missing (incomplete) data for Study 3 with respect to values, variables and cases. The first pie-graph in the Figure illustrates that within the current research program, the overall proportion of missing values for Study 3 was 37%. Over the two time points, 750 individuals responded to at least one survey. The second pie-graph in Figure 4.1 illustrates that 157 individuals responded to both surveys (21%), whilst 593 individuals (79%) responded to only one survey (250 responded to T1 only (33%), and 343 responded to T2 only (46%)). Within each time point, participants completed all required questions. Finally, considering the third pie-graph, employee demographic details were the only variables without any missing information (5%).



Figure 4.1: Summary of complete and incomplete data in Study 3.

4.3.3.1 Patterns of Missingness

Understanding the pattern of missingness within the data is useful to inform appropriate analyses to apply. For Study 3, Little's "missing completely at random" (MCAR) test (Little, 1998) was $\chi^2(198) = 243.092$, p = .016, suggesting there was a pattern in the missingness of data. Given that a number of participants completed the survey at a single time point, analyses were undertaken to examine whether there were significant differences between these participants and those who completed the

survey at both T1 and T2. Analysis of Variance (ANOVA) tests were conducted across the sample and revealed that there were no differences across participant level of seniority. However there were differences in both participant gender (F(2,747) = 5.979, p = .003) and age (F(2,747) = 6.811, p = .001). Post hoc comparisons indicated that employees who completed both T1 and T2 surveys were older, male respondents (compared with participants who completed only one survey). There were no demographic differences between employees who completed only the T1 or T2 survey.

With regard to the remaining study variables, independent t-tests were conducted to understand group differences. For T1, significant differences were found for personal valence and ACC. Specifically, participants who completed both T1 and T2 surveys reported higher levels of personal valence (M = 15.681, SD = 3.055), and ACC (M = 17.127, SD = 2.613), compared to employees who only completed T1 (M = 15.028, SD = 3.208; t(405) = 2.037, p = .042) and (M = 16.472, SD = 2.924; t(405) = 2.292, p = .022) respectively. At T2, the same pattern of results was observed, with significant differences found for personal valence and ACC variables. Participants who completed both T1 and T2 surveys reported higher levels of personal valence (M = 15.134, SD = 3.361), and ACC (M = 16.720, SD = 2.848), compared to employees who only completed T2 (M = 14.496, SD = 3.356; t(498) = 1,972, p = .049) and (M = 15.991, SD = 2.954; t(498) = 2.588, p = .010) respectively.

In summary, the missing data may be related to the differences in employee demographics (i.e., younger employees were less likely to complete both surveys), and/or the perceived benefits employees had towards the change and their levels of ACC (i.e., employees who perceived greater benefit and who were more committed were more likely to complete both surveys). Given the nature of ACC (see section 2.1 in Chapter 2), this is not surprising, as the completion of the survey required employees to undertake discretionary actions, behaviours that have been associated with ACC (Herscovitch & Meyer, 2002). For personal valence, research to date has not linked the variable to change related behaviour, however the group differences were kept in consideration as the remaining analyses were undertaken (see Chapter 7).

4.3.3.2 Data Imputation

Missing data were estimated based on the full information that was available using the Expectation Maximum (EM) algorithm in SPSS Version 25 (Schafer & Graham, 2002; Tabachnick & Fidell, 2012). The EM process is based on an iterative, two-step process that generates the best possible estimates of the missing data, and then creates estimates of the parameters (e.g., means, standard deviations) assuming the missing data was replaced. The process continues to cycle between the E-step and M-step until the changes in the estimated values are negligible (Hair et al., 2010). Application of the EM approach has been shown to work effectively, even in instances where up to 50% of data are missing (Choi, Nam, & Kwak, 2004).

It is acknowledged that most imputation procedures are based on the assumption that data is MCAR, and utilises continuous data, which is multivariate normally distributed. Despite this, it has been argued that when a Likert scale employs at least five categories, treating the data as continuous does not result in severely biased estimates (Finney & Di Stefano, 2006). Moreover, it has also been argued that the assumptions of multivariate normality and MCAR may be negligible in the context of ML estimation during SEM analyses (Schafer & Graham, 2002).

For Study 3, an imputation method (i.e., replacement of missing values) was selected over other non-imputation estimation methods (e.g., Full Information Maximum Likelihood, FIML). This was done because in order to test the study hypotheses, there was a requirement to use a number of model fit indices, modification indices, bootstrapping and mediation effects, which cannot be performed in AMOS if FIML estimates are being computed at the same time. Therefore the missing data were imputed in SPSS prior to including the data into AMOS. As a quality check, the final models from each study were re-run using the FIML estimates in AMOS, and the model solutions compared. The results across both studies were very similar, therefore the results presented in Chapter 7 represent the models estimated with the full available imputed data.

4.3.4. Explorative and Descriptive Data Analyses

A number of parametric and non-parametric tests were used for explorative and descriptive analyses. As the research variables included a combination of nominal and ordinal variables, Spearman's ρ is reported whenever correlations between variables are discussed.

Independent samples t-tests were used to compare differences between two groups. Corresponding test statistics (t) are presented with their associated degrees of freedom (df) and p-values (two-tailed). Where differences of two or more groups were assessed, univariate ANOVA was used. Test statistics including (f) are presented with their associated degrees of freedom (df) and p-values (two-tailed). Unless otherwise stated, the level of statistical significance across all studies was set to p < 0.05.

4.3.5. Development of Short-Form Measures

A number of methods can be applied to develop a short form of a psychometric measure. Although there is no single, agreed method in the literature, common methods include: (i) selecting a subset of items with the highest internal consistency to maximise reliability of the short form; (ii) selecting items with the highest loadings on the common factor underlying the item to obtain items most closely aligned with the factor; (iii) selecting items with the highest correlation with the total scale score (preferably the highest correlation with a composite of the remaining items on the scale); (iv) selecting items with the highest face validity, or items that are the most obvious indicators of the construct; or (v) selecting items randomly from the original scale (for further discussion, see Worthington & Whittaker, 2006; Larwin & Harvey, 2012; Morgado, Meireles, Neves, Amaral, & Ferreira, 2017).

Another method employed by researchers is the application of generalisability (G theory) analyses (Mushquash & O'Connor, 2006). G theory argues that errors that errors in observed scores can stem from different sources, and provides estimates of the variance contributed by persons, items, and occasions of measurement and of each of the possible interactions between these facets. In the context of item reduction, applying G theory allows for an understanding of how improvements can be made in measurement reliability by altering the numbers of persons, items, and/or occasions. The main limitation of G theory, however, is that recommendations for which specific items should be removed are not provided.

A third method researchers have used for item deletion includes exploratory factor analysis (EFA) (e.g., Worthington & Whittaker, 2006; Morgado et al., 2017). Whilst EFA is considered a common and useful approach in the early stages of scale development, using EFA for scale item deletion was not considered an appropriate analysis in the present research, as each of the scales under investigation derived from previously established factor structures.

In order to test the hypothesis and determine whether a short-form of the scales could be determined, the following steps were undertaken:

- 1. Conduct CFA on each individual scale, and calculate goodness of fit indices (see Table 4.1 for a description).
- 2. Inspect factor structure and model fit of the full-item scales, in addition to individual item data. When inspecting the data, a number of criteria were used to determine whether items would be removed. First, individual factor loadings less than 0.5 were reviewed, as items below this threshold are not typically considered to be strong contributors to the expected factor (Hair et al., 2010).

The covariance between scale items was also inspected to determine the amount of overlap and redundancy between items. An option of the SPSS statistical package was also used to compare items on a given subscale to identify those that contribute the least to internal consistency. Finally, the face validity of items was used to review adequacy as measures of their respective sub-scales.

- 3. Re-estimate the model with the item removed, and compare fit indices between the full item sub-scales and reduced item nested models to determine performance of the reduced item scale.
- 4. Repeat steps 2 and 3, removing individual items until the following conditions (as specified by Larwin & Harvey, 2012) are met:
 - i. Variables were removed from the models as long as the original primary factor model was correlated with the reduced model at a level of $r \ge 0.95$;
 - ii. Items were removed as long as the structural integrity of the model was not violated; and
 - iii. The reduced model demonstrated acceptably good fit.

4.3.5.1 Reliability and Validity of Shortened Measures

A number of analyses were conducted throughout Study 2 and 3 in this research program to determine whether the shortened measures derived in Study 1 are an accurate representation of their original constructs (Hair et al., 2010):

- 1. **Factor loadings**; as detailed above, high loadings (> 0.5) indicate that items converge on a common latent construct.
- 2. Average Variance Extracted (AVE); represents the percentage of variation explained by the items of a construct. Values higher than (> 0.5) indicate good construct convergence, while values less than 0.5 are indicative that more error remains in the items than construct-related variance.
- 3. **Square root of AVE**; is a measure of discriminant validity, assessing the degree to which conceptually similar constructs are distinct. A construct that has a square root of AVE greater than the corresponding inter-construct correlations with other variables, provides evidence of discriminant validity.
- 4. **Composite reliability (CR)**; Assessment of construct reliability in Study 2 and 3 used CR (Dillon-Goldstein's rho). It is argued that when used in SEM, CR is a better reliability measure than Cronbach's alpha as the value is based on the loadings rather than the correlations observed between the observed variables

(Demo, Neiva, Nunes, & Rozzett, 2012). Nunnally's (1978) value of 0.70 is applicable to CR, and this value was used as the acceptable threshold in the research. It has been noted that using these metrics is a more suitable indicator of reliability compared to Cronbach's coefficient alpha, as Cronbach's alpha assumes each item equally contributes to the overall scale (Lin & Lee, 2005; Molina et al., 2007).

4.3.6. Structural Equation Modelling

For Studies 2 and 3, SEM methods are used. SEM is a generic term that refers to a class of statistical methods that allow for the simultaneous analysis of complex causal systems or structures (Bollen & Long, 1993). SEM combines conventional factor analysis with regression or path analysis and is best suited for the analysis of multivariate relations between multiple variables. Researchers (Bollen & Long, 1993; Byrne, 2016) noted a number of benefits of SEM, which include enabling:

- the consideration of simultaneous equations with many endogenous variables.
- measurement error in exogenous and endogenous variables. Rather than assuming that this error or residual is random (as conventional methods assume), SEM estimates this error as part of the calculation process and adjusts observed measures for their respective measurement error.
- multiple indicators of latent constructs and estimates of reliability and validity.
- the analysis of more general measurement models, thereby enabling researchers to specify structural relationships among latent variables.

The process undertaken to conduct SEM in the current research followed eight steps as described by Holmes-Smith (2012): (1) model conceptualisation, (2) path diagram, (3) model specification, (4) model identification, (5) parameter estimation, (6) assessment of model fit, (7) model re-specification and (8) model cross-validation.

4.3.6.1 Steps 1 - 3: Model Conceptualisation, Path Diagram and Model Specification

Steps 1 to 3 are usually undertaken simultaneously. Based on theory (as described in Chapter 2) and a series of hypotheses (see sections 6.1 and 7.1 in Chapter 6 and 7 respectively) all variables and anticipated associations between those variables are drawn into a path diagram. The resulting structural equations (represented in the path diagrams) are considered a one-to-one representation of the theory (Kaplan, 2000).

4.3.6.2 Step 4: Model Identification

Step 4 requires the measurable, and therefore known components of the model (i.e., the variances and covariances of observed variables) to estimate the unknown parameters. Model identification in SEM is achieved when the unique values for all unknown parameters can be found. To achieve this, the number of known parameters must equal or exceed the number of unknown parameters.

4.3.6.3 Step 5: Parameter Estimation

As detailed above, SEM is concerned with simultaneously solving multiple systems of equations with several unknowns. The purpose of estimation is to obtain numerical values for the unknown (free) parameters. Several methods are available to estimate parameter values. The most commonly used estimation procedure is Maximum Likelihood (ML) estimation, and is mainly used in this research. Whilst ML estimation assumes that the underlying response scale is continuous, and that responses are normally distributed (Anderson & Gerbing, 1988), it has been argued that ML estimation is also an appropriate estimation mechanism when at least five categories are included on a Likert response scale (Finney & Di Stefano, 2006), as was the case with all variables in the this research program.

4.3.6.4 Step 6: Assessment of Model Fit

A number of fit indices are available for researchers to test for model fit (Tanaka, 1993). The commonly agreed-upon reporting convention is to include at least three different fit indices per model (Byrne, 2016). The fit indices used in this research, together with the critical values that reflect good model fit are listed below in Table 4.1.

Fit index	Description	Critical value
Measure of overa	ll exact model fit	
χ^2	Overall goodness-of-fit statistic; measure of exact fit; discrepancy between implied/fitted and sample VCM.	p > 0.05, however very sensitive to N and violations of multivariate normality (Arbuckle, 2017).
Absolute model fit	t	
Normed χ^2	Normed $\chi^2 = \chi^2/df$ χ^2 per degrees of freedom.	$1 < (\chi^2/df) < 2$ however values of up to 5 may be acceptable (Arbuckle, 2017).
RMSEA (Root Mean Square Error of Approximation)	Accounts for the error of approximation and relaxes the stringent χ^2 assumptions. It is a measure of model parsimony.	RMSEA < 0.06, with associated PCLOSE > 0.5 (Hu & Bentler, 1999); values of up to 0.08 indicate fair fit but should not exceed 0.10 (Arbuckle, 2017). Narrow 90% CI indicate more precise RMSEA Hu & Bentler, 1999).
SRMR (Standardised Root Mean Square Residual)	Indicates the average size of the difference between the sample and the implied matrix.	$SRMR \leq 0.08$ (Hu & Bentler, 1999); the closer to 0, the better the model fits the data. A large SRMR is indicative of outliers in raw data.
Incremental fit ind	lices	
CFI (Comparative Fit Index)	Accounts for model complexity, and compares the model to the null model.	CFI > 0.95 is now recommended, although $CFI > 0.90$ was long considered acceptable Hu & Bentler, 1999).
Indices for model	parsimony	
AIC (Akaike's Information criterion)	Information-theoretic measures.	From a set of models, the one with the lowest AIC is the most parsimonious model (Tanaka, 1993).

Table 4.1: Model fit indices and their critical value for indicating good model fit.

Note: For abbreviations, refer to the list of Abbreviations and Symbols.

4.3.6.5 Step 7: Model Re-Specification

To improve model fit *a priori* postulated variables or paths between variables may be removed or new paths added *post hoc*. This research used three methods to determine whether a model can be significantly improved (Arbuckle, 2017):

- 1. The critical ratio; which is the parameter estimate divided by its standard error. Absolute values that are greater or equal to 1.96 indicate that the estimate is statistically significantly different from zero at $\alpha = 0.05$. Non-significant estimates should be removed iteratively.
- 2. **Standardised residuals**; large values for selected variables indicate model mis-specification between the variables concerned. Standardised residual covariances with absolute values greater or equal to 1.96 reflect poor model fit ($\alpha = 0.05$).
- 3. Modification indices (MI); modification indices measure the degree of improvement in model fit if a particular variable/path was free to be estimated. Values greater or equal to 3.84 are considered significant improvements to the model while only minimally affecting overall model fit and only slightly impacting on model parsimony.

4.3.6.6 Step 8: Model Validation

An important consideration of SEM is the ability to validate the model in a new sample or cohort to prove that the modifications were not specific to the sample. In some instances, researchers are able to randomly split the original cohort in two: the first half of the sample is used for development of the model, whereas the second half serves as the validation sample (Kaplan, 2000). However, this requires very large data sets and was not possible with the present employee samples. In these instances, it has been suggested that where model modifications are made, correlations between parameters included in the original (hypothesised) model and the final fitted model should be calculated, and that high correlation coefficients (i.e., r > 0.9) indicate that the relationships within the model have been retained (Ullman & Bentler, 2002).

4.3.7. Total, Direct and Indirect Effects in Structural Equation Modelling

Independent variables may affect an outcome directly or indirectly via associations with one or more intermediate variables that in turn are associated with the outcome (Kaplan, 2010). The total effects on employee ACC and the change outcomes comprised direct and indirect effects.

4.3.7.1 Direct effects

Direct effects are equivalent to the size of the respective regression coefficients, and represent a straight 'causal' line from a predictor to an outcome variable (e.g., job satisfaction).

4.3.7.2 Indirect effects

Indirect effects are often referred to as 'mediation'. Mediation refers to all paths leading from one particular variable of the model (e.g., change participation, trust in management) via direct predictors (e.g., change efficacy, management support) to an outcome variable (e.g., ACC, turnover intention). In other words, the direct predictors themselves might be caused or influenced by other variables in the model, in which case these other variables have an indirect effect on the dependent variable.

Traditionally, approaches for testing mediation were developed by Baron and Kenny (1986) and (Sobel, 1982, 1986). However in recent years, these approaches have been criticised as they assume indirect effects are normally distributed, and as a result, newer methods, such as bias-corrected (BC) bootstrap confidence intervals, have been developed to overcome the challenges (MacKinnon, Lockwood, & Williams, 2004). For these reasons, the analyses presented in this research utilise BC bootstrap confidence intervals.

When considering the analysis of effects in SEM (whether total, direct or indirect effects), unstandardised and standardised coefficients are reported. The size of unstandardised effects depends strongly on the scaling of the considered variables, which can make variable effect comparison difficult. Given this, standardised regression weights (or β -coefficients) are also used. By convention, standardised coefficients that are greater than 0.8 are considered very strong, 0.5 moderate, and less than 0.2 weak effects (Cohen, 1988).

4.3.7.3 Bootstrapping as a Means to Analyse Indirect Effects

A number of analyses and procedures within SEM (e.g., ML) operate under the assumption that variables are continuous and multivariate normally distributed (Byrne, 2016). Bootstrapping has been suggested as a way to control for biases that result from the use of ordered, categorical or skewed variables, and non-normality (Byrne, 2016).

Bootstrapping is the repeated random re-sampling of cases from the original cohort to create new samples of the same size as the original sample *N*. This re-sampling procedure is repeated *k* times (generally $k \ge 500$ is recommended) and

standard errors of parameter estimates, confidence intervals and *p*-value corrections are calculated for each of these *k* bootstrap samples. Confidence intervals for parameter estimates that do not include zero are considered to be statistically significant (Hayes, 2009). One main advantage of bootstrapping is that it allows the researcher to assess the stability of parameter estimates and does not require large samples. However, its application in extremely small samples is not recommended (Byrne, 2016).

For the present research, all bootstrap estimates are based on k = 500bootstrap samples, unless otherwise stated. All confidence intervals are calculated as bias-corrected (asymmetric) 95% confidence intervals.

4.3.8. Longitudinal Considerations in Structural Equation Modelling

The objective of Study 3 is to test the study hypotheses of the proposed research model over time (see section 7.1 in Chapter 7). Given that data was collected at only two time points detailed modelling (i.e., latent growth curve modelling) could not be undertaken, as data from at least three time points is required (Arbuckle, 2017). Consequently, a panel model was used to examine the relationships between repeatedly measured constructs (Selig & Little, 2012). Study 3 used a number of analytic procedures to examine the effects of model variables on the focal outcomes over time (Selig & Little, 2012):

- 1. Autoregressive paths; represent the stability of a construct over time. Small autoregressive coefficients between T1 and T2 indicate large differences for the specified variable across time points.
- 2. **Cross-lagged paths**; The ability for a predictor variable at T1 to predict an outcome variable at T2.
- Cross-sectional paths; assessment of the cross-sectional associations between model constructs. Morin et al. (2011) have demonstrated the utility of measuring these paths, whereby individuals can report high scores on two constructs, even though the longitudinal associations between these constructs are non-significant.
- Longitudinal paths; Assessed by examining the direct and indirect (mediated) effects between predictor variables (at T1 and T2) on outcome variables measured at T2.

4.3.9. Control Variables

Based on previous research, and guided by Becker's (2005) recommendations, a number of control variables were included to guard against alternative explanations of the results and to increase statistical power (Schmitt & Klimoski, 1991; Schwab, 1999). Across Study 2 and Study 3, a number of demographic variables were controlled for as research suggests that gender (e.g., Jimmieson et al., 2008) age (e.g., Furst & Cable, 2008), and level of seniority (e.g., Rogiest et al., 2015) have each been found to be related with a number of variables associated with organisational change.

To summarise, the research program reported here, conducted across three field-based studies, seeks to understand the influence of a number of variables in organisational change. Through the use of various analyses, an attempt is made to develop an efficient assessment tool that allows for a systematic investigation into the key employee variables that influence change-related reactions and outcomes. The next chapter (Chapter 5) details the first empirical study of this research program, and seeks to develop a short form of the scales used to assess the study variables.

Chapter 5:

Study 1 - Development of Short-form Measures of Employee Change Variables

This chapter details the first empirical study of this research program. The research aim of Study 1 is to determine whether there is utility in assessing employee attributes, perceptions of, and reactions to organisational change through the use of a smaller, reliable subset of items derived from a number of established psychometric measures of variables related to organisational change.

Self-report questionnaires, or surveys, are the most common method for gathering data from individuals about organisational change issues. The application of survey research is widespread in scientific research across many fields, and common practice for organisations themselves. Surveys provide a means for researchers to collect data on multiple aspects of an individual's life without exponentially increasing research costs (Kelley, Clark, Brown, & Sitizia, 2003). Given this, survey methods are viewed as one of the most important approaches in empirical psychosocial research (Pather & Uys, 2008). Despite its frequent use, researchers continue to face a number of challenges within survey research, including low response rates, incomplete data sets, perceived mistrust of survey uses by participants, and survey length, in addition to privacy and security concerns (Evans & Mathur, 2005). As organisations strive to find an efficient and effective way to capture data, there is a need for researchers to consider a number of elements within survey design.

The first area, and a key focus for many researchers, is survey length. The concept of what constitutes an appropriate survey length has changed over the years (Raamstedt & John, 2007). Traditionally, research-based scales have contained a large number of items. From a theoretical perspective, the main reason for this is an attempt to ensure the scale is representative of all facets within a given concept. Practically speaking, surveys have been historically tested on undergraduate students, who do not face significant time pressures to complete the scales. However, there is an increasing trend towards the development and administration of shorter instruments, as what was once considered brief now seems tediously long (Larwin & Harvey, 2012; Raamstedt & John, 2007). This is consistent with research in the area of organisational psychology, where it is not considered practical for employee surveys to contain a large number of items. The increasing demand for "business as usual" activities within organisations has placed higher constraints on participant time. Researchers conducting field-based research are often faced with limited assessment time, as organisations are reluctant to allow staff to spend large amounts of time away from

core duties to complete questionnaires. Despite this, it is not uncommon to see lengthy instruments still being developed and used in the assessment of many individual attributes. A re-assessment is therefore required to determine how the thoughts, perceptions and opinions of employees can be accurately captured in a more efficient way (i.e., with fewer items), whilst ensuring the maintenance of valid and reliable psychometric properties.

Within the context of organisational change, a large amount of research has been conducted in the pursuit of developing questionnaires with appropriate psychometric properties to assess employee perceptions of change. Given the multi-faceted nature of employee perceptions to change (as described in Chapter 2), a key challenge for researchers is to develop a survey tool that sufficiently assesses all relevant facets of the construct.

In a recent review, Oreg et al. (2011) reviewed 79 empirical studies spanning a 60-year period (from 1947 - 2007) relating to the measurement of employee perceptions and reactions to organisational change. Whilst the review did not focus on an assessment of the reliability and validity of specific instruments, it did reveal that a large number of scales exist for the measurement of individual perceptions of organisational change. The majority of studies reviewed were concerned with the measurement of discrete scales, including change information (Wanberg & Banas, 2000), change justice (Elovainio et al., 2010) and change commitment (Herscovitch & Meyer, 2002). Given this, when considering how to measure overall employee perceptions of organisational change, the sheer complexity of the subject matter suggests there is no single scale that can be used. Rather, there is a requirement to simultaneously administer multiple scales measuring different variables. Each scale individually may be deemed an efficient measure of a specific construct related to employee change perceptions. However, in the pursuit of a comprehensive assessment of employee characteristics, there is a need to re-evaluate how to effectively and efficiently assess all components of the construct.

Considering the number of variables contained in the proposed research model, if the overall assessment is to be of practical utility there is a strong need to be cognisant of the number of items included. Given this barrier, short-forms of longer, established measures need to be developed. For researchers, there is a requirement to investigate whether a reasonable trade-off can be made, perhaps in sacrificing a small degree of internal consistency, in order to shorten the length of a scale (Worthington & Whittaker, 2006). Whilst a number of scales have been developed to separately measure the variables of the proposed model, little attention has been paid to possibly reducing the number of items in these scales. Extant research has seen researchers develop shortened measure of some scales, for example Colquitt's (2001) organisational justice scale (Elovainio et al., 2010), and Avolio, Bass, & Jung's (1995) Multifactor Leadership Questionnaire (Carless, et al., 2000). Additionally, recent investigations (Adil, 2016) have also derived shortened versions of Herscovitch and Meyer's (2002) commitment to change measure, and the change belief scales developed by Holt et al. (2007a). To address this area in a more comprehensive manner, existing scales need to be reviewed in order to develop a series of shorter diagnostic measures that can provide an economic measure for large-scale investigations in people-centred change research.

5.1. Aims and Hypotheses

The aim of this study is to determine whether valid and reliable short-form scales can be developed for the change attribute, perception, belief, and commitment variables contained within the proposed model. Table 5.1 details the hypotheses for item reduction, in which it is proposed that eight of the 11 measures can be shortened whilst maintaining adequate psychometric properties. No reductions are proposed for change justice, as the measure developed by Elovainio et al. (2010) represents a shortened version of Colquitt's original organisational justice scale (2001). In addition, no reductions are proposed for the three-item scales for change participation and personal valence.

Scale/sub-scale	Current # items	Item reduction hypothesised?
Dispositional Resistance to Change (DRtC)	17	Yes
Change information (Info)	4	Yes
Change participation (Part)	3	No
Change justice (Just)	8	No
Trust in management (Trust)	6	Yes
Transformational leadership (Tlshp)	7	Yes
Appropriateness (App)	10	Yes
Change efficacy (Chef)	6	Yes
Management support (Msup)	6	Yes
Personal valence (Pval)	3	No
Affective commitment to change (ACC)	6	Yes

Table 5.1: Study 1 - item reduction hypotheses.

5.2. Method

5.2.1. Securing the Population

The research population was drawn from individuals employed within an Australian Defence industry organisation undergoing a whole-of-organisation transformation. The organisation was selected on the basis that a major organisational change was about to be introduced. The selection of the research population was designed to obtain information on the real-world experiences of employees during change in their organisation.

5.2.2. Design and Procedure

The study involved the administration of an online multiple-choice survey relating to the organisational change occurring at the organisation. Senior leaders from the participating organisation sent out an email to their employees inviting participation in the voluntary, anonymous survey. The survey was presented as an opportunity for employees to express their opinions and to provide feedback to the organisation regarding the change the organisation was undertaking.

Participation in the survey was voluntary, and no incentive was offered. The survey contained a preamble detailing information regarding the research. Prior to being able to commence the survey, participants read through the online information sheet, and indicated their consent, by clicking "I agree". If participants did not wish to

participate, they could either close their online browser window, or click "I do not agree" and were then prompted to close the online browser window.

The survey was kept open for a period of two weeks. Little research has been conducted on the optimal timing sequence of web-based surveys, however when determining an appropriate time frame for such surveys, Dillman, Smyth, and Christian (2009) suggested consideration needs to be given to the type of survey and the needs of the population to ensure respondents have sufficient time to respond. Given this, senior leaders from each organisation were consulted prior to the release of the survey to determine appropriate dates for the survey launch and close. All data were stored on a secure server.

5.2.3. Participants

Two hundred and eighty-four individuals were invited to complete the survey, and 110 questionnaires were completed, representing an overall response rate of 39%. The majority of respondents were males, who represented 78% of the sample. The most common age bracket was 45-54 years, representing 56% of respondents. The significant majority of respondents had been with the organisation for greater than 10 years, representing 94% of respondents.

5.2.4. Measures

The following measures were used as part of the composite questionnaire. Table 5.2 provides details relating to each of the measures, with the full list of items detailed in Table A.1 in Appendix A.

5.2.4.1 Dispositional Resistance to Change

Dispositional resistance to change was assessed using the Resistance to Change scale developed by Oreg (2003). Example items include "Once I've come to a conclusion, I'm not likely to change my mind", and "I sometimes find myself avoiding changes that I know will be good for me". The scale includes four sub-scales: cognitive rigidity, emotional reaction, routine seeking and short-term focus. Whilst Oreg (2003) conceptualised his scale with four dimensions, he proposed that together, the dimensions constitute a higher order construct of dispositional resistance. In line with this, a number of researchers have investigated employee change characteristics as a single dimension (e.g., Arciniega & Gonzalez, 2009; Aslam, Ilyas, Imran, & Rahman, 2016; Foster, 2010), and this approach has been included here.

5.2.4.2 Change Process Variables

Information about the change was assessed using the four-item scale developed by Wanberg & Banas (2000). An example item includes "I have received adequate information about the forthcoming change".

Participation in the change was assessed using the three-item scale developed by Wanberg & Banas (2000). An example item includes "I have been able to participate in the implementation of the change that has been proposed and that is occurring".

Change justice was assessed using the scale that Elovainio et al. (2010) adapted from Colquitt's original organisational justice scale (2001): two items assessed distributive justice (e.g., "The outcome of the change will be appropriate for the work I have completed"), three items assessed procedural justice (e.g., "The procedures involved in the change have been applied consistently"), and three items assessed interactional justice (e.g., "My senior leader(s) have treated me with respect during this change").

5.2.4.3 Change Context Variables

Transformational leadership was assessed using the seven-item scale Carless, Wearing, and Mann (2000) adapted from the Multifactor Leadership Questionnaire (Avolio, Bass, & Jung, 1995). An example is "My immediate supervisor communicates a clear and positive vision of the future".

Trust in management was assessed using Cook and Wall's (1980) six-item scale. An example item is "Management can be trusted to make sensible decisions for our organisation's future".

5.2.4.4 Change Beliefs

Change beliefs were assessed using the four sub-scales of the readiness for organisational change scale developed by Holt et al. (2007a): Ten items assessed *appropriateness* (e.g., "There are legitimate reasons for us to make this change"), six items assessed *change efficacy* (e.g., "I have the skills that are needed to make this change work"), six items assessed *management support* (e.g., "Our senior leaders have encouraged all of us to embrace this change"), and three items assessed *personal valence* (e.g., "My future in this job will be limited because of this change" (reverse-coded)).

In developing their scale, Holt et al. (2007) found each of the sub-scales influenced change related outcomes (e.g., affective commitment, job satisfaction,

turnover) in different ways. Subsequent research has also demonstrated the utility of considering change beliefs as four separate scales, rather than one dimension (e.g., Adil, 2016; McKay et al., 2013). Consequently, this research program investigated the change beliefs as four separate, but related dimensions.

5.2.4.5 Affective Commitment to Change

Affective commitment to change was assessed using the six-item scale developed by Herscovitch and Meyer (2002). An example item is "I believe in the value of this change".

	Possible		# reverse			
Construct	range	# items	scored items	Scaling	Coding/interpretation	Reference
DRtC	17 - 102	17	1	Ordinal	Higher = greater dispositional tendencies to resistant change	Oreg (2003)
Info	4 - 28	4	-	Ordinal	Higher = greater perception that change information provided is sufficient	Wanberg & Banas (2000)
Part	3 - 21	3	-	Ordinal	Higher = more perceived participation in change	Wanberg & Banas (2000)
Just	8 - 56	8	-	Ordinal	Higher = greater perception that change is just and fair	Elovainio et al. (2010)
Trust	6 - 42	6	1	Ordinal	Higher = more trust in management	Cook & Wall (1980)
Tlshp	7 - 49	7	-	Ordinal	Higher = more perceived transformational leadership characteristics of leaders	Carless et al. (2000)
Арр	10 - 70	10	3	Ordinal	Higher = more perceived appropriateness of the change	Holt et al. (2007a)
Chef	16 - 42	6	1	Ordinal	Higher = more change efficacy to carry out the change	Holt et al. (2007a)
Msup	16 - 42	6	1	Ordinal	Higher = greater belief that managers support the change	Holt et al. (2007a)
Pval	3 - 21	3	3	Ordinal	Higher = greater belief that individuals will benefit from the change	Holt et al. (2007a)
ACC	6 - 42	6	2	Ordinal	Higher = greater affective commitment toward change	Herscovitch & Meyer (2002)

Table 5.2: Study 1 - Summary of scales used.

Note: For abbreviations, refer to the list of Abbreviations and Symbols.

5.3. Results

5.3.1. Item Reduction Analyses

Individual CFA's were conducted on each of the scales to assess their factor structure. Goodness of fit indices were inspected across each scale to assess the fit of the full-item scales (see Table 5.3). Standardised regression weights for each item within a measure were first inspected to determine whether items could be removed (see Table 5.4). Items with the lowest coefficients for each measure were sequentially removed and fit indices of the resulting nested models were compared to the default models (individual steps not shown). In some instances, removing an item with a lower standardised regression weight resulted in poorer fit (e.g., trust in management, change efficacy, management support). Item covariances were also inspected to determine whether there was redundancy across items. Finally, an option of the SPSS statistical package was used to compare items on a given subscale to identify those that contribute the least to internal consistency.

Following analysis of the full 76 items across the 11 measures, 32 items were subsequently removed across eight measures. In accordance with the hypotheses, no items were removed for change participation, change justice, and personal valence. In a number of instances, removing items improved model fit and reliability assessments. The overall fit of the default models and reduced nested models for each of the measures is summarised in Table 5.3.

Scale	Scale Version	df	χ^2	SRMR	CFI	RMSEA	90% CI RMSEA	PCLOSE	AIC
DRtC	Full	119	257.531	.096	.718	.103	.086121	.000	325.531
	Reduced	22	38.248	.072	.939	.082	.035125	.113	85.248
Info	Full	2	0.946	.009	1.000	.000	.000152	.696	16.946
	Reduced	2	2.426	.013	.998	.044	.000201	.390	10.426
Part	Full	2	1.736	.021	1.000	.000	.000182	.512	9.736
	Reduced	-	-	-	-	-	-	-	-
Just	Full	20	83.969	.098	.707	.171	.134210	.000	115.969
	Reduced	-	-	-	-	-	-	-	-
Trust	Full	9	14.112	.044	.975	.072	.000141	.269	38.112
	Reduced	2	8.847	.041	.973	.071	.000204	.229	16.847
Tlshp	Full	14	38.285	.027	.968	.126	.079175	.006	66.285
	Reduced	2	4.510	.013	.991	.107	.000243	.170	12.510
Арр	Full	35	99.159	.040	.940	.130	.100160	.000	139.159
	Reduced	2	4.020	.001	.993	.096	.000234	.207	12.020
Chef	Full	9	21.570	.061	.896	.113	.052175	.046	45.570
	Reduced	2	0.135	.010	1.000	.000	.000051	.950	8.135
Msup	Full	9	15.628	.047	.974	.082	.000149	.195	39.628
	Reduced	2	3.661	.040	.983	.087	.000227	.239	11.661
Pval	Full	2	0.319	.013	1.000	.000	.000104	.885	8.319
	Reduced	-	-	-	-	-	-	-	-
ACC	Full	9	19.623	.016	.986	.104	.039167	.076	43.623
	Reduced	2	2.861	.009	.998	.063	.000211	.329	10.861

Table 5.3: Study 1 - Goodness-of-fit summary for full-item and reduced-item scales.

Note: For abbreviations, refer to the list of Abbreviations and Symbols.

	Standardised Regression Weight																
Scale/Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
DRtC*	.416	.430	091	.036	.591	.622	.629	.590	.557	.621	.288	.527	.595	.686	.488	.524	.476
Info	.782	.832	.843	.913													
Part	.759	.750	.816														
Just**	.456	.596	.667	.623	.471	.533	.511	.583									
Trust	.294	.665	.536	.834	.773	.739											
Tlshp	.602	.880	.881	.843	.925	.873	.925										
Арр	.608	.867	.922	.866	.919	.655	.848	.861	.846	.856							
Chef	.562	.496	.682	.454	.584	.645											
Msup	.566	.781	.775	.887	.598	.537											
Pval	.625	.637	.728														
ACC	.900	.913	.962	.943	.889	.707											

Table 5.4: Study 1 - Standardised regression weights for full-item scales.

Legend:

* Items 1-4 relate to cognitive rigidity; items 5-8 relate to emotional reaction; items 9-13 relate to routine seeking; items 14-17 relate to short-term focus. **Items 1-2 relate to distributive justice; items 3-5 relate to interactional justice; items 6-8 relate to procedural justice.

Regression weights in bold indicate items removed from the analysis.

For abbreviations, refer to the list of Abbreviations and Symbols.

5.3.2. Validity Analyses

To ascertain whether the shortened scales adequately measured the theoretical constructs, convergent validity was assessed using the squared item loadings. The detail reported in Table 5.5 demonstrates convergent validity, with over 80% of full-scale variance captured by each of the reduced item scales.

Scale	Squared loadings
DRtC	0.810
Info	0.949
Trust	0.870
Tlshp	0.958
Арр	0.966
Chef	0.823
Msup	0.803
ACC	0.966

Table 5.5: Study 1 - Convergent validity for reduced-item scales.

Given each of the scales used in the present study are reflected in the proposed research model and are theoretically relevant to each other (see Chapter 2), the respective scales were used to assess discriminant validity. Means, standard deviations, and zero-order correlations amongst each of the scales are reported in Table 5.6. Consistent with previous findings (e.g., Chawla & Kelloway, 2004; Wanberg & Banas, 2000), results indicated that all three change process measures positively correlated with each other, both change context variables correlated with each other (e.g., Den Hartog et al., 2002; Mayner, 2017), and each of the change belief measures positively correlated with each other (e.g., Holt et al., 2007a). All variables (with the exception of DRtC and transformational leadership) significantly and positively correlated with ACC.

Table 5.6 also details the reliability coefficients of the shortened measures. In instances of item reduction, all shortened measures demonstrated values above the recommended threshold of 0.70 (Hair et al., 2010). The three-item personal valence scale demonstrated reliability just under this threshold (0.69). Further investigation is required to determine whether this outcome is specific to the sample, or whether further psychometric investigation of the personal valence scale is required.

Variable	М	SD	1	2	3	4	5	6	7	8	9	10	11
1. ECC	2.391	0.606	(.809)										
2. Info	3.618	1.536	043	(.896)									
3. Part	4.058	1.416	170	.688**	(.815)								
4. Just	4.091	0.856	126	.676**	.673**	(.778)							
5. Trust	4.809	1.227	232*	.123	.250**	.366**	(.787)						
6. Tlshp	5.512	1.322	116	042	.092	.106	.498**	(.983)					
7. App	4.579	1.520	003	.482**	.304**	.583**	.297**	.061	(.938)				
8. Chef	5.309	0.855	200*	.355**	.196*	.349**	.056	.090	.253**	(.729)			
9. Msup	4.412	1.173	097	.471**	.535**	.648**	.480**	.306**	.466**	.178	(.778)		
10. Pval	5.564	0.971	095	.284**	.291**	.206*	.083	.092	.171	.428**	.141	(.699)	
11. ACC	4.706	1.534	078	.509**	.324**	.572**	.234*	021	.937**	.253**	.493**	.224*	(.950)

Table 5.6: Study 1 - Means, standard deviations, zero-order correlation, and composite reliability among variables.

Note: Composite reliability is shown along the diagonal in parentheses. For abbreviations, refer to the list of *Abbreviations and Symbols*. N = 110

*p < .05, **p < .01

5.4. Discussion

The objective of this first study was to investigate whether shorter versions of a number of survey measures could be developed whilst maintaining reliability and validity thresholds. Using a systematic process of scale reduction, a total item reduction of 42% was realised across eight of 11 measures.

The results of this study supported each of the 11 hypotheses by reducing the number of items across the relevant measures. Items were reduced across the DRtC, change information, trust in management, transformational leadership, change appropriateness, change efficacy, management support, and ACC. The reduced-item scales retained internal validity while removing conceptual and statistical redundancies. Additionally, in a number of instances (i.e., DRtC, change appropriateness, change efficacy, ACC), the removal of scale items resulted in an increase in scale performance across a number of model fit indices.

5.4.1. Theoretical Contributions

The results of this study provide a number of important contributions to the understanding and measurement of employee attributes, perceptions and beliefs during change. The results demonstrate the ability to reduce the items from a number of scales whilst preserving adequate psychometric properties. A common challenge for researchers is finding the optimal number of items to use in psychosocial investigations. As noted by Franke, Rapp, and Andzulis (2013), researchers are often faced with a conundrum; although increasing the number of items in a scale can allow for increases in reliability and reduced measurement error while revealing more detailed distinctions between respondents and stronger relationships between constructs, individuals require more time to complete longer surveys. The consequence of this may result in reduced response rates and lower data quality. In some instances, researchers may even limit the number of constructs measured in a survey.

The current study demonstrated support for the study hypotheses, addressing the need for developing efficient surveys as part of the measurement of individual organisational change variables (Franke et al., 2013; Pather & Uys, 2008; Stanton, Sinar, Balzer, & Smith, 2002). Additionally, for some of the scales investigated, the items reduced are consistent with previous item-reduction research. For example, both Meyer et al. (2007) and Neves (2009) utilised reduced-item measures of ACC. Additionally, in his study, Neves (2009) derived the same subset of items for ACC that were derived in this study.

Within the DRtC scale (Oreg, 2003), the whole cognitive rigidity subscale was removed from the final reduced measure. Whilst item reduction was proposed for DRtC, the removal of all items relating to the cognitive rigidity subscale was unexpected. A review of previous research however indicates that a number of researchers have previously found issues with the same subscale. For example, in the validation of the scale across 17 countries, Oreg et al. (2008) found cognitive rigidity had the lowest correlation with the other three subscales. The researchers also had issues with the reversed-scored items, a similar issue to that found in the present study (see standardised regression weights in Table 5.4). In their investigation, Stewart et al. (2009) determined there was stronger model fit when DRtC was considered as a threefactor solution (without cognitive rigidity), rather than the four-factors as originally proposed by Oreg (2003). Foster (2010) found a similar result, reporting low item-total correlations for the cognitive rigidity subscale. In his investigation across three organisations, Foster (2010) suggested that the cognitive rigidity subscale did not measure the same construct as other items in the broader scale. More recently, Thakur and Srivastava (2018) removed three items of the cognitive rigidity subscale from their analyses as the items had a factor loading of less than 0.60. Considering the present results are consistent with this previous research, further assessment and validation is required on the DRtC scale to ensure that it satisfies reliability and validity properties if used with future samples.

5.4.2. Practical Implications

The reduction of items as demonstrated in this study is highly advantageous for real-world studies. Enabling the collection of large quantities of data in a more efficient and cost effective manner serves two key benefits for researchers. Firstly, reducing the time required to complete the assessment increases the likelihood that organisations will agree to participate in research. During the course of this study, a number of organisations declined to participate, citing the time required for their employees to complete the survey as the main reason. With competing tensions between day-to-day productivity and gaining employee insights, organisations often prioritise short-term employee productivity over participation in initiatives that may generate longer-term benefits. Within the present research, the reduction of items across multiple scales now enables researchers to obtain quality data with a lower time requirement for participants. This in turn enables employees to spend more time on work-related tasks.

The second benefit of reduced item scales is that employees are more likely to complete the survey. Independent of organisations agreeing to participate in research, a common challenge for survey-based research is increasing employee response

rates. Collecting data from a sufficient number of individuals in the sample to obtain a representative sample with adequate statistical power is an issue regularly faced by researchers. Failure to obtain adequately sized samples often jeopardises the representativeness of the data and can undermine the capacity to provide unbiased population estimates and hypothesis tests (Fulton, 2016). Moreover, if a survey is lacking responses from a substantial number of respondents, it is likely to be less representative of the population and be prone to non-response bias (Groves, 2006).

The current study yielded a response rate of 39% across the participating organisation. Whilst this statistic falls within acceptable reported ranges for online surveys³, to obtain high response rates, researchers must rely on the willingness of employees to participate in surveys, and survey length is a key influencer of survey completion. Therefore, whilst the size of the final sample in the current study was sufficient to conduct the analyses, ongoing work is required to ensure that respondent samples are large enough to be representative of the research populations.

5.4.3. Strengths and Limitations

The results of this study shed light on how employee attributes, perceptions, beliefs and commitment towards organisational change can be measured in a more efficient manner. This study took a systematic approach to reducing the items across a number of scales. The results demonstrate that the shortened versions of eight scales maintain the psychometric qualities of the original full scales, and therefore should be considered as alternatives for use in future research. Conceptual and statistical redundancies in scales were removed with the goal of increasing discriminant validity and reducing items without significantly sacrificing construct breadth. Finally, considering the number of related measures in the research model, the study sought to provide an initial validation of the shortened measures against related concepts.

The main limitation to note is that the sample consisted of employees from a male-dominated organisation. Demographics for the final sample were also skewed to the 45-54 year age bracket, with greater than 10 years employment at the organisation. As a result, the generalisability of the findings may be limited, and further investigation

³ One meta-analysis of response rates for published studies that sampled organisational leaders found a mean response rate of 34% (Cycyota & Harrison 2006). More recently, Fulton (2016) suggested the mean response rate for published studies is less than 50% and declining.

is required to determine whether the results of this study are specific to the organisation sampled.

In conclusion, the results of the present study takes a first step in demonstrating that efficiencies can be gained in existing survey measures. In the context of the proposed model, a 42% reduction in items is a positive step to increasing survey response rates, which in turn enables researchers to analyse and assess data with greater sample representation. Further research should seek to cross-validate the shortened measures on a different organisational sample in order to establish construct and predictive validity. Study 2, presented next in Chapter 6 is designed to provide this validation, along with an initial test of the proposed research model.

Chapter 6:

Study 2 - Modelling the Antecedents of Affective Commitment to Change

This chapter presents the second study in the research program. Study 2 seeks to integrate the research conducted to date on individual change attributes, perceptions and beliefs, and to understand how these antecedents influence ACC.

As noted in Chapter 1 and Chapter 2, in recent years, organisational change research has increasingly focused on the perspective of individual employees. One of the main conclusions drawn from these studies is that employees play an essential role in ensuring successful outcomes during organisational change. Whilst a number of studies have informed the research field about which dispositional and situational variables predict individual employees' reactions to change (e.g., Judge et al., 1999; Wanberg & Banas, 2000), to date these studies have focused on a relatively small and narrow set of factors. Consequently, little research has examined the interaction between these variables. A small number of theoretical studies have considered the research area through a more integrated lens (e.g., Holt et al., 2007a; Oreg et al., 2011). However, to date no empirical study has comprehensively identified the antecedent factors central to understanding how an individual perceives and interprets change and subsequently commits to change in the workplace. The current research seeks to fill this gap.

6.1. Aims and Hypotheses

The study attempts to integrate the fragmented and discrete research conducted to date, and explores the development of an efficient, comprehensive model examining the relationships and variables governing an individual's responses to change, with particular emphasis on the antecedents of ACC. Based on the research summarised in Chapter 2, the proposed model (see Figure 6.1 and Table 6.1) argues that an employee's ACC is:

- Negatively influenced by their general disposition to resist change (defined here as DRtC),
- 2. Positively influenced by their perception of a number of change process variables (change information, change participation, change justice)
- 3. Positively influenced by their perception of a number of change context variables (trust in management, transformational leadership)
- Positively mediated by their beliefs about organisational change (defined as change appropriateness, change efficacy, management support and personal valence).



Figure 6.1: Study 2 - Proposed cross-sectional model of affective commitment to change.

The present study attempts to extend the understanding of individual attributes, perceptions of, and reactions to, organisational change by empirically investigating the influence of a number of variables on ACC, both directly and indirectly. The main hypotheses of this study are concerned with direct and indirect effects of the change variables on ACC. Table 6.1 details each of the independent variables, predictors and hypotheses in the model. Cells that contain content specify whether an association (regression path *b* or correlation *r*) is expected between pairs. Where a direct effect is predicted between a variable in the model and ACC, a value is presented in row 11. Other path relations are indicative of indirect relationship with predictor variables and ACC, through the respective change belief variables (see rows 7-10 in Table 6.1). Blank cells indicate no expected association between pairs.

The hypotheses relating to the model of ACC are presented in the next sections. Rather than replicating the discussion of theories and empirical findings detailed in Chapter 2 (and summarised in Table 2.1), the presentation of the hypotheses below is intended to recap the key theories and findings relevant to the particular study variables.

	Variable	1	2	3	4	5	6	7	8	9	10
1	Age										
2	Gender (m=0)										
3	Level										
4	DRtC					r<0	r<0				
5	Change process (Info, Part, Just)						r>0				
6	Change context (Trust, Tlshp)										
7	Арр					b>0	b>0		r>0	r>0	r>0
8	Chef				b<0	b>0	b>0			r>0	r>0
9	Msup					b>0	b>0				r>0
10	Pval				b<0	b>0	b>0				
11	ACC					b>0	b>0	b>0	b>0	b>0	b>0

Table 6.1: Study 2 - Hypothesised main direct and indirect effects.

Legend: b<0: negative effect; b>0: positive effect; r>0: positive correlation; r<0: negative correlation; f: female; m: male; for abbreviations, refer to the list of *Abbreviations and Symbols*.

6.1.1. Employee Dispositional Resistance to Change Hypotheses

Employee DRtC serves as a measure of an individual's enduring predisposition to accept and embrace change. Based on the literature reviewed in section 2.2.1.1 (and summary presented in Table 2.1), the degree to which an individual manifests a predisposition to resist change is expected to directly influence two of the four change beliefs. Specifically, it is proposed that individuals with high DRtC will report lower beliefs towards both change efficacy and personal valence. This is because change efficacy, by definition, is more aligned with emotional arousal, a dimension contained within the DRtC measure (i.e., emotional reaction to change; see Chapter 2, section 2.2.1.1) (Armenakis et al., 1993). With regard to personal valence, given the concept is grounded in Vroom's (1964) work on motivation, it is hypothesised that an individual with a tendency to typically resist change (i.e., high DRtC) will not perceive the outcome of a change as attractive (Armenakis et al., 2007b). Based on the research presented in section 2.2.1.1, and in support of the findings of Foster (2010), no direct effect is expected on ACC, however indirect effects are expected through the relationship of DRtC with change efficacy and personal valence variables.
6.1.2. Change Process Hypotheses

The theoretical and empirical research review presented in section 2.2.2.1 demonstrates the importance of considering how the change is implemented (e.g., Oreg et al., 2011) when seeking to understand an individual's change beliefs and ACC. Based on this research, it is expected that each of the change process variables (i.e., change information, change participation, change justice) will positively influence both the change beliefs and ACC. A number of researchers have demonstrated the importance of an effective communication strategy and process in enhancing employee readiness across the four change beliefs (Holt et al., 2007a; McKay et al., 2013) and ACC (Rafferty & Restubog, 2009; Rogiest et al., 2015). Similar support has been shown for participation, whereby employees who perceive they have had opportunities for input into the change process report increases in change readiness (e.g., Wanberg & Banas, 200; Devos et al., 2007) and ACC (Armenakis & Harris, 2002; Devos et al., 2001). Finally, perceptions of justice and fairness during change have been positively related with change readiness (Chawla & Kelloway, 2004) and ACC (Foster, 2010). In line with each of these research findings, it is proposed that the change process variables (i.e., change information, change participation, change justice) will demonstrate a direct effect on ACC. In addition, indirect effects are expected through the positive association between the change process variables and each of the change beliefs.

6.1.3. Change Context Hypotheses

With regard to the variables describing the context of change (i.e., trust in management and transformational leadership), researchers have demonstrated the importance of environmental and workplace conditions in shaping an individual's beliefs and commitment towards change (see section 2.2.2.2 for a detailed discussion). Positive relationships with managers and organisational leaders (indicative through trust) impact the beliefs and readiness employees have toward change (e.g., Devos et al., 2007; Rafferty & Simons, 2006), and subsequent levels of ACC (Michaelis et al., 2009; Soumyaja et al., 2015). Perceptions of a leader's style have also been shown to be influential during change, with leaders who display transformational qualities positively influencing employee levels of readiness (e.g., Santhidran et al., 2013) and ACC (Shin et al., 2015). Consonant with this research, both trust in management and transformational leadership variables are expected to demonstrate direct effects on

ACC. In addition, indirect effects are expected through their positive association with each of the change belief variables.

6.1.4. Change Belief Hypotheses

Bringing the components of the research model together, direct and positive effects are expected between each of the four change belief variables (appropriateness, change efficacy, management support, personal valence) and ACC. As detailed in Chapter 2 (see section 2.2.2.3), extensive research has not been conducted on change beliefs and ACC. Despite this, there is general support that collectively, the change beliefs are positively associated with ACC (Holt et al., 2007; Soumyaja et al., 2015).

In considering the individual variables that comprise change beliefs, there is strong support for the association between change appropriateness and ACC (Adil, 2017; Holt et al., 2007a; Neves, 2009). Change efficacy has also been positively linked with overall change commitment (Herold et al., 2007; Neubert & Cady, 2001), but not specifically ACC. Concerning management support, the results are mixed, with Ford et al. (2003) finding supervisory support is positively related to commitment to change, however Adil (2016) found no relation between the two variables. Finally, considering an individual's belief that the change will be personally beneficial, results are once again mixed, with personal valence. Adil (2016) and Holt et al. (2007a) both found no relationship between personal valence and affective commitment, although Fedor et al. (2006) found a positive link between the two variables.

In an attempt to bring together previous research, it is hypothesised that the positive beliefs an individual has towards change (manifested through each of the change belief variables) will positively influence their ACC.

6.1.5. Demographic Hypotheses

With regard to demographic variables, an individual's age, gender, and level of seniority are included as covariates. Given the absence of consistent research data relating to demographic variables (see Table 2.1 in Chapter 2), no specific associations with ACC (either direct or indirect) are proposed.

6.2. Method

6.2.1. Securing the Population

The research population used for this study was drawn from an Australian professional services organisation. The organisation was undergoing an IT transformation related to updating the operating system for their core business

operations. A similar strategy was used to that of Study 1, whereby the selection of the research population was designed to obtain information on the real-world experiences of employees during change in their organisation.

6.2.2. Design and Procedure

This study employed the same methodological design as Study 1. Senior leaders from the participating organisation sent out an email to their employees inviting participation in the voluntary, anonymous survey. The survey was presented as an opportunity for employees to express their opinions and provide feedback to the organisation regarding the change the organisation was undertaking.

Participation in the online, multiple-choice survey was voluntary, and no incentive was offered. The survey contained a preamble detailing information regarding the research. Prior to being able to commence the survey, participants read through the online information sheet, and indicated their consent, by clicking "I agree". If participants did not wish to participate, they could either close their online browser window, or click "I do not agree" and were then prompted to close the online browser window. The survey was kept open for a period of two weeks. All data was stored on a secure server.

6.2.3. Participants

A total of 703 useable questionnaires were completed, representing an overall response rate of 43%. Within the final sample, 415 participants were female (59.0%). The most common age bracket was 25-34 years, which represented 42.9% of respondents. The most common length of tenure was 1-3 years, representing 28.7% of respondents.

6.2.4. Measures

Eleven measures were used for this study to assess DRtC, change process, change context, change beliefs and ACC. The measures used for nine of the variables were the shortened-item scales derived in Study 2 (see section 5.3.1 in Chapter 5). For change participation, change justice, and personal valence, the full-item scales were used. The full list of items used in this study is detailed in Table A.1 in Appendix A.

6.2.5. Control Variables

Three single-item control variables were used in the study, namely age, gender, and level of seniority (see Table 6.2). As detailed in Chapter 4 (section 4.3.9), it has been argued that when investigating the relationship between situational variables, it is

important to also assess the variance in demographic variables, therefore each of the three variables were included in this study.

Variable	Possible range	# items	Scaling	Coding/interpretation
Age	1-5	1	Ordinal	1=18-24, 2=25-34, 3=35-44, 4=45-54, 5=55 years and older
Gender	1-2	1	Ordinal	1=male, 2=female
Level	1-4	1	Ordinal	1=administrative staff, 2=non- management staff, 3=middle manager, 4=senior leader

Table 6.2: Study 2 - Summary demographic variables used.

6.3. Results

The results of this study are presented below. Further detail on the model specification and statistical methods used are described in Chapter 3.

6.3.1. Preliminary Analyses

An assumption underlying the proposed research model is that each of the items is representative of their purported constructs. Therefore prior to testing the model, a series of preliminary CFA's were conducted on each of the scales. Inspecting the CFA had the benefit of testing this assumption, in addition to providing further evidence for the validity of the shortened measures derived in Study 1.⁴

The fit results from the preliminary CFA's are reported in Table 6.3. With regard to the reduced-item scales, the results generally confirmed the adequacy of each of these scale models, with each scale demonstrated good fit on CFI and SRMR indices. Sufficient RMSEA was also demonstrated on each reduced-item scale, with the exception of change information, which exceeded 0.10 (Arbuckle, 2017). This may represent error of approximation in the sample population (Byrne, 2016).

Regarding the full-item scales, personal valence demonstrated good fit across all indices, although the change participation and change justice scales did not perform as well. The CFI and RMSEA for both scales fell outside of the recommended thresholds (*CFI* > 0.95; *RMSEA* < 0.10; Arbuckle, 2017; Hu & Bentler, 1999). An inspection of the standard regression weights (see Table 6.4) indicated that the values

⁴ Section 6.3.2.1 provides further consideration of the convergent validity, discriminant validity and reliability of each of the variables in the study.

for each item in the change participation scale were greater than the recommended value of 0.5 (Hair et al., 2010); however, the values for six of the eight change justice items were well below this threshold, with values ranging from 0.020 - 0.404. Low standard regression weights typically demonstrate that an item is not a strong contributor to the expected factor (Hair et al., 2010). Despite the poor fit indices of the change justice scale, the decision was made to retain the scale for the next stage of analysis, however caution was exercised when reviewing and interpreting the results (see section 6.3.2.1).

						90% CI		
Variable	df	χ^2	SRMR	CFI	RMSEA	RMSEA	PCLOSE	AIC
DRtC ^a	22	84.277	.033	.973	.064	.049078	.056	130.277
Info ^a	2	20.099	.015	.986	.114	.072161	.007	28.088
Part ^b	2	17.462	.046	.940	.105	.063153	.017	25.462
Just ^b	20	194.820	.080	.814	.112	.098126	.000	226.820
Trust ^a	2	1.527	.007	1.000	.000	.000069	.841	9.527
Tlshp ^a	2	15.032	.009	.992	.096	.055144	.035	23.032
App ^a	2	2.825	.030	.990	.086	.000293	.291	10.825
Chef ^a	2	9.230	.018	.993	.072	.030121	.171	17.230
Msup ^a	2	11.693	.026	.985	.083	.042132	.089	19.693
Pval ^b	2	2.571	.013	.999	.020	.000080	.719	10.571
ACC ^a	2	2.469	.004	1.000	.018	.000080	.731	10.469

Table 6.3: Study 2 - Goodness-of-fit summary for variables.

Legend: ^a = reduced-item scale; ^b = full-item scale. For abbreviations, refer to the list of *Abbreviations and Symbols*.

	Standardised	Standardised Regression Weights												
Variable/Item	1	2	3	4	5	6	7	8	9					
ECC*	.677	.603	.742	.673	.599	.615	.551	.468	.563					
Info	.852	.864	.888											
Part	.612	.557	.644											
Just**	.020	.404	.255	.862	.809	.322	.320	.247						
Trust	.753	.861	.827											
Tlshp	.880	.936	.902											
Арр	.804	.862	.819											
Chef	.832	.750	.878											
Msup	.768	.817	.689											
Pval	.731	.729	.693											
ACC	.890	.915	.902											

Table 6.4: Study 2 - Standardised regression weights for full-item scales.

Legend:

* Items 1-3 relate to emotional reaction; items 4-6 relate to routine seeking; items 7-9 relate to short-term focus. **Items 1-2 relate to distributive justice; items 3-5 relate to interactional justice; items 6-8 relate to procedural justice. For abbreviations, refer to the list of *Abbreviations and Symbols*.

6.3.2. Modelling the Predictors of Affective Commitment to Change

To test the aims of the study, modelling analyses were conducted on the proposed model (detailed below). The first set of analyses involved a two-step SEM procedure (Anderson & Gerbing, 1988). The first step compared a series of nested measurement models, which specified relationships among the measures and their hypothesised underlying factors. In the second step, a series of nested structural models were compared, specifying directional relationships among the factors. The best fitting structural model was then used to test hypotheses.

During the development of the measurement model, all 44-items were included in the model to establish model fit. To preserve degrees of freedom during the structural model analyses, rather than conducting the analyses with the individual scale items, latent factor scores derived from the measurement model were imputed as fixed loadings into the overall model of ACC (see section 4.3.2 in Chapter 4).

The following section includes model specification, model fit and modification of the measurement model and structural model to establish the predictors of ACC. Finally, the parameter estimates, as well as the total, direct and indirect effects on individuals' ACC are derived and discussed.

6.3.2.1 Measurement Model

A measurement model was specified in AMOS as per Figure 6.1. Each measurement model included the 44 items assessing the 11 nominated factors, in addition to single item control indicators for age, gender and level. In each measurement model, all factors were free to covary. In order to test the best fitting model, a number of constraints were placed on the model, which led to a series of nested models that were assessed for model fit. The hypothesised model (Figure 6.1) was tested and compared against alternative models that were logical and represented the data with fewer factors.

The first model (null model) was represented by four factors, distinguished between the three control variables, and had a fourth factor which contained employee DRtC, change process variables, change context variables, change beliefs and ACC. Loading each of these study variables onto the fourth factor suggests that items cannot be represented by multiple factors.

The second model (6-factor model) included the demographic variables and reflected the difference between distal and proximal variables. It included one factor for DRtC, a second factor combining change context, change process and change belief

variables, and a final factor for ACC. The third model (8-factor model) distinguished between DRtC, ACC, and had three second-order factors: change process (change information, change participation, change justice), change context (trust in management, transformational leadership), and change beliefs (appropriateness, change efficacy, management support, personal valence). The fourth model represented by the 11-factor hypothesised model, extended the 8-factor model and emphasised the multidimensional nature of the four change belief variables.

Table 6.5 shows the summary of fit indices for the models. The null model, 6factor, and 8-factor models did not offer acceptable fit, suggesting neither of the reduced factor solutions were parsimonious. The hypothesised 11-factor model fit the data better than the other measurement models, however the χ^2 -test for the saturated model was highly significant, thus rejecting the hypothesis of perfect model fit. Noting the sensitivity of χ^2 to sample size, the normed χ^2 was inspected (as it adjusts for the complexity of the model and its vulnerability to inflating χ^2 artificially). The normed χ^2 for the saturated model was not below the recommended threshold of 2.0 (Arbuckle, 2017). The other fit indices however (e.g., CFI, SRMR, RMSEA) were within accepted ranges (Hu & Bentler, 1999).

	2			2 . 1 .	• 2	A 1.C		0040		90% CI		
Model	χ-	at	р	χ²/df	$\Delta \chi^2$	Δdf	CFI	SRMR	RMSEA	RMSEA	PCLOSE	AIC
1. 4-factor (Null model)	10291.428	1027	.000	10.021	-	-	.506	.120	.113	.111115	.000	10493.428
2. 6-factor	8924.212	1018	.000	8.766	1367.216 ^a	9 ^a	.579	.094	.105	.103107	.000	9144.212
3. 8-factor	3535.892	996	.000	3.550	5388.32ª	22 ^a	.865	.079	.060	.058062	.000	3799.892
4. 11-factor (hyp)	2715.329	925	.000	2.935	820.563 ^a	71 ^a	.903	.073	.053	.050055	.036	3027.329
5. 14-factor	2170.574	893	.000	2.431	544.755 ^a	32 ^a	.931	.054	.045	.043048	1.000	2546.574
6. 12-factor	1134.812	528	.000	2.149	1035.762 ^a	365 ^a	.953	.044	.040	.037044	1.000	1410.812

Table 6.5: Study 2 - Measurement model goodness-of-fit summary for affective commitment to change.

Legend: ^a $\Delta \chi^2$ and Δdf from the preceding lower-factor model For abbreviations, refer to the list of *Abbreviations and Symbols*.

N = 703

A fifth model was consequently tested, which comprised 14 factors. The 14-factor model split out the different variables that comprised the second-order change process factor (change information, change participation, change justice) and change context factor (trust in management, transformational leadership). The 14-factor model was not an admissible model, as the sample covariance was not positive definite⁵. An examination of the model revealed two potential reasons for the model errors.

Firstly, an inspection of the correlations between study variables revealed a very strong significant relationship between appropriateness and ACC (*r*= 1.039). To determine the reason for the high correlation, individual item correlations for both scales were inspected. Results indicated that a number of appropriateness items had almost a linear relationship with affective commitment to change items. Inter-item correlations ranged from .733 to .928. Inspection of the face validity of items across the two scales also revealed similarities across a number of items. Given the large overlap between items across the two scales, it was determined that a suitable correction for this problem was to remove the appropriateness variable from the analysis (Worthke, 1993). Secondly, as detailed in section 6.3.1, the change justice scale did not demonstrate adequate model fit. Given the impact the low item and factor loadings had on the broader research model, the decision was made to also exclude the change justice variable from the analysis.

A final 12-factor model was run, which removed appropriateness and change justice variables. With the exception of one fit index (χ^2/df), the 12-factor model demonstrated acceptable fit. Whilst acknowledging the 12-factor model is not the most parsimonious of the models, it was selected for use in the structural model testing given its results across the fit indices. Table 6.5 details the fit indices for the 12-factor measurement model. An assessment of the convergent validity, divergent validity and reliability of each of the scales was conducted by calculating the AVE and the CR. Table 6.6 reports these values, in addition to the correlations between factors in the 12-factor model. All measures (with the exception of change participation) demonstrated good convergent validity (AVE > 0.5), discriminant validity (square root of AVE greater than inter-construct correlations), as well as reliability (CR > 0.7; Hair et al., 2010).

⁵ This error message within AMOS is mathematically derived as a result of either a negative variance/residual variance for a latent variable, a correlation greater or equal to one between two latent variables, or a linear dependency between more than two latent variables (Worthke, 1993).

Change participation demonstrated good discriminant validity, however its AVE and CR were below the preferred thresholds (AVE = 0.37; CR = 0.63), suggesting that the scale items did not correlate well with each other within their latent factor.

Variable	CR	AVE	1	2	3	4	5	6	7	8	9	10	11	12
1. Age	-	-	-											
2. Gender ^a	-	-	059	-										
3. Level	-	-	278**	.288**	-									
4. DRtC	.783	.645	200**	.016	067	(.803)								
5. Info	.901	.752	027	.058	105*	109*	(.867)							
6. Part	.633	.373	.050	033	039	052*	.246**	(.611)						
7. Trust	.854	.662	.007	.118*	003	096*	.420**	.199**	(.813)					
8. Tlshp	.931	.819	033	.052	011	143*	.269**	.083	.728**	(.905)				
9. Chef	.858	.668	068	006	157**	231**	.482**	148*	.380**	.342**	(.818)			
10. Msup	.796	.570	.022	.024	094*	063	.636**	.279**	.574**	.401**	.422**	(.755)		
11. Pval	.760	.514	.035	097*	.098*	284**	.338**	293**	.258**	.288**	.589**	.336**	(.717)	
12. ACC	.935	.828	037	053	083*	137*	.566**	.137*	.438**	.337**	.622**	.593**	.490**	(.910)

Table 6.6: Study 2 - Composite reliability, average variance explained and correlations in the 12-factor measurement model.

Note:

Values on the diagonal in parentheses represent the square root of AVE; for abbreviations, refer to the list of Abbreviations and Symbols.

^a 1 = Male, 2 = Female

p* < .05, *p* < .001

N = 703

6.3.2.2 Structural Model

To determine the structural model for ACC, competing nested structural models were estimated. In all structural models, employee age, gender and level were included as control variables by estimating structural paths from each control variable to each of the study variables. The control variables were free to covary with one another. Other predictor variables (DRtC, change information, change participation, trust in management and transformational leadership) were also free to covary with one another. Finally, the residuals of the three change belief variables were free to covary with one another. The fit indices for the default (saturated) model are detailed in Table 6.7. All fit indices were within accepted ranges (Arbuckle, 2017; Hu & Bentler, 1999).

Table 6.7: Study 2 - Model fit indices for the default model and re-specified nested models.

	default	mod1	mod2	mod3
Modifications:				
All n.s. regression paths = 0		х		
Selected n.s. regression paths = 0			х	
All n.s. covariances = 0				Х
Fit indices:				
χ^2	29.435	68.660	48.279	52.914
df	22	45	39	41
p	.133	.013	.147	.101
Bollen-Stine <i>p</i>	.189	.065	.274	.224
χ^2/df	1.338	1.526	.1238	1.291
CFI	.999	.995	.998	.998
SRMR	.009	.023	.017	.020
RMSEA	.022	.027	.018	.020
LO90	.000	.013	.000	.000
HI90	.041	.040	.034	.035
PCLOSE	.995	.999	1.000	1.000
AIC	195.435	188.660	180.279	180.914

Legend: bold values indicate model with best fit; for abbreviations, refer to the list of *Abbreviations and Symbols*.

The critical ratios of parameter estimates, the standardised residuals and the modification indices were inspected in order to determine the most parsimonious model. Just under half the regression paths (23 out of 53) did not reach statistical significance at the .05 level (i.e., *critical ratio* < 1.96). Table 6.8 highlights the non-significant model paths in yellow. The signs within cells indicate whether effects were expected to be positive or negative. Each non-significant path was constrained to zero and the model fit of the resulting nested model was reviewed.

The column labelled 'mod 1' in Table 6.7 contains fit indices for the nested model which constrained all non-significant regression paths simultaneously. Compared to the default model, the overall fit of the 'mod1' model was statistically worse (χ^2 -difference test: $\chi^2(23) = 39.225$; p = 0.019), indicating some of the paths that had been removed were needed in the model to represent the data adequately. To determine which of these non-significant regression paths were required in the model, each path was removed sequentially, and the resulting data inspected. None of the eliminated paths individually resulted in a statistically worse model fit at the .05 level; however upon further inspection of the model. A third model 'mod2' was subsequently developed which retained the six paths. When compared to the default model, 'mod2' was not statistically worse (χ^2 -difference test: $\chi^2(17) = 18.844$; p = 0.338).

In the final step, all covariances were inspected to determine whether additional refinements could be made to the model. Two of the 16 covariances in the model did not reach statistical significance at the .05 level (i.e., *critical ratio* < 1.96). A fourth model 'mod 3' was subsequently developed which constrained the non-significant covariances to zero. When compared to the default model and the nested 'mod2' model, constraining these covariances in 'mod3' did not result in a statistically worse model (χ^2 -difference test: $\chi^2(19) = 23.479, p = 0.479; \chi^2(2) = 4.635, p = 0.099$ respectively). 'Mod3' was therefore selected as the final structural model as it was the best fitting and, at the same time, most parsimonious model. The final model removed 16 non-significant regression paths and two covariances (see column 'mod3' in Table 6.7). The normed χ^2 of 1.291 was below the recommended cut-off of 2.0 (Arbuckle, 2017), and the CFI, RMSEA with its associated PCLOSE indicated good model fit. Lastly, the SRMR supported the assumption that the model was a good representation of the underlying processes involved in ACC.

Table 6.8 represents the structural parts of the final model in a simplified and concise way. For the corresponding path diagram (excluding the control variables and covariance paths) see Figure 6.2. Table 6.9 lists the standardised regression weights and correlation coefficients as well as the squared multiple correlation coefficient (R^2) for each dependent variable. As in conventional regression analysis, this value represents the total amount of variance explained by the independent variables. Within

⁶ Age -> Change participation; Age -> Management support; DRtC -> Management support; DRtC -> ACC; Change information -> ACC; Transformational leadership -> ACC.

the final model, 63.4% of the variance for ACC was accounted for. Table B.1 in Appendix B details the unstandardised regression weights and bootstrap corrections.



Figure 6.2: Study 2 - Structural model of affective commitment to change

Variable	1	2	3	4	5	6	7	8	9	10	11
1. Age			r<0								
2. Gender ^a			r>0								
3. Level											
4. DRtC	b=0				r<0		r<0	r<0			
5. Info			b=0			r>0	r>0	r>0			
6. Part	b=0		b=0				r>0	r>0			
7. Trust		b=0						r>0			
8. Tlshp											
9. Chef		b=0	b=0	b<0	b>0	b>0	b>0	b>0		r>0	r>0
10. Msup	b=0	b=0	b=0	b>0	b>0	b>0	b>0				r>0
11. Pval		b=0	b=0	b<0	b>0	b>0	b>0	b>0			
12. ACC				b<0	b>0	b>0		b>0	b>0	b>0	b>0

Table 6.8: Study 2 - Overview of significant and non-significant paths in the final model of affective commitment to change.

Legend: b<0: negative effect expected; b>0: positive effect expected; b=0: no effect expected; r>0: positive correlation; r<0: negative correlation; blue cells: significant paths; yellow cells: non-significant paths; red cells: significant paths in opposite direction to expectation; for abbreviations, refer to the list of Abbreviations and Symbols.

^a 1 = Male, 2 = Female

Variable	1	2	3	4	5	6	7	8	9	10	11	R ²
1. Age			263									
2. Gender ^a			.273									
3. Level												
4. DRtC	223				100		102	152				
5. Info			107			.331	.457	.282				
6. Part	.058•		059•				.243	.102				
7. Trust		.087						.780				
8. Tlshp												
9. Chef		129	170	194	.529	400	.196	.0950		.166	.474	.557
10. Msup	.051	060	054	.044•	.483	.098	.414				.269	.647
11. Pval		149	.079	245	.473	493	.083•	.154				.526
12. ACC				.058	.063•	.174		032•	.423	.276	.209	.634

Table 6.9: Study 2 - Standardised path coefficients and correlations of the final model of affective commitment to change.

Legend: grey shaded cells indicate covariances; non-shaded cells are β regression coefficients; •: non-significant; \circ : non-significant after bootstrap correction; for abbreviations, refer to the list of *Abbreviations and Symbols*.

6.3.2.3 Total, Direct and Indirect Effects

The following sections explore the total effects of predictor variables on employee ACC, which comprise direct and indirect effects. Direct effects represent a straight 'causal' line from a predictor to affective commitment to change. Indirect effects are 'mediated' effects. Their paths lead via direct predictors (i.e., change efficacy, management support, personal valence) to ACC.

6.3.2.3.1. Direct Predictors of Affective Commitment to Change

As hypothesised, each of the change beliefs demonstrated a significant direct effect on ACC (see Table 6.10). Change efficacy had the strongest direct effect on affective commitment of all variables. In line with the hypotheses, ACC was greater for individuals who perceived they had the knowledge and ability to successfully undertake the change. For every one-point increase in an employee's change efficacy score, their ACC score increased by approximately 0.56 points (see unstandardised total effects in Table 6.10). Perceptions of management support had a direct effect on ACC, whereby individuals reporting greater support from their manager demonstrated stronger ACC. For every one-point increase in management support, an individual's ACC increased by approximately 0.34 points. Finally, personal valence had a direct effect on ACC. Affective commitment increased by 0.30 points for every one-point increase in personal valence.

In addition to the change beliefs, two antecedent variables (DRtC and change information) also demonstrated direct effects and partial indirect effects on ACC. Mixed results were obtained for employee change characteristics. Unexpectedly, a one-point increase in DRtC resulted in an increase in ACC by 0.12 points, suggesting individuals who had higher dispositional inclinations to resist change were more likely to have high levels of ACC. A different pattern of results was demonstrated when considering the indirect effect of DRtC through its link with two of the change beliefs. For every increasing point in DRtC, change efficacy and personal valence decreased by 0.28 and 0.33 points respectively, and the combination of these effects resulted in an overall decrease in ACC by 0.23 points.

For change participation, results were once again mixed. A one-point increase in perceived participation resulted in a direct increase in ACC by 0.21 points. However, through its link to the three change beliefs, an unexpected indirect effect was found. For every increasing point in change participation, management support increased by 0.10 points; however change efficacy and personal valence decreased by 0.37 points and 0.42 points respectively. This resulted in an overall decrease in ACC by 0.30 points (indirect effect). The combination of these opposing direct (positive) and indirect (negative) effects resulted in an overall negative, but non-significant total effect of change participation on ACC.

None of the control variables demonstrated direct effects on ACC.

6.3.2.3.2. Indirect Predictors of Affective Commitment to Change

The remaining variables in Table 6.10 were indirectly linked to employee ACC. The standardised effects of indirect predictors on their mediating variables are presented as regression weights in Appendix B Table B.2 and are graphically illustrated in Figure 6.3.

Despite demonstrating a strong correlation with ACC in the measurement model (r = 0.533), change information was only indirectly linked with affective commitment through its association with the change beliefs. For every increasing point in change information, change efficacy, management support and personal valence increased by 0.38, 0.37 and 0.31 points respectively, which resulted in an increase in ACC of 0.44 points.

Trust in management was linked to ACC through two of the change beliefs. For every increasing point in trust, an employee's change efficacy and management support scores increased by 0.17 and 0.38 points respectively, which resulted in an overall increase in ACC by 0.25 points. Transformational leadership demonstrated an indirect effect on ACC through its link to personal valence. However, when combined with the non-significant direct effect, the subsequent total effect on ACC was not significant.

Each of the control variables also demonstrated indirect effects on ACC. Gender was linked to ACC through its link to trust in management, and each of the change beliefs, however results were mixed. For females, although trust in management was higher by 0.18 points, change efficacy, management support and personal valence were lower by 0.18, 0.11 and 0.24 points respectively, which resulted in an overall decrease in ACC by 0.19 points (compared to males).

Employee level was linked to ACC through change information and each of the change beliefs. Unexpectedly, for every increasing point in employee level (i.e., greater seniority), change information, change efficacy and management support decreased by 0.16, 0.18 and 0.06 points respectively, while personal valence increased by 0.08 points. The combination of these direct effects suggests that for every increasing point in seniority, ACC decreased by 0.17 points.

Finally, a small indirect effect was demonstrated between age and ACC through DRtC and management support. For every increasing point in age, management support increased by 0.05 points and employee change characteristics decreased by 0.13 points, which resulted in an overall increase in ACC by 0.03 points.



Figure 6.3: Study 2 - Final mediated model of affective commitment to change.

Table 6.10: Study 2 - Direct, indirect and total effects on employee affective commitment to change (ML estimates with bootstrap correction)

		Dire	ct effect	ts			Indire		Total effects‡						
			95%C				(95%CI						
IV	stand	unstand	lower	Upper	р	stand	unstand	lower	upper	р	stand	unstand	lower	upper	р
Age	-	-	-	-	-	.024	.026	.003	.044	.023	.024	.026	.003	.044	.023
Gender	-	-	-	-	-	083	193	128	050	.003	083	193	128	050	.003
Level	-	-	-	-	-	122	173	074	173	.003	122	167	074	173	.003
DRtC	.058	.112	.000	.111	.047	121	235	160	078	.005	064	123	125	004	.043
Info	.063	.060	023	.154	.191	.456	.436	.389	.510	.005	.519	.496	.449	.587	.004
Part	.174	.215	.134	.296	.003	245	303	306	183	.004	017	088	137	.001	.052
Trust	-	-	-	-	-	.215	.245	.136	.305	.003	.215	.245	.136	.305	.003
Tlshp	032	034	097	.042	.438	.072	.076	.016	.128	.019	.040	-042	047	.122	.330
Chef	.423	.564	.448	.673	.005	-	-	-	-	-	.423	.564	.330	.508	.005
Msup	.276	.341	.226	.444	.005	-	-	-	-	-	.276	.341	.188	.358	.005
Pval	.209	.301	.173	.424	.006	-	-	-	-	-	.209	.301	.125	.295	.005

Legend:

§: indirect effects are calculated as the product of all model path coefficients connecting indirect predictors with the outcome; an indirect effect is considered significant if its bootstrap corrected 95%CI does not include zero;

‡: the total effect is the sum of the direct and indirect effects.

p: p-value; **stand**: standardised effect; **unstand**: unstandardised effect with associated 95% confidence interval; for abbreviations, refer to the list of *Abbreviations and Symbols*; statistically significant total effects are indicated in **bold text**; refer to Table B.2 in Appendix B for the complete list of paths.

6.4. Discussion

The objective of the study was to examine whether employee attributes and perceptions of change influenced ACC, as mediated by a series of beliefs about organisational change. The results reinforce previous findings relating to the multidimensional nature of employee factors related to change. As predicted, individuals with positive perceptions of organisational change reported higher levels of change beliefs (change efficacy, management support, personal valence), which in turn resulted in higher levels of ACC. Results indicated that a mediated model fit the data best. However, contrary to expectations, the hypothesised model was not supported. The final model for ACC differs from the hypothesised model in three ways.

Firstly, the change justice variable was removed from the model due to its poor psychometric performance (see section 6.3.2.1). Individual item loadings, in addition to the overall factor loadings of the scale, resulted in poor model fit in the overall measurement model. To understand whether the scale's performance is unique to the current sample, a detailed review of the source study (Elovainio et al., 2010) was conducted. The study, conducted in Finland with health professionals (including physicians and registered nurses) demonstrated strong psychometric properties for the scale. Other research utilising the scale has similarly demonstrated adequate psychometric performance, however these studies focused on a similar sample of Finnish healthcare professionals (e.g., Elovainio et al., 2015; Heponiemi, Manderbackaa, Vänskä, Elovainio, 2013; Hietapakka et al., 2013). In other research where different types of participant samples were used, researchers have found mixed results. For example, in their study of a broader Finnish population, Tornroos et al. (2018) found scale issues with the procedural justice items. Whilst the scale has demonstrated adequate psychological properties in a number of studies, further investigation is required to determine whether cultural differences influenced its performance in an Australian context. Moreover, given the current study was conducted on non-medical professionals, further research is required to determine whether the scale's psychometric performance is unique to the current sample of business professionals.

Another way that the final model differs from the hypothesised model relates to the removal of the appropriateness variable. The strong positive association found between appropriateness and ACC was not surprising, as this link has been demonstrated previously (Adil, 2016; Neves, 2009). Additionally, in the development of the appropriateness scale, Holt et al. (2007a) found appropriateness to significantly influence ACC. The similarities between these two concepts have been further identified by Oreg et al. (2011) in their review, who considered both appropriateness and ACC as cognitive reactions to change. Despite these findings, none of the previous studies yielded the strength (and near linear) association between the constructs that was found in the present study.

From a theoretical perspective, the strength of the relationship between appropriateness and ACC reported here is predictable when considering the original definition of both constructs. As detailed in section 2.2.2.3.1 (see Chapter 2), Holt et al. (2007) described appropriateness as the belief employees have that the organisational change is required, and that it will effectively address the needs of their organisation. Herscovitch and Meyer (2002) defined ACC as a "desire to provide support for the change based on a belief in its inherent benefits" (p. 475; see section 2.1 in Chapter 2). The similarity across both definitions specifies that if an individual believes a change will address the strategic needs of an organisation, they also understand and believe in the benefits of the change. In both instances, employees are supportive of a change because they believe it is the *'right one'* for the organisation and *value* the change.

From a methodological perspective, the present study is unique within existing research investigating appropriateness and ACC in the way it utilised shortened measures of both variables. In a recent empirical examination of the two variables, Adil (2016) utilised shortened measures for ACC and appropriateness, however different items were retained. In their study, Adil retained six-items in the appropriateness scale (compared to three items used in the present study), whilst three items were retained for ACC. Adil (2016) did not provide an extensive discussion or analysis regarding the item reduction. Moreover in his main analyses, Adil demonstrated a significant and positive relationship between appropriateness and ACC, although not as strong as the relationship found in the present study. Whilst the results of Study 1 (detailed in Chapter 5) demonstrated strong psychometric properties for both the shortened scales, further research is required to explore whether the results are unique to the current organisational samples, or whether there are broader construct implications for change appropriateness and ACC.

Finally, the third deviation from the final model to the hypothesised model is that the notion of change process and change context as second-order grouping factors was not supported. Within the final model, there was stronger model fit when each of the variables that comprised the hypothesised change process and change context factors were treated as standalone variables. A number of researchers (e.g., Holt et al., 2007a; Oreg et al., 2011) have discussed the idea of a change process factor that includes variables measuring the extent to which employee participation is permitted, and the quality and timeliness of information presented. Similarly, change context variables reflect the conditions and environment within which employees function, including leadership style and approach, and the amount of trust that exists between employees and leaders. Despite this, the results of this study indicate that each of the predictor variables are unique and cannot easily be bundled into a simpler factor structure.

6.4.1. Predictors of Affective Commitment to Change

Within the final mediated model, the pattern of associations identified for each of the variables was largely supportive of the original hypotheses. As expected, change efficacy, management support and personal valence each significantly and positively predicted ACC. Employees who were confident in their abilities to successfully implement change felt supported by their manager to implement the change, and those employees who believed they would benefit from the change demonstrated higher levels of ACC. Previous research in the field has been limited in providing empirical evidence of these relationships (see Table 2.1 in Chapter 2), thus the current results take a positive step in understanding the variables that inform the beliefs and ACC of employees during change. Significant direct effects were also demonstrated for individual attributes and one of the change perception variables.

For DRtC, a weak positive effect was found, unexpectedly showing that individuals who have dispositional inclinations to resist change are more likely to report higher ACC. When considering the overall effect however, results were more in line with expectations; DRtC negatively influenced two of the change beliefs (change efficacy and personal valence), which resulted in a subsequent negative association with ACC. Overall, the results suggest individuals who reported greater dispositional resistance to change were less likely to understand the benefits of change and how they would be able to apply and implement the changes required of them, and as a result were less likely to display ACC. Research concerning DRtC and ACC to date has been limited. However considering related research, these results are in line with findings demonstrating a negative relationship between DRtC and supportive attitudes towards organisational change (Nov & Ye, 2008; Oreg, 2006; Stewart et al., 2009), Additionally, Oreg (2003) found some support for the influence of DRtC on affective reactions to change. Taken together, the results of the present study demonstrate that an individual's dispositional tendencies towards change should not be ignored, but considered together with more proximal perceptions and beliefs.

A positive direct effect was also found between participation and ACC. When considering the ability of individuals to participate and contribute to an organisational change, this positive association supports the work of previous researchers (e.g., Amiot et al., 2006; Soumyaja et al., 2015). Participation in change also influenced each of the change beliefs, although the association with change efficacy and personal valence was unexpectedly negative. That is, individuals who had greater participation in the change were less likely to be confident in their abilities to execute change, and less likely to perceive the change as beneficial. Often during the design and planning phases of an organisational change, more issues are identified as the scope and scale of change is understood in more detail. Consequently, individuals who are involved in the change and have input into its implementation are at the forefront of uncovering some of the challenges of the change, and therefore their confidence in the change could decrease. Importantly, given the scale did not satisfy recommended reliability and convergent validity thresholds (see section 6.3.1), these results should be treated with caution, and further investigation is required to understand whether the results are unique to the current sample (see section 6.4.4).

Fully mediated effects were demonstrated for change information, trust in management, and the three control variables in the model. Whilst change information demonstrated only an indirect effect on ACC, this effect was the second strongest total effect across the whole model (only the influence of change efficacy on ACC was stronger). The absence of a direct effect is contrary to previous research detailing that perceived quality and timeliness of information during change positively impacts ACC (Rafferty & Restubog, 2009; Rogiest et al., 2015; van den Heuvel et al., 2013). However, in each of these studies there was no consideration of the full breadth of variables included in the present model. The link between change information and all three change beliefs supports the research of Holt et al. (2007a) and McKay et al. (2013) by demonstrating that individuals who perceive change information to be timely, relevant and useful report greater perceptions of change efficacy, management support, and personal valence compared with individuals who do not perceive information to be useful. Therefore, whilst change information did not show a direct effect on ACC, its significant contribution to understanding how change beliefs are formed provides insight into the network of variables relating to change perceptions.

The mediated findings relating to trust in management also add to our understanding of change beliefs. Individuals who trusted their managers were seen to have higher levels of perceived change efficacy and management support, thereby increasing the likelihood of committing to the change. Having a trusting relationship with management can reduce feelings of uncertainty (Lines, Selart, Espedal, & Johansen, 2005), thereby increasing confidence in the implementation of change. No relationship was found between trust and personal valence.

Finally, when considering the role of transformational leadership on ACC, the overall total effect was not significant. This result does not support the work of previous researchers, who have found transformational leadership does influence employee ACC (e.g., Rafferty & Restubog, 2009; Shin et al., 2015). Transformational leadership did demonstrate an influence on one of the change beliefs (personal valence). Whilst little research has been conducted in this area, this finding does not align with the research of Young (2010) who found no relationship between transformational leadership and personal valence (albeit in a small sample). Considering the other two change beliefs, the absence of a finding between transformational leadership and management support is aligned with previous research (Young, 2010), however for change efficacy, this does not support previous research (Santhidran et al., 2013; Young, 2010), who both found transformational leadership to positively influence an individual's confidence in change.

Transformational leaders by definition, display charisma, and provide employees with inspiration, intellectual stimulation and individualised consideration (Bass, 1990). Whilst it was predicted that this style of leadership would resonate with employees in multiple ways, based on the results reported here it appears that the manner in which leaders convey messages about the change influences only the degree to which employees understand the benefits of change. One possible explanation for the unexpected effects is associated with the shortened-version of the scale used in the Study. The original scale developed by Carless (2000) included consideration of the seven facets of transformational leadership (vision, staff development, supportive leadership, empowerment, innovative thinking, lead by example, charisma). The abridged version included in this study included three facets (staff development, empowerment, charisma). Whilst the abridged version derived in Study 1 demonstrated satisfactory model fit, validity and reliability, it may be the case that the facets not considered within the abridged version (i.e., vision, supportive leadership, innovative thinking, lead by example) play a role in shaping ACC. Given this study is the first to consider transformational leadership in the context of a large number of other change variables, further investigation is required to understand whether the results are unique to this sample, the abridged version used, or whether transformational leadership is not an influential factor in shaping employee beliefs and commitment to organisational change as formerly believed.

Considering the demographic controls, each of the variables had a small indirect effect on ACC. Male employees were more likely to demonstrate high ACC compared to females. Regarding age and level of seniority, interestingly, a significant negative correlation was found between these two variables. Additionally, whilst no effects were hypothesised on ACC, the results suggested that both older, and more junior employees were more likely to affectively commit to change. These findings are somewhat contrary to the research of Rogiest et al. (2015) who found no influence of age on ACC, but found that females, and more senior employees are more likely to report higher ACC. Given the change being undertaken by the organisation in the present study was a technological change, it could be the case that more junior employees were more impacted by the change, as they are higher users of the technology (compared to senior leaders), and thus more likely to have higher ACC. However, given that age was also a positive predictor in the current study, further investigation is warranted to understand the influence of these factors on an individual's commitment to change.

6.4.2. Theoretical Contributions

The results of this study provide a number of important contributions to our understanding of individual attributes and perceptions of organisational change. Firstly, the study helps gain a clearer understanding of the complex relationships between employee demographics, attributes, employee perceptions of change, and the mediating role of change beliefs on ACC. Importantly, the results of this study demonstrated that a mediated model of affective commitment fit the data best, thereby providing further support for the Interactionist Perspective (House et al., 1996). Specifically, ACC was influenced by a combination of distal and proximal variables. The distal variables, represented by the demographics and DRtC, influenced a number of more proximal change-related variables that resulted in a significant impact on employees' ACC.

Secondly, whilst researchers have discussed the need to clarify the relationships that comprise individual perceptions of change (e.g., Oreg et al., 2011), the majority of previous studies have only considered these variables in isolation. This has resulted in a gap in understanding which variables are most influential in the development of ACC. The present study takes a step forward in addressing these shortcomings by considering individual attributes, perceptions and beliefs as an integrated network, and allowing for the variables to be simultaneously assessed using SEM to understand their relative strength. Doing so has extended the understanding of

individual attributes, change perceptions and the mediating role of change beliefs in predicting ACC.

6.4.3. Practical Implications

The results of this study notably contribute to the management of change in organisations. The measures used are designed to practically and parsimoniously assess the attributes, perceptions and beliefs of individuals going through change. This study confirms that individual employees are unique, and that emphasis should be placed on understanding the differences between people in the workforce. Organisational leaders need to be equipped with knowledge and insights relating to employee attributes, perceptions and beliefs about change, as what a leader says, or how an initiative is implemented will not be perceived in the same way by all employees.

The present results suggest that given certain conditions, the positive perceptions and beliefs employees have about organisational change drives their ACC. Understanding these conditions may help managers develop programs and processes to assist employees accept, commit to, and adopt future change projects.

6.4.4. Strengths and Limitations

A strength of the present study relates to the fact the research was conducted on a different organisation in a different industry to the organisation examined in Study 1. Whilst the findings indicated differences for some of the measures across the organisations (i.e., change participation, change justice), the results generally support the findings of Study 1, thereby providing initial validation of the reduced-item scales. Future research should continue to validate the reduced-item scales and the research model developed in this study on different organisational samples.

A theoretical issue of the study relates to the scales used, whereby the change participation scale and change justice scales did not demonstrate good model fit across all indices. Furthermore, the change participation scale did not show adequate convergent validity and reliability, which places limitations on the results derived. The performance of these scales in Study 2 differs to the results of Study 1.⁷ With regards to change participation, the results also differ to those found by Wanberg and Banas (2000) in the development of their scale ($\alpha = 0.72$), which was subsequently validated

⁷ See section 6.3.2.1 and 6.4 for a discussion on change justice.

by Rogiest et al. (2015) ($\alpha = 0.82$). Given this, future research is required to determine whether the characteristics of the current sample resulted in atypical responding, or whether the scale reliability does not satisfy acceptable levels.

Another limitation of this study is its cross-sectional, single-source design; that is, all measurements were self-reported and collected at a single point in time. Utilising only self-report data again raises the possibility of common method measurement biases (Podsakoff et al., 2003). With regard to utilising cross-sectional designs, assessing data at a single time point does not allow for a confident determination of causality between variables. The results of this study should therefore be regarded as tentative and should be interpreted with some caution. The use of longitudinal designs to examine change perceptions is important in tracing patterns of change over time, causal directions and reciprocal relationships. Future research should test predictions across a period of time, and Study 3 is designed to address these limitations.

Finally, the current study considered the influence of employee attributes and perceptions on change beliefs and commitment to change, but stopped short of understanding the relationship between these variables and individual change outcomes. While it is important to understand what drives an individual's ACC, the success of organisational change ultimately depends on a number of outcomes, including the behaviour displayed by employees (Armenakis et al., 1993). To address this limitation, Study 3 in (detailed next in Chapter 7) measures a number of important change related outcomes including intention to demonstrate change-supportive behavioural intentions, job satisfaction and turnover intention.

In conclusion, while this study has limitations it also presents a number of strengths and areas for future investigation. In particular, this study addressed the significant dearth of empirical research exploring employee perceptions of change, which explain why certain variables can influence an individual's ACC. The model derived in this study demonstrated good fit for assessing ACC. Furthermore, extant research investigating the role and interplay between individual variables in organisational change has been fragmented, and fails to consider the relative importance of variables. The present study sought to address this gap and offers valuable insights into the mediating effects of change beliefs in developing employee commitment. Overall, this study makes a significant contribution to our understanding of how, why, and under what circumstances employee attributes, perceptions and change beliefs influence employees' ACC.

Chapter 7: Modelling an Integrated Network of Antecedents and Mediators of Employee Outcomes of Change Over Time

This chapter presents Study 3, the third and final empirical study in this research program. The background to the study is outlined, as are the contributions to literature from a theoretical and empirical perspective. This is followed by a description of the hypotheses tested in the study, the results, and a discussion of the findings. Figure 7.1 details the proposed model tested in this study.

As detailed in the preceding chapters, extensive research has been conducted with the aim of understanding the factors that determine an individual's attributes, perceptions, reactions and outcomes to change (Oreg et al., 2011). However, whilst a number of studies have investigated the influence of change employee attributes and perceptions on employee change beliefs, ACC, and employee change outcomes (see Table 2.1 in Chapter 2), none have considered the interplay of each of these constructs together. Study 2 demonstrated how employee change attributes, perceptions and beliefs could influence ACC. However the study stopped short of investigating the resulting impact of ACC on employee-related change outcomes. Understanding what drives employee outcomes and behaviour during organisational change has been identified as a key determinant in successful change programs (Armenakis et al., 1993; Meyer et al., 2007).

Secondly, whilst Study 2 assessed change perceptions, beliefs and commitment in an integrated manner, given it was conducted as a cross-sectional study, causal inferences were limited. Additionally, the findings of Study 2 may have been susceptible to the effects of Common Method Variance (CMV) because they were collected from a single-source at a single point in time (Podsakoff et al., 2003). Providing temporal separation between data collection points is an accepted approach to reducing the respondent's ability and/or motivation to use previous answers to fill in gaps when answering subsequent questions (Podsakoff et al., 2003).

7.1. Aims and Hypotheses

The primary aim of the study is to better understand what processes explain the influence of employee attributes and perceptions of change on change-related outcomes. To achieve this, the present study attempts to extend the results from preceding research (in both the literature and this research program) in several ways:

1. Replicating the findings of Study 2 by analysing how individual attributes,

change perceptions and change beliefs interact and influence an individual's ACC.

- 2. Extending the findings of Study 2 by understanding whether three changerelated employee outcomes (job satisfaction, behavioural intention to support change, and turnover intention) can be predicted by an individual's ACC.
- 3. Testing the abridged versions of the selected scales on a third sample to demonstrate further validity evidence (Worthington & Whittaker, 2006).
- Conducting the study over two measurement points to examine whether the influence of the variables over time differs and minimises potential measurement biases.

The proposed model suggests that a number of variables and pathways interact to explain the conditions under which employees exhibit positive outcomes during change over time. It is for this reason that a mediated model is proposed. Figure 7.1 provides a simplified illustration of the proposed model. For clarity, the measurement parts of the model relating to items and latent factors are not included in the figure, nor are the three demographic control variables. Additionally, the change perceptions, beliefs, and outcomes are represented in the figure as grouped factors, whereas they are considered and treated as separate constructs in the analysis. The different line styles depicted in Figure 7.1 represent the different model predictions.



Figure 7.1: Study 3 - Hypothesised relationships in the proposed model.

7.1.1. Predicting Variables Over Time

As discussed in Chapter 2, the proposed model includes consideration of both distal and proximal variables. Where distal variables represent more enduring individual tendencies (represented by dispositional resistance to change in this research), by contrast, proximal variables are underpinned by the concept of learning through experience, and therefore are more malleable and susceptible to change (see section 2.3.2 for a discussion). Given this distinction, a question raised by previous researchers includes the degree to which an individual's perception to a proximal variable at one point in time is predictive of their perception at a later point (e.g., Morin et al., 2016; van den Heuvel et al., 2013). Seeking to understand the longitudinal relationships of proximal variables, Morin et al. (2016) suggested there is longitudinal stability in proximal constructs. In their investigation over a three-year period, the researchers found that ACC, personal empowerment, and positive beliefs in the change process were relatively stable.

Investigating the stability of proximal variables is important for change practitioners, as there is a requirement to understand whether different initiatives and programs implemented during change have a demonstrable effect on the perceptions, beliefs and commitment of impacted employees. Within the current study, the two-wave panel design of the model allows for an assessment of how the variables evolve over time. It is hypothesised that each of the study variables at T1 will have significant positive relationships with their counterparts at T2. Within Figure 7.1, the solid black lines represent the direct relationship between constructs at T1, and their counterparts at T2. To understand the impact of time, each research variable⁸ is included in the model at both T1 and T2.

7.1.2. Cross-Lagged Relationships

The dashed black lines are indicative of the proposed cross-lagged relationships. The investigation of cross-lagged relationships when considering employee sentiment and outcomes of change is important, particularly given the proximal nature of the majority of study variables. It is likely that initial (T1) levels of employee change perceptions, beliefs, commitment and outcomes will positively influence later (T2) levels of the proximal predictor variables, and it is important to

⁸ Change supportive behaviours were only assessed at T2 (see section 7.2.4).

control for these effects in the overall model. Given the number of variables in the model, it is predicted that two-types of cross-lagged relationships will be found.

Firstly, it is expected that cross-lagged relationships will be present between the variables that are related to the change process (i.e., change information and change participation), change context variables (i.e., trust in management, transformational leadership), and change beliefs (i.e., change efficacy, management support, personal valence). Secondly, based on the outcomes and relationships identified in Study 2, it is hypothesised that T1 levels of the change belief variables and ACC will demonstrate cross-lagged effects on T2 change perceptions. For example, in Study 2 it was found that change participation exerted a direct influence on ACC, therefore it is hypothesised that ACC will have a cross-lagged effect on change participation. No cross-lagged effects are hypothesised for DRtC, as this variable is considered more of an enduring characteristic compared to the other (more proximal) variables in the research model (see sections 2.2.1 and 2.2.2 in Chapter 2).

7.1.3. Predictors of Affective Commitment to Change

It is predicted that employee attributes and change perceptions will demonstrate both direct and indirect relationships with ACC at T2. Study 2 showed that a number of employee change perceptions impacted levels of ACC both directly and indirectly (see section 6.3.2.3 in Chapter 6). While acknowledging the directionality of some of these effects was contrary to expectation (i.e., DRtC, transformational leadership), this study seeks to first replicate the results of Study 2, and then further investigate the relationship between these pathways over time. It is proposed that positive change perceptions will be related to positive change beliefs and ACC. For DRtC, a negative association is expected with the change belief variables and ACC. These direct and indirect effects are hypothesised from both a cross-sectional and longitudinal perspective, such that (i) change perceptions at Time 1 (T1) will influence T1 ACC through T1 change beliefs, (ii) T1 change perceptions will influence ACC at Time 2 (T2) through T2 change beliefs, and (iii) T2 change perceptions will influence T2 ACC through T2 change beliefs.

Depicted in Figure 7.1, the hypothesised pathways comprise both crosssectional relationships (solid red lines between T2 change perceptions and T2 ACC), and longitudinal relationships (dashed red lines between T1 change perceptions and T2 ACC). Whilst the proposed model is longitudinal in nature, the consideration of cross-sectional associations, as previously noted, are important, as research has shown it is possible to observe large cross-sectional associations between constructs when the longitudinal associations between these constructs is non-significant (e.g., Morin et al., 2011).

7.1.4. Predictors of Employee Outcomes During Change

The influential role of ACC on change outcomes has been widely discussed. In their model of change commitment Herscovitch and Meyer (2002), argued that an individual's ACC drives their response to a number of relevant focal and discretionary outcomes as employees with high ACC are more likely to believe in the purpose and value of the change. It has been demonstrated that individuals with higher ACC are more satisfied with their jobs during times of change (Bouckenooughe et al., 2014; Rafferty & Restubog, 2009), are more likely to engage in discretionary change-supportive activities (Meyer et al., 2007; Neubert & Cady, 2001), and are less likely to considering leaving the organisation (Shin et al., 2015). Given the support for their importance as outcome indicators in supporting the successful implementation of change at an individual level (e.g., Armenakis et al., 1993; Meyer et al., 2007; Rafferty & Griffin, 2006), these three employee outcome variables (job satisfaction, change-supportive behavioural intention, turnover intention) were selected for investigation in this study.

The discussion in Chapter 3 and the detail in Table 2.1 provide a summary of the variables influencing each of these outcomes, in particular ACC. Therefore, in an attempt to extend and enhance the findings of earlier research, it is hypothesised that higher levels of ACC will predict higher levels of both job satisfaction and change-supportive behavioural intentions, and lower levels of turnover intention. Within Figure 7.1, levels of ACC at T2 are predicted to influence each of the T2 change outcomes from a cross sectional perspective (represented with solid blue lines), whilst the dashed blue lines represent the hypothesised pathway of T1 ACC on T2 change outcomes. No direct effects of the employee attributes, change perceptions and beliefs influencing the change outcomes are proposed.

Whilst not depicted in Figure 7.1 above, the demographic variables of age, gender, and level of seniority are once again included in the model covariates. Given Study 2 demonstrated effects for the demographic variables with DRtC, two change perception variables (change information, trust in management) and the three change beliefs (change efficacy, management support, personal valence), these same associations are hypothesised for this study. However no associations are hypothesised between the demographics and ACC (consistent with Study 2 findings) or any of the three change outcome variables.

To summarise, this study seeks to better understand the complexities of employee attributes, perceptions and beliefs as they relate to ACC and specified change outcomes. Research to date considering each of these potential pathways is extensive in some areas, but limited in others. Consequently, this study seeks to build on previous research and to examine the effects of the study variables over time during an organisational change. Table 7.1 provides a detailed breakdown of each of the dependent and independent variables in the research model. The main hypotheses reflect direct and indirect effects of variables contained within the research model on employee-related change outcomes. Cells that contain content specify whether an association (regression path b or correlation r) is expected between pairs. Blank cells indicate no expected association between pairs.
Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1. Age																									
2. Gender																									
3. Level																									
4. DRtC ₁	b<0				r<0	r<0	r<0	r<0																	
5. Info₁			b<0			r>0	r>0	r>0																	
6. Part₁							r>0	r>0																	
7. Trust₁		b>0						r>0																	
8. Tlshp₁																									
9. Chef₁		b<0	b<0	b<0	b>0	b>0	b>0	b>0		r>0	r>0														
10. Msup₁	b>0	b<0	b<0		b>0	b>0	b>0				r>0														
11. Pval₁		b<0	b<0	b<0	b>0	b>0		b>0																	
12. ACC ₁				b<0		b>0			b>0	b>0	b>0														
13. Satis₁												b>0													
14. Turn₁												b<0	b<0												
15. DRtC ₂	b<0			b>0												r<0	r<0	r<0	r<0						
16. Info ₂			b<0		b>0	b>0			b>0	b>0	b>0						r>0	r>0	r>0						
17. Part ₂					b>0	b>0			b>0	b>0	b>0	b>0						r>0	r>0						
18. Trust ₂		b>0					b>0	b>0	b>0	b>0									r>0						
19. Tlshp ₂							b>0	b>0		b>0	b>0														
20. Chef ₂		b<0	b<0	b<0	b>0			b<0	b>0	b>0	b>0	b>0		r>0	r>0										
21. Msup ₂	b>0	b<0	b<0		b>0	b>0	b>0		b>0	b>0	b>0	b>0			b<0	b>0	b>0	b>0				r>0			
22. Pval ₂		b<0	b<0	b<0	b>0	b>0		b>0	b>0	b>0	b>0	b>0	b>0		b<0	b>0	b>0		b>0						
23. ACC ₂				b<0		b>0			b>0	b>0	b>0	b>0	b>0	b<0	b<0		b>0			b>0	b>0	b>0			
24. Satis ₂												b>0	b>0										b>0		
25. Behav ₂												b>0											b>0		
26. Turn ₂												b<0	b<0	b>0									b<0	b<0	

Table 7.1: Study 3 - Hypothesised main direct and indirect effects.

Legend:

b<0: negative effect expected; **b**>0: positive effect expected; **r**>0: positive correlation expected; **r**<0: negative correlation expected; subscript refers to measurement point (1 or 2); for abbreviations, refer to the list of *Abbreviations and Symbols*

7.2. Method

7.2.1. Securing the Population

The study population was drawn from individuals employed within a global professional services organisation undergoing a structural transformation within a defined division. Whilst investigating cross-cultural effects on the proposed model was not the focus of the study, employees from 12 countries⁹ across the Asia Pacific region were invited to participate in the research. Section 7.4.7 provides a discussion of the cross-cultural implications and potential limitation in this study.

7.2.2. Design and Procedure

The study employed a two-wave panel design, with data collected at two time points. Whilst there is no optimal time separation between measurement points in panel designs, Selig and Little (2012) suggest that the time between measurement occasions must be sufficient for the hypothesised changes in effects to occur between predictor and criterion variables, but not so much that they disappear. Acknowledging this, discussions were held with senior leaders of the organisation to determine an appropriate separation between measurement points. As a result, data at T1 were collected just after the organisational restructure took effect, and T2 data were collected six months later.

A similar same survey administration procedure used in Study 1 and 2 was followed for this study. An online survey form was administered at T1 and T2 incorporating the same scales used earlier in the research program. At T2, additional items measuring the outcome variables were included. Senior leaders of the participating organisation provided researchers with details of the change so that survey instructions could be presented in the context of the specific organisational change. The voluntary, anonymous survey was presented as an opportunity for employees to express their opinions and provide feedback to the organisation regarding the organisational change. The surveys at T1 and T2 were each kept open for a period of two weeks. All data was stored on a secure server.

⁹ Australia, People's Republic of China, Hong Kong, Indonesia, Republic of Korea, Malaysia, New Zealand, Philippines, Singapore, Thailand, Taiwan, Vietnam.

7.2.3. Participants

At T1, 1247 employees were invited to complete the survey. Of those individuals, 407 (33%) chose to participate. Employees who completed the surveys were employed across the full spectrum of roles within the organisation, including administrative, entry-level, professional, middle management and senior leadership. At T2, a follow-up survey was distributed to the same division (1142 employees¹⁰), and 584 employees completed the survey (51% response rate). Employees not active on the payroll at the time of data collection (e.g., unpaid leave, maternity leave) were considered unavailable. In addition, 84 of the respondents who completed the survey at T2 joined the organisation after the change was introduced; therefore their responses were omitted from the final sample.

A total of 750 employees completed at least one time point while 157 employees completed both surveys (see section 7.3.1 for a discussion of missing data). Of the 750 responses, 593 were female (74%). Age and tenure were assessed in terms of range brackets. The 25-29 year age bracket was most common, with 39% of respondents within this age bracket, and the majority of respondents were in middle management positions (51%). The most common length of tenure was 1-3 years (32%).

7.2.4. Measures

A total of 12 measures and three control variables (gender, age, level) were included in the study. Nine of the measures (DRtC, change information, change participation, trust in management, transformational leadership, change efficacy, management support, personal valence, ACC) were the short-form measures used in Study 2. Three additional measures were included that related to the three change outcomes (job satisfaction, behavioural support for change, turnover intention). Details of the short form measures were previously reported in Study 2, therefore the information below focuses only on the additional outcome measures used for this study. The full list of items used in this study is detailed in Table 1 of Appendix A.

Job satisfaction was assessed using the 5-item scale that Judge, Bono, and Locke (2000) adapted from the Brayfield and Rothe (1951) measure of job satisfaction. An example item includes "I feel fairly satisfied with my present job". A 7-point scale

¹⁰ The decrease in total population from T1 (1247) to T2 (1142) was due to voluntary attrition and employees not being active on the payroll at the time of data collection.

from 1 (Strongly disagree) to 7 (Strongly agree) was used for measurement of the scale. This scale contained 2 reverse-coded items.

Turnover intention was assessed using a single item developed for this study: "How likely are you to voluntarily remain with the organisation over the next 12 months?" A 5-point measurement scale from 1 (Highly likely) to 5 (Highly unlikely) was used, with higher scores indicative of increased intentions to voluntarily leave the organisation.

Behavioural support for change items were developed specifically for the participating organisation to ensure their relevance to the organisational change. To develop contextually appropriate measures, the researcher conducted semi-structured interviews with the organisation's senior leaders and change manager. Based on interview notes, items were developed and validated with the organisation. The questions assessed the ways in which senior leaders wanted employees to proactively behave in the context of the new organisational structure that had been introduced. Three change-supportive behaviours were identified: attending calls/meetings/sessions relating to the change; connecting and engaging with new employees in the new organisational structure; and proactively learning about the new organisational structure, including ways of working. The behavioural support questions asked respondents their likelihood of undertaking the desired proactive behaviours in the next three-months, and were measured on a 5-point Likert scale (1=Highly unlikely, 5 = Highly likely). Given the nature of the change and implementation approach, it was not appropriate to ask the questions at T1, therefore behavioural support was measured only at T2.

7.3. Results

7.3.1. Missing Data

As detailed in section 7.2.3, only 157 employees responded at both measurement points. The challenge of missing data in longitudinal research has long been discussed, with no single agreed approach for addressing the issue (for a discussion see section 4.3.3 in Chapter 4). In the present study, missing data were estimated based on the full information that was available using the EM algorithm in SPSS 25 (Schafer & Graham, 2002; Tabachnick & Fidell, 2012). The final sample consisted of 750 responses across T1 and T2. A series of analyses were conducted to determine whether the pattern of results was the same using the imputed and non-imputed sample data. The pattern of results across all analyses was similar, therefore

for all analyses discussed in the following section, the full sample of N=750 has been used.

7.3.2. Preliminary Analyses

7.3.2.1 Preliminary CFA

All measurement parts of the proposed model were checked for model fit prior to testing the model as a whole. This was done to eliminate the possibility of model misfit in the non-structural model parts. The measurement parts analysed include the individual CFA for each of the study scales across T1 (10 scales) and T2 (11 scales).

The model fit results from the preliminary CFA are reported in Table 7.2. The results generally confirmed the adequacy of the scale models, with each scale demonstrating good fit on CFI and SRMR indices. Sufficient RMSEA was also demonstrated on each reduced-item scale with the exception of management support, whose RMSEA at T1 exceeded 0.10 (Arbuckle, 2017), which may represent error of approximation in the sample population (Byrne, 2016). To further inspect the psychometric properties of the management support scale, an inspection of the standard regression weights indicated that the values for each item were greater than the recommended value of 0.5 (0.746 - 0.827) (Hair et al., 2010), therefore the decision was made to retain the scale for the study analyses.

Variable	df	χ^2	SRMR	CFI	RMSEA	90% CI RMSEA	PCLOSE
Time 1							
DRtC	29	122.587	.045	.972	.066	.054078	.015
Info	1	2.137	.005	.999	.039	.000114	.465
Part	1	2.815	.010	.998	.049	.000121	.380
Trust	2	1.033	.005	1.000	.000	.000060	.906
Tlshp	1	2.357	.001	1.000	.043	.000116	.436
Chef	1	4.772	.018	.993	.071	.018140	.207
Msup	1	9.506	.019	.990	.107	.053173	.043
Pval	2	14.317	.031	.977	.091	.050137	.048
ACC	2	0.531	.003	1.000	.000	.000051	.948
Satis	4	17.958	.015	.994	.068	.038102	.145
Time 2							
DRtC	29	91.037	.039	.978	.053	.041066	.305
Info	1	4.716	.007	.998	.070	.018139	.211
Part	1	2.343	.012	.997	.042	.000116	.437
Trust	2	5.173	.007	.998	.046	.000097	.464
Tlshp	1	3.049	.002	.999	.052	.000124	.354
Chef	1	2.936	.013	.997	.051	.000123	.366
Msup	1	0.360	.003	1.000	.000	.000081	.803
Pval	2	1.757	.011	.998	.032	.000109	.521
ACC	2	1.710	.004	1.000	.000	.000069	.834
Satis	4	5.922	.070	.999	.025	.000065	.816
Behav	2	3.430	.007	.999	.031	.000085	.641

Table 7.2: Study 3 - Goodness-of-fit summary for variables.

Note: For abbreviations, see list of Abbreviations and Symbols.

7.3.2.2 Descriptive Statistics

Means and standard deviations across T1 and T2 for the study variables at the overall group level are reported in Table 7.3. Results indicated that employees generally expressed positive views about the change (indicated by average scores greater than 4.0). Interestingly, the scale means across T1 and T2, for the majority of variables (excluding change information and change participation) reduced over time, suggesting that the positive perceptions, beliefs and commitment employees had towards the change decreased over time. Noting the difference in values, a series of paired-samples t-tests were conducted to determine whether these differences were significant over time. Table 7.3 details the results of these analyses, indicating that the differences between each of the 11 variables from T1 to T2 were significant (p < .05).

	T1		T2			
Scale	М	SD	М	SD	t(749)	р
DRtC	26.497	5.565	27.056	5.828	-3.350	.001
Info	13.357	3.084	14.008	2.872	-7.089	.000
Part	11.023	2.982	11.827	3.034	-8.820	.000
Trust	16.133	2.299	15.616	2.816	5.693	.000
Tlshp	16.309	2.764	16.112	3.134	2.012	.045
Chef	16.239	1.858	15.815	2.210	5.698	.000
Msup	16.295	2.216	16.057	2.482	2.992	.003
Pval	15.230	2.512	14.641	2.887	6.936	.000
ACC	16.652	2.253	16.174	2.527	6.452	.000
Satis	24.462	4.530	24.054	4.572	3.306	.001
Turn	1.902	0.769	2.017	0.813	-4.501	.000

Table 7.3: Study 3 - Paired-samples t-tests for variables.

The following sections summarise the modelling undertaken to establish the correlates and predictors of employee outcomes of organisational change over time.

7.3.3. Assessment of the Predictors of Employee Outcomes of Change Over Time

To test the study hypotheses, a series of modelling analyses were conducted on the proposed model. The first step compared a series of nested measurement models, which specified relationships among the measures and their hypothesised underlying factors. In the second step, a series of nested structural models were compared which specified directional relationships among the factors. The best fitting structural model was then used to test hypotheses. The following sections include model specification, model fit and modification of the measurement model and structural model to establish the predictors of change outcomes. Finally, the parameter estimates, as well as the total, direct and indirect effects on ACC and outcome variables are derived and discussed.

7.3.3.1 Measurement Model

Prior to assessing employee outcomes of change over time, confirmatory models were estimated on the cross-sectional model at each time point. Each measurement model included the 39 items assessing the 11 factors, in addition to single item control indicators for age, gender and level of seniority. Concerning the outcome variables, job satisfaction and turnover intention were also included in each measurement model. However, given employee behavioural intentions to support change were only assessed at T2, they were not included in the measurement model analysis. In each measurement model, all factors were free to covary. In order to test the best fitting model, a number of constraints were placed on the model, which led to a series of nested models that were assessed for model fit. The cross-sectional model derived in Study 2 (see section 6.3.2.2 in Chapter 6) was tested and compared against alternative models that were logical and represented the data with fewer factors.

The first model (null model) was represented by 4 factors, which distinguished each of the three demographic control variables, and had a single factor on which all other variables loaded, suggesting items cannot be represented by multiple factors. The second model (7-factor model) reflected the difference between distal predictors proximal predictors, and the outcome variables. The model included one factor for DRtC, a second factor combining the remaining four change perceptions, the change beliefs variables and ACC, as well as separate factors for job satisfaction, and turnover intention, in addition to the three demographics. The third model (10-factor model) extended the second model by distinguishing between DRtC, ACC, and had three second-order factors: change process (change information, change participation), change context (trust in management, transformational leadership), and change beliefs (change efficacy, management support, personal valence). The fourth model represented by the 14-factor hypothesised model, separated the different variables that comprised the second-order change process factor (change information, change participation) and change context factor (trust in management, transformational leadership).

Table 7.4 details the summary of fit indices for the models. The null model, 7-factor, and 10-factor models did not offer acceptable fit, suggesting neither of the reduced factor solutions were parsimonious. Although the hypothesised 14-factor model fit the data better than the other measurement models, a number of fit indices (i.e., χ^2/df , CFI) did not reach acceptable thresholds (Arbuckle, 2017; Hu & Bentler, 1999). To determine possible reasons for these results, the modification indices and regression weights for individual items were inspected across all scales. Results indicated that eight items across seven scales¹¹ had loadings on factors in addition to their own scale. To ensure that each model adequately and consistently measured the requisite construct over both time periods, each item was sequentially removed from the analysis and the measurement models were re-specified and fit indices inspected (analysis not shown). Following these analyses, it was determined that the removal of each of the eight items from the model eliminated the cross-loadings, resulting in adequate model fit across all indices. Table 7.4 details the fit indices for the final 14-factor measurement model across T1 and T2.

¹¹ One item each from DRtC, change information, trust in management, change efficacy, management support, and ACC scales, and two items from job satisfaction scale (see Table A.1 in Appendix A).

										90% CI		
Measurement Model	χ^2	df	р	χ²/df	$\Delta \chi^2$	∆df	SRMR	CFI	RMSEA	RMSEA	PCLOSE	AIC
T1 cross-sectional												
1. 4-factor	14566 007	817	000	17 830	_	_	138	3/3	150	1/18 - 152	000	1/738 007
(Null model)	14300.997	017	.000	17.000	-	-	.150	.545	.150	.140152	.000	14730.997
2. 7-factor	9635.192	804	.000	11.984	4931.805	13	.097	.578	.121	.119123	.000	9833.182
3. 10-factor	2589.712	738	.000	3.509	7045.48	66	.065	.908	.058	.055060	.000	2835.712
4. 14-factor (hyp)	2232.031	696	.000	3.207	357.681	42	.046	.924	.054	.052057	.003	2562.031
5. 14-factor (b)	1232.090	445	.000	2.769	999.941	251	.036	.950	.049	.045052	.759	1532.090
T2 cross-sectional												
1. 4-factor	12222 040	017	000	1/ 061			104	407	127	12/ 120	000	12204 040
(Null model)	12222.949	017	.000	14.901	-	-	.124	.427	.137	.134139	.000	12394.949
2. 7-factor	8350.052	804	.000	10.386	3872.897	13	.088	.621	.112	.110114	.000	8548.052
3. 10-factor	2287.369	738	.000	3.099	6062.683	66	.062	.920	.053	.050055	.025	2533.369
4. 14-factor (hyp)	1987.820	696	.000	2.856	299.549	42	.049	.933	.050	.047052	.552	2317.820
5. 14-factor (b)	1145.247	445	.000	2.574	842.573	251	.044	.952	.046	.043049	.982	1445.247
Longitudinal												
1. 26-factor	3835.775	1859	.000	2.063	-	-	.038	.950	.038	.036039	1.000	4809.775
Logondu												

Table 7.4: Study 3 - Measurement model goodness-of-fit summary for change outcomes.

Legend:

 ${}^{a}\Delta\chi^{\Box}$ and Δdf from the preceding lower-factor model; for abbreviations, refer to the list of *Abbreviations and Symbols*. N = 750

7.3.3.1.1. Measurement Invariance

To ensure stable and comparable measurement of model constructs across two measurements points, the 14-factor measurement model was tested for measurement invariance. An unconstrained model was first developed, where all factor loadings were freely estimated across T1 and T2. The unconstrained model demonstrated adequate model fit, supporting configural invariance. A second constrained model was then developed, which constrained the factor loadings of each item to be equal across T1 and T2. A χ^2 -difference test ($\chi^2(14) = 2.643, p = 0.999$) indicated the models were not significantly different, thereby demonstrating metric invariance. Table 7.5 details the results of this analysis.

Model fit indices	Unconstrained model	Constrained model (T1=T2)
χ^2	2377.338	2374.357
df	890	904
р	.000	.000
CFI	.951	.952
RMSEA	.033	.033
Lo90	.032	.031
Hi90	.035	.034
PCLOSE	1.000	1.000
AIC	2977.338	2920.357

Table 7.5: Study 3 - Measurement invariance analyses.

Legend: T1: variance at T1; **T2**: variance at T2; for abbreviations, refer to the list of *Abbreviations and Symbols*.

7.3.3.1.2. Longitudinal Measurement Model

A final 26-factor longitudinal model was estimated, which used the 14-factor cross-sectional models, and an additional factor for behavioural intention to support change (only measured at T2). Model fit indices for this longitudinal model are reported in Table 7.4. One index (χ^2/df) was just above the acceptable threshold of 2.0, however all other indices supported the adequacy of the measurement model.

An assessment of the convergent validity, divergent validity and reliability of each of the scales was conducted by calculating the AVE and the CR. Table 7.6 reports these values, in addition to the correlations amongst factors in the 26-factor model. Within each time point, all measures demonstrated good convergent validity (AVE > 0.5), and discriminant validity (square root of AVE greater than inter-construct correlations). All measures across T1 and T2 demonstrated adequate reliability (CR > 0.7), with the exception of change efficacy at T1, which showed composite reliability just below the threshold (CR = 0.67).

Variable	CR	AVE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
1. Age	_ a	_ a	-																									
2. Gender	_a	_a	049	-																								
3. Level	_a	_ a	004	.086*	-																							
4. DRtC	.806	.581	178**	.020	.082	(.762)																						
5. Info	.941	.888	030	.045	007	.005	(.943)																					
6. Part	.874	.699	.020	.053	103*	006	.463**	(.836)																				
7. Trust	.901	.819	055	.050	.010	225**	.420**	.208**	(.905)																			
8. Tlshp	.968	.909	.004	036	034	164**	.304**	.194**	.606	(.953)																		
9. Chef	.673	.510	.134*	.008	030	466**	.442**	.228**	.462**	.291**	(.714)																	
10. Msup	.723	.568	.077	010	.028	175**	.511**	.267**	.541**	.398**	.613**	(.753)																
11. Pval	.754	.511	.105*	.022	.010	494**	.265**	.076	.430**	.307**	.565**	.427**	(.**715)															
12. ACC	.876	.780	.065	034	053	181**	.452**	.421**	.477**	.377**	.533**	.666**	.481**	(.883)														
13. Satis	.923	.801	.168**	.051	080*	324**	.262**	.275**	.529**	.536**	.441**	.372**	.332**	.408**	(.895)													
14. Turn	_a	_a	124**	032	.061	.288**	166**	162**	341**	360**	284**	276**	274**	346**	724**	-												
15. DRtC	.735	.582	155**	.019	.064	.725**	.012	.005	143**	122*	301**	143**	324**	139*	209**	.204**	(.763)											
16. Info	.922	.856	053	.072*	044	.004	.643**	.305**	.306**	.219**	.261**	.351**	.180**	.268**	.167**	102*	061	(.925)										
17. Part	.751	.502	.022	.027	112*	008	.340**	.693**	.184**	.165**	.145*	.179**	.027	.277**	.253**	136*	.026	.450**	(.709)									
18. Trust	.902	.821	075*	.050	022	115*	.309**	.170**	.574**	.378**	.221**	.368**	.222**	.327**	.349**	253**	218**	.522**	.306**	(.906)								
19. Tlshp	.984	.953	014	014	057	097*	.229**	.192**	.400**	.615**	.151**	.297**	.172**	.252**	.373**	258**	205**	.358**	.244**	.633**	(.976)							
20. Chef	.702	.543	.093*	061	079	351**	.311**	.200**	.311**	.213**	.834**	.336**	.351**	.310**	.305**	202**	431**	.431**	.325**	.455**	.360**	(.737)						
21. Msup	.764	.619	.001	.030	.052	118*	.401**	.178**	.323**	.265**	.321**	.639**	.241**	.396**	.265**	210**	209**	.567**	.258**	.643**	.501**	.555**	(.787)					
22. Pval	.760	.515	.093*	002	.012	276**	.230**	.098*	.264**	.185**	.329**	.303**	.766**	.322**	.230**	172**	447**	.318**	.100*	.414**	.302**	.533**	.460**	(.718)				
23. ACC	.844	.731	.088*	049	043	146*	.356**	.331**	.340**	.252**	.357**	.458**	.366**	.699**	.308**	282**	225**	.467**	.457**	.530**	.329**	.600**	.622**	.567**	(.855)			
24. Satis	.923	.799	.180**	.046	057	184**	.243**	.254**	.373**	.385**	.248**	.251**	.198**	.284**	.636**	461**	280**	.390**	.441**	.627**	.555**	.482**	.485**	.350**	.484**	(.894)		
25. Behav	.898	.747	.221**	017	100*	119*	.113*	.148**	.140**	.122*	.162**	.139*	.106*	.155**	.223**	124*	178**	.193**	.361**	.262**	.187**	.345**	.226**	.195**	.345**	.404**	(.864)	
26. Turn	_a	_ a	127**	044	.026	.185**	168**	172**	261**	282**	195**	203**	156**	250**	482**	.611**	.246**	245**	235**	427**	408**	329**	367**	260**	399**	672**	249**	-

Table 7.6: Study 3 - Composite reliability, average variance explained and correlations in the 26-factor measurement model.

Legend: Values on the diagonal in parentheses represent the square root of AVE; for abbreviations, refer to the list of *Abbreviations and Symbols*. ^a denotes single-item measures. ** p<.01. * p<.05. N=750.

7.3.3.2 Structural Model

A number of structural models were fit to the data in order to test the hypotheses. In order to preserve degrees of freedom, the factor scores for T1 and T2 variables (derived from the 26-factor longitudinal measurement model) were input into the model (see section 4.3.2 in Chapter 4). In all structural models, three control variables were included and structural paths from each control variable to each variable were estimated. The control variables were free to covary with one another. At each time point, employee attributes (DRtC) and change perception variables (change information, change participation, trust in management and transformational leadership) were free to covary with one another, as were the residuals of each of the three change belief variables.

The default (saturated) model included a total of 26 variables, and the fit indices for this model are detailed in Table 7.7. Two indices were outside the accepted thresholds (normed χ^2 , RMSEA), however other fit indices (e.g., CFI, SRMR) were within accepted ranges (Hu & Bentler, 1999). A number of steps were undertaken to improve model fit and parsimony. Firstly, the critical ratios of parameter estimates, the standardised residuals and the modification indices were inspected in order to determine the most parsimonious model. Over half of the regression paths (167 out of 296) did not reach statistical significance (i.e., *critical ratio* < 1.96).

Table 7.8 highlights the significant model paths in blue and non-significant paths in yellow. The signs within cells indicate whether effects were expected to be positive or negative or whether no effects were expected. A second model was run which constrained all non-significant regression paths simultaneously (see the column labelled 'mod 1' in Table 7.7). Compared to the default model, the overall fit of the 'mod1' model was statistically worse (χ^2 -difference test: $\chi^2(163) = 249.302$; p = .000), indicating some of the paths that had been removed were needed in the model to represent the data adequately.

To determine which of the regression paths were required in the model, the individual analyses for each path's removal were sequentially inspected (*individual modelling steps not shown*). None of the eliminated paths individually resulted in a statistically worse model fit at the .01 level. However upon further inspection of the

136

modification indices for the eliminated paths, 20^{12} paths were added back into the model. A third model 'mod2' was subsequently developed which retained the 20 paths. When compared to the default model, 'mod2' was not statistically worse (χ^2 -difference test: $\chi^2(143) = 166.394$; p = .088).

In the final step, all covariances were inspected to determine whether additional refinements could be made to the model. Five of the 29 covariances in the model did not reach statistical significance at the .05 level (i.e., *critical ratio* < 1.96). A fourth model 'mod 3' was subsequently developed which constrained the covariances to zero. When compared to the default model and the nested 'mod2' model, constraining these covariances in 'mod3' did not result in a statistically worse model (χ^2 -difference test: $\chi^2(148) = 170.748$; p = 0.088, $\chi^2(5) = 4.353$; p = 0.500, respectively). 'Mod3' was therefore selected as the final structural model as it was the best fitting and, at the same time, most parsimonious model. The final model removed 147 non-significant regression paths and five covariances (see column 'mod3' in Table 7.7). The normed χ^2 of 1.146 was below the recommended cut-off of 2.0 (Arbuckle, 2017), and the CFI, RMSEA with its associated PCLOSE also indicated good model fit. Lastly, the SRMR supported the assumption that the model was a good representation of the underlying processes involved in understanding the specified outcomes during organisational change.

Table 7.8 represents the structural parts of the final model in a simplified and concise way. Table 7.9 lists the standardised regression weights and correlation coefficients as well as the squared multiple correlation coefficient (R^2) for each dependent variable. Table C.1 in Appendix C details the unstandardised regression weights and bootstrap corrections.

¹² Age -> DRtC₂; Age -> Turn₂; Gender -> Info₂; Gender -> Pval₂; Gender -> ACC₂; Level -> Info₂; Level -> Part₂; Level -> Behav₂; Info₁ -> Trust₂; Part₁ -> Msup₁; Part₁ -> Trust₂; Chef₁ -> Turn₂; Msup₁ -> Info₂; Msup₁ -> Part₂; Msup₁ -> Trust₂; ACC₁ -> Trust₁; Satis₁ -> Pval₂; Part₂ -> Chef₂; Chef₂ -> Behav₂; Behav₂ -> Turn₂.

	default	mod1	mod2	mod3
Modifications:				
All n.s. regression paths = 0		х		
Selected n.s. reg paths = 0			Х	
All n.s covariances = 0				Х
Fit indices:				
χ^2	.004	249.207	166.398	170.751
df	1	164	144	149
р	.952	.000	.098	.107
Bollen-Stine p	.950	.005	.438	.458
χ^2/df	0.004	1.520	1.156	1.146
CFI	1.000	.994	.998	.999
SRMR	.022	.030	.021	.022
RMSEA	.000	.026	.014	.014
LO90	.000	.019	.000	.000
HI90	.000	.033	.023	.023
PCLOSE	.981	1.000	1.000	1.000
AIC	700.004	623.207	580.398	574.751

Table 7.7: Study 3 - Model fit indices for the default model and re-specified nested models.

Legend: Bold values indicate model with best fit; for abbreviations refer to the list of *Abbreviations and Symbols*.

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1. Age																									
2. Gender																									
3. Level																									
4. DrtC ₁	b<0		b=0		r<0	r<0	r<0	r<0																	
5. Info₁						r>0	r>0	r>0																	
6. Part₁			b=0				r>0	r>0																	
7. Trust₁	b=0							r>0																	
8. Tlshp₁																									
9. Chef ₁	b=0			b<0	b>0	b>0	b>0	b>0	,	r>0	r>0														
10. Msup₁	b>0	b<0	b<0	b=0	b>0	b>0	b>0	b=0			r>0														
11. Pval₁			b<0	b<0	b>0	b>0	b=0																		
12. ACC ₁			b=0	b<0	b=0	b>0				b>0	b>0														
13. Satis₁	b=0	b=0		b=0		b=0	b=0	b=0	b=0	b=0	b=0	b>0													
14. Turn₁	b=0			b=0	b=0	b=0	b=0	b=0	b=0			b<0	b<0												
15. DRtC ₂	b<0			b>0												r<0	r<0	r<0	r<0						
16. Info ₂		b=0	b<0		b>0	b>0	b=0			b>0		b=0					r>0	r>0	r>0						
17. Part ₂			b=0			b>0				b>0			b=0					r>0	r>0						
18. Trust ₂	b=0				b=0	b=0	b>0		b>0	b>0									r>0						
19. Tlshp ₂						b=0		b>0	b=0	b>0															
20. Chef ₂		b<0		b<0	b>0		b>0		b>0	b>0					b<0	b>0	b>0	b>0	b>0		r>0	r>0			
21. Msup ₂			b<0		b>0		b>0	b=0		b>0					b<0	b>0	b>0	b>0	b=0			r>0			
22. Pval ₂		b<0		b<0	b>0	b>0	b=0	b>0			b>0		b>0		b<0	b>0		b=0							
23. ACC ₂	b=0	b=0		b<0		b>0			b>0	b>0	b>0	b>0	b>0	b<0	b<0	b=0	b>0	b=0	b=0	b>0	b>0	b>0			
24. Satis ₂	b=0			b=0		b=0	b=0	b=0					b>0		b=0		b>0								
25. Behav ₂	b=0		b=0														b=0			b=0			b>0	b=0	
26. Turn ₂						b=0			b=0			b<0	b<0	b>0			b=0	b=0	b=0	b=0		b=0	b<0	b<0	

Table 7.8: Study 3 - Overview of significant and non-significant paths in the final model of change outcomes.

Legend: b<0: negative expected effect; b>0: positive expected effect; b=0: no effect expected; r>0: positive correlation; r<0: negative correlation; blue cells: significant paths; yellow cells: non-significant paths; red cells: significant paths in opposite direction to expectation; for abbreviations, refer to the list of *Abbreviations and Symbols*.

^a 1 = Male, 2 = Female

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	R ²
1. Age																										
2. Gender			.039																							
3. Level																										
4. DRtC ₁	206		.105				089	082																		
5. Info₁						.432	.292	.284																		
6. Part₁			117				.144	.173																		
7. Trust₁	054							.401																		
8. Tlshp₁																										
9. Chef ₁	.067			477	.358	. 055 0	.292	0740		.079	.061															.600
10. Msup₁	.102	056	. 043 0	089	.361	.055•	.397	. 063 0			.058															.540
11. Pval₁			.054	543	.215	095	.283																			.527
12. ACC ₁			044	.079	098	.336				.578	.287															.715
13. Satis₁	.139	.063		193		.0670	.273	.326	.218	165	166	.172														.507
14. Turn₁	.033•			.144	078	.133	.111	.071	.232			225	832													.607
15. DRtC ₂	057			.661												036		082	096							.455
16. Info ₂		. 046 0	045•		.448	.119	.073			.123		093					.229	.256	.211							.344
17. Part ₂			034•			.613				029•			.100					.129	.111							.414
18. Trust ₂	032•				.042•	.104	.430		067•	.122									.371							.294
19. Tlshp ₂						.120		.524	046•	•080.																.346
20. Chef ₂		095		.229	122		112		.604	124					416	.209	.188	.180	.090		.051	.060				.722
21. Msup ₂			.062		072		189	053 0		.394					050	.383	119	.422	.158			.046				.745
22. Pval ₂		034•		.382	068	.052	152	058			.670		.023•		485	.146		.269								.694
23. ACC ₂	.038	029•		055		132			085 0	105	153	.467	057	057	.100	124	.355	.092	169	.215	.335	.382				.844
24. Satis ₂	.109			.133		111	115	074 0					.459		161	052•	.285	.346	.176	.065•	.043•					.725
25. Behav ₂	.174		057•														.183			.129			.061•	.187		.266
26. Turn ₂						104			081			.144	.316	.537			.198	.1020	103	.109		.0810	296	671		.632

Table 7.9: Study 3 - Standardised path coefficients and correlations of the final model of change outcomes.

Legend: grey shaded cells indicate covariances; non-shaded cells are β regression coefficients; •: non-significant; o: non-significant after bootstrap correction. For abbreviations, refer to the list of *Abbreviations and Symbols*. 140

The following sections explore the direct and indirect effects in the proposed model of change.

7.3.3.3.1. Predictiveness of T1 Variables on their T2 Counterparts

The first set of analyses concerned the ability for variables at T1 to predict their respective T2 scores. Table 7.10 details the ML parameter estimates, with the unstandardised estimates ranging from 0.391 (change information) to 0.772 (personal valence). In each instance, the pattern of effects was in the expected direction, demonstrating that across each scale, T2 scores were predicted by T1 scores of the same construct. When considering all available variable paths, T2 variables were best predicted by their respective T1 scores (see Table C.1 in Appendix C).

			ML estima	tion	
DV	IV	β	В	SE	р
DRtC ₂	DRtC₁	.661	.724	.029	.001
Info ₂	Info₁	.448	.391	.029	.001
Part ₂	Part₁	.613	.604	.030	.001
Trust ₂	Trust₁	.430	.536	.039	.001
Tlshp ₂	Tlshp₁	.524	.563	.028	.001
Chef ₂	Chef₁	.604	.675	.035	.001
Msup ₂	Msup₁	.394	.459	.030	.001
Pval ₂	Pval₁	.670	.772	.031	.001
ACC ₂	ACC ₁	.467	.508	.030	.001
Satis ₂	Satis₁	.459	.483	.028	.001
Turn ₂	Turn₁	.537	.558	.036	.001

Table 7.10: Study 3 - Parameter estimates for T1 variables on their respective score at T2.

7.3.3.3.2. Cross-Lagged Relations

As discussed in Chapters 2 and 3, researchers have long sought to understand the complex relationships that underpin human perceptions, beliefs and outcomes related to organisational change. Given the proximal nature of many of the variables considered within the model, the next analysis considered the reciprocal relationship between initial levels of employee change beliefs, commitment and perceived outcomes on subsequent levels of change perceptions. A number of cross-lagged relations were found across all four of the change perception variables at T2. Table 7.11 provides the parameter estimates for these relations. Given the significant results of T1 variables in predicting the respective T2 scores (see section 7.3.3.1.1), these results are not replicated below, nor are the influence of demographic variables (see Table C.1 in Appendix C). Only additional effects are presented.

			ML estima	ation	
DV	IV	β	В	SE	р
Info ₂	Part₁	.119	.122	.037	.001
	Trust₁	.073	.094	.041	.022
	Msup₁	.123	.183	.071	.010
	ACC ₁	093	117	.051	.021
Part ₂	Satis ₁	.100	.091	.025	.001
Trust ₂	Part₁	.104	.103	.033	.002
	Msup₁	.122	.176	.066	.007
Tlshp ₂	Part ₁	.120	.142	.036	.001
Chef ₂	Msup₁	124	135	.033	.004
ACC ₂	Satis ₁	057	047	.021	.021
	Turn₁	057	056	.022	.010

Table 7.11: Study 3 - Significant parameter estimates for direct cross-lagged relations.

Considering the employee attributes at T2, no cross-lagged relations were found for DRtC. As detailed above (see section 7.3.3.3.1), initial levels of DRtC predicted later levels, however no other variables contained within the study model (with the exception of age) demonstrated a significant effect on T2 DRtC.

Considering the four change perception variables at T2, cross-lagged effects were found for each of them. The direct predictors for these variables were derived from five of the 11 variables at T1. For change information, direct effects were demonstrated by T1 change participation, trust in management, management support, and ACC. All effects on change information (with the exception of T1 ACC) were in the expected direction, suggesting more positive T1 scores are related to positive T2 scores. Considering the negative effect between T1 ACC and T2 change information, the correlation between the two variables was significant and positive (r = 0.268, see Table 7.6), however an inspection of the parameter estimates (B = -0.117) revealed a negative relationship. Whilst seemingly contradictory, the results suggest that when all other variables are held constant, individuals with high ACC at T1 were less likely to perceive information as being adequate at T2.

For T2 change participation, T1 job satisfaction was the only direct predictor (B = 0.091), suggesting that satisfied employees at T1 were more likely to perceive that they had opportunities to participate in the change at T2. With regard to T2 trust in management, significant direct effects were demonstrated by T1 change participation and management support (B = 0.107, B = 0.176 respectively), suggesting employees

with greater participation in change and with perceived managerial support were more likely to trust their management and leadership team at a later time. Finally, for transformational leadership, change participation was the only variable to demonstrate a significant effect, with a one-point increase in change participation resulting in an increase in 0.144 points in later levels of transformational leadership.

Taken together, the above results emphasise the intricate and complex nature of employee perceptions during change, and that the network of study variables does not operate in a silo or in a vacuum. Rather, the relationship between the variables is dynamic and susceptible to influences based on the individual experience of employees. The effect of initial levels of change participation on four of the five change perception variables at T2 demonstrates the importance of providing employees with opportunities to provide input and feedback and to receive practical support during the design and implementation of change strategies.

With regard to the change belief variables, a significant direct effect was found between management support at T1 and change efficacy at T2. Whilst the effect was weak, this relationship was unexpectedly negative (B = -0.124). For T2 levels of ACC, significant cross-lagged effects were demonstrated by job satisfaction and turnover intention at T1 (B = -0.047, B = -0.056 respectively). Further information relating to predictors of ACC at T2 is detailed in the next section.

7.3.3.3.3. Predictors of T2 Affective Commitment to Change

Overall, the variables in the model explained 84% of the variance in employee ACC at T2. As hypothesised, variables from T1 and T2 impacted later levels of ACC, and these effects comprised both direct and indirect effects (see Table 7.12).

From a cross-sectional perspective, DRtC, each of the T2 change perception variables (i.e., change information, change participation, trust in management, transformational leadership) and change belief variables (i.e., change efficacy, management support, personal valence) demonstrated significant direct effects on ACC. Personal valence, change participation and management support demonstrated the strongest cross-sectional direct effects on ACC at T2 ($\beta = 0.382, \beta = 0.355, \beta = 0.335$ respectively).

The majority of the remaining cross-sectional direct effects on T2 ACC were in the expected direction, with the exception of DRtC, change information and transformational leadership (B = 0.144, B = -0.107, B = -0.127 respectively, see unstandardised direct effects in Table 7.12). Whilst unexpected, the magnitude of these effects was weak (Cohen, 1988). The directionality for DRtC and

transformational leadership was the same as that demonstrated on ACC in Study 2 although the effect of transformational leadership was not significant (see section 6.3.2.3 in Chapter 6). When considering the total effects on ACC, both DRtC and change information demonstrated significant results in the expected direction (B =-0.276, B = .090 respectively), suggesting that the interaction of employee attributes and change perception variables with change beliefs partially mediated the overall relationship with ACC. However the overall effect of transformational leadership on ACC, whilst very weak, remained negative (B = -0.073). Table 7.12 details the significant parameter estimates for ACC at T2, and the red shaded cells in Table 7.8 provide an indication of where the directionality of results was different to expectation.

Considering the T1 predictors, initial levels of ACC displayed the strongest direct predictor of later levels of ACC ($\beta = 0.467$). Of the remaining T1 variables, significant direct effects were demonstrated by DRtC, change participation, all three change beliefs, in addition to the two change outcomes (job satisfaction, turnover intentions)¹³. As with the cross-sectional pathways, although the pattern of results for some of these direct effects was not in the expected direction, each of these effects were weak. For example, T1 change participation and T1 personal valence displayed effects in the opposite direction, suggesting individuals with lower perceptions of change at T1 were more likely to exhibit greater ACC at T2. Interestingly, when the indirect effects of some of the predictor variables were considered, the directionality of the subsequent total effects was reversed, and the results were aligned with expectations. That is, the significant positive indirect effects exhibited by change participation, management support, personal valence and job satisfaction at T1, in addition to the T2 change information and trust in management responses resulted in overall positive total effects for the study variables on ACC at T2. The exception to this pattern of results is transformational leadership at both T1 and T2, which demonstrated significant negative total effects. Whilst unexpected, the fact that transformational leadership negatively impacted ACC supports the results of Study 2. Whilst only a weak effect was found, these findings suggest that the relationship between transformational leadership and ACC is complex and requires further consideration (see section 8.2.6 for a discussion).

Of the demographic variables, only age showed significant (albeit weak) direct effect on T2 affective commitment ($\beta = 0.038$), suggesting that older employees

¹³ Change-supportive behavioural intentions were only measured at T2.

demonstrated higher ACC compared to younger employees. Gender demonstrated an indirect effect on ACC ($\beta = -0.044$) through its relationship with T1 management support and T2 change efficacy. No significant effects were found for level of seniority.

Across all variables, T1 ACC demonstrated the largest total effect on T2 ACC ($\beta = 0.476$). T2 personal valence was the next highest predictor ($\beta = 0.382$), followed by T2 trust in management ($\beta = 0.374$) and T2 change participation ($\beta = 0.356$). Table 7.12 details the full list of significant parameter estimates on ACC.

		Dire	ct effect	S			Indire	ct effec	ts§			Tota	l effects	; ‡	
			95%CI				Q	95%CI		_			95%C		_
IV	stand	unstand	lower	upper	р	stand	unstand	lower	upper	р	stand	unstand	lower	upper	р
Age	.038	.018	.004	.033	.013	.049	.023	.006	.039	.019	.087	.041	.023	.065	.003
Gender	029	049	104	.007	.077	044	074	122	033	.002	073	123	202	052	.003
DRtC ₁	055	086	186	002	.037	072	113	225	005	.040	127	200	280	137	.002
Info₁	-	-	-	-	-	.113	.085	.031	.132	.007	.113	.085	.031	.132	.007
Part₁	132	117	161	078	.003	.429	.379	.300	.448	.009	.297	.262	.207	.318	.009
Trust₁	-	-	-	-	-	.221	.245	.174	.336	.004	.221	.245	.174	.336	.004
Tlshp₁	-	-	-	-	-	065	052	093	009	.025	065	052	093	009	.025
Msup₁	105	134	227	036	.009	.415	.533	.418	.658	.006	.311	.399	.279	.496	.006
Pval₁	153	166	228	098	.006	.386	.418	.340	.513	.005	.233	.252	.190	.322	.004
ACC ₁	.467	.508	.421	.581	.012	.009	.010	009	.031	.225	.476	.518	.430	.591	.010
Satis₁	057	047	096	005	.021	.092	.075	.040	.119	.003	.035	.029	013	.068	.142
Turn₁	057	056	097	014	.010	-	-	-	-	-	057	056	097	014	.010
DRtC ₂	.100	.144	.049	.228	.004	292	419	521	347	.001	192	276	380	192	.002
Info ₂	124	107	156	055	.005	.229	.197	.145	.262	.004	.105	.090	.022	.161	.015
Part ₂	.355	.319	.257	.383	.004	.001	.001	029	.035	.908	.356	.320	.249	.385	.005
Trust ₂	.092	.082	.010	.158	.027	.282	.251	.205	.312	.003	.374	.333	.247	.430	.004
Tlshp ₂	169	127	169	080	.004	.072	.054	.035	.091	.002	097	073	119	024	.005
Chef ₂	.215	.255	.149	.367	.002	-	-	-	-	-	.215	.255	.149	.367	.002
Msup ₂	.335	.369	.273	.470	.005	-	-	-	-	-	.335	.369	.273	.470	.005
Pval ₂	.382	.358	.294	.434	.003	-	-	-	-	-	.382	.358	.294	.434	.003

Table 7.12: Study 3 - Direct, indirect and total effects on T2 employee affective commitment to change (ML estimates with bootstrap correction).

Legend:

§: indirect effects are calculated as the product of all model path coefficients connecting indirect predictors with the outcome, an indirect effect is considered significant if its bootstrap corrected 95%CI does not include zero; **‡**: the total effect is the sum of the direct and indirect effects. For abbreviations refer to list of *Abbreviations and Symbols*.

7.3.3.3.4. Predictors of T2 Job Satisfaction

It was hypothesised that ACC would positively and directly influence employee job satisfaction at T2, and the remaining change perception and belief variables would demonstrate indirect effects through ACC. However, this was not the case. Contrary to expectation, ACC at T2 did not significantly influence levels of job satisfaction. Given that ACC influenced job satisfaction at T1 (see Table C.2 in Appendix C), it is interesting that the same effect was not shown at T2.

Unexpectedly, employee attributes and a number of change perception variables demonstrated direct effects on job satisfaction. Specifically, for every increasing point in DRtC, job satisfaction decreased by 0.351 points, whilst for every increasing point in trust in change participation, management and transformational leadership, job satisfaction increased by 0.338, 0.430 and 0.181 points respectively. No direct effect was demonstrated for change information on job satisfaction, or by any of the three change belief variables.

In examining the influence of variables over time, once again employee attributes and a number of change perception variables directly influenced job satisfaction at T2. Unlike the

cross-sectional results however, the direct effects for T1 DRtC, change participation, management and transformational leadership on T2 satisfaction were negative. These direct effects were weak, and when the indirect effects are considered, the directionality of the total effects for each of the variables was in line with expectations (see Table 7.13). For the change beliefs, change efficacy, personal valence and ACC, each variable demonstrated an indirect effect on T2 job satisfaction (B = 0.191, B = -0.079, B = 0.121 respectively), through their relationships with T1 job satisfaction. Therefore whilst ACC at T2 did not influence satisfaction, ACC at T1 did.

A number of effects were found for the control variables, with age demonstrating a significant direct effect on job satisfaction, suggesting older employees are more satisfied in their work than younger employees. Interestingly however, level of seniority exhibited a significant negative indirect effect, suggesting more junior employees are more satisfied. Whilst these results may go against convention, it is important to note that no significant correlation was found between age and level of seniority. Additionally, as detailed in section 7.3.3.2, removal of the covariance path between the two variables actually improved model fit and parsimony. Overall, the model accounted for 73% of the total variance for job satisfaction at T2. The results demonstrate the significant influence of employee attributes and change perceptions on employee job satisfaction, above and beyond the role of the change belief variables and ACC. Previous level of job satisfaction was the highest predictor of later levels of job satisfaction ($\beta = 0.488$), followed by T2 trust in management ($\beta = 0.376$) and T2 levels of change participation ($\beta = 0.293$). Whilst direct effects were not expected, these results demonstrate the influence that a trusting managerial relationship and the having input into change can play on an employee's job satisfaction.

		Dire	ect effect	s			Inc	Total effects‡							
_	95%CI							95%CI							
IV	stand	unstand	lower	upper	р	stand	unstand	lower	upper	р	stand	unstand	lower	upper	_ р
Age	.109	.066	.045	.090	.002	.085	.051	.025	.075	.005	.193	.117	.085	.150	.003
Level	-	-	-	-	-	045	042	073	020	.003	045	042	073	020	.003
DRtC ₁	.133	.270	.159	.391	.003	223	452	609	327	.004	090	182	292	075	.008
Info₁	111	126	187	074	.003	.313	.357	.276	.445	.003	.202	.231	.155	.311	.003
Part₁	115	164	261	081	.004	.305	.435	.302	.572	.005	.190	.271	.174	.377	.004
Trust₁	074	077	149	.000	.051	.249	.257	.164	.354	.005	.175	.180	.110	.250	.006
Chef ₁	-	-	-	-	-	.112	.191	.026	.375	.017	.112	.191	.026	.375	.017
Pval₁	-	-	-	-	-	056	079	162	011	.024	056	079	162	011	.024
ACC ₁	-	-	-	-	-	.086	.121	.041	.202	.003	.086	.121	.041	.202	.003
Satis ₁	.459	.483	.402	.570	.004	.029	.031	.012	.053	.008	.488	.514	.423	.599	.005
DRtC ₂	161	297	425	152	.007	029	054	124	.006	.071	190	351	483	220	.005
Part ₂	.285	.330	.250	.440	.001	.007	.008	018	.033	.568	.293	.338	.258	.450	.002
Trust ₂	.346	.395	.260	.542	.004	.030	.034	008	.075	.119	.376	.430	.304	.565	.005
Tlshp ₂	.176	.169	.070	.278	.004	.013	.012	002	.029	.087	.188	.181	.082	.288	.004

Table 7.13: Study 3 - Significant direct, indirect and total effects on T2 employee job satisfaction (ML estimates with bootstrap correction).

Legend:

§: indirect effects are calculated as the product of all model path coefficients connecting indirect predictors with the outcome, an indirect effect is considered significant if its bootstrap corrected 95%CI does not include zero; **‡**: the total effect is the sum of the direct and indirect effects. For abbreviations refer to list of *Abbreviations and Symbols*.

7.3.3.3.5. Predictors of T2 Change-Supportive Behavioural Support Intentions

For change-supportive behavioural intentions, it was hypothesised that ACC would demonstrate direct and positive effects, and that employee attributes, change perceptions and beliefs would indirectly influence behaviour through ACC. Overall, the model accounted for 27% of the variance in behavioural intentions. Contrary to expectation, ACC did not demonstrate a significant direct effect on behavioural intentions to support change. This finding does not support the hypotheses, nor previous research (Bouckenooghe et al., 2014; Herscovitch & Meyer, 2002; Shin et al., 2015), suggesting that levels of commitment alone may not be enough to determine an individual's intention to exhibit desired behaviours during change (see section 7.4.1 for a discussion).

Despite this, other study variables did demonstrate significant direct effects. Change participation, change efficacy and job satisfaction (each measured at T2) directly influenced change behaviour, with a one-point increase in each of the variables resulting in an increase in behavioural intention by 0.155, 0.144 and 0.137 points respectively (see Table 7.14). Age was the only other variable to exhibit a direct effect, with older employees more likely to express behavioural intentions to support the change (B = 0.77).

Considering the remaining variables, fully mediated effects were demonstrated by DRtC and all change perception variables at T1, and DRtC and three of the change perception variables at T2 (change participation, trust in management and transformational leadership). No effect was found between T1 change information on behavioural intentions. T1 levels of change efficacy and job satisfaction also showed indirect effects on behavioural intentions. Each of the indirect effects demonstrated by T1 variables was a result of the relationship between the variables with levels of change efficacy and job satisfaction at T2 respectively (see Table 7.14).

Overall, the results of this study indicate that understanding change outcomes such as employee behaviour and intentions is complex. Moreover, given that the model accounted for only 27% of the variance for the factor, further consideration is required to determine what other factors might influence individual behaviour during organisational change.

		Dire	ct effect	S		Indirect effects§						Total effects‡					
			95%CI						95%CI								
IV	stand	unstand	lower	upper	р	stand	unstand	lower	upper	р	stand	unstand	lower	upper	р		
Age	.174	.077	.046	.107	.004	.058	.026	.016	.038	.004	.232	.103	.069	.133	.005		
Level	057	039	081	.005	.070	041	028	044	013	.003	098	066	108	017	.017		
DRtC ₁	-	-	-	-	-	069	103	148	054	.006	069	103	148	054	.006		
Info₁	-	-	-	-	-	.030	.022	.007	.042	.006	.030	.022	.007	.042	.006		
Part₁	-	-	-	-	-	.195	.163	.118	.207	.006	.195	.163	.118	.207	.006		
Trust₁	-	-	-	-	-	.068	.071	.032	.110	.006	.068	.071	.032	.110	.006		
Tlshp₁	-	-	-	-	-	.034	.026	.008	.047	.012	.034	.026	.008	.047	.012		
Chef₁	-	-	-	-	-	.102	.128	.033	.206	.017	.102	.128	.033	.206	.017		
Satis₁	-	-	-	-	-	.114	.088	.046	.128	.004	.114	.088	.046	.128	.004		
DRtC ₂	-	-	-	-	-	101	136	187	083	.005	101	136	187	083	.005		
Part ₂	.183	.155	.080	.224	.005	.101	.085	.050	.125	.004	.284	.240	.171	.298	.005		
Trust ₂	-	-	-	-	-	.116	.097	.055	.145	.005	.116	.097	.055	.145	.005		
Tlshp ₂	-	-	-	-	-	.041	.029	.007	.057	.017	.041	.029	.007	.057	.017		
Chef ₂	.129	.144	.012	.262	.033	.025	.028	005	.064	.087	.154	.172	.041	.276	.011		
Satis ₂	.187	.137	.069	.213	.003	-	-	-	-	-	.187	.137	.069	.213	.003		

Table 7.14: Study 3 - Significant direct, indirect and total effects on T2 behavioural support intentions (ML estimates with bootstrap correction).

Legend:

§: indirect effects are calculated as the product of all model path coefficients connecting indirect predictors with the outcome, an indirect effect is considered significant if its bootstrap corrected 95%CI does not include zero; **‡**: the total effect is the sum of the direct and indirect effects. For abbreviations refer to list of *Abbreviations and Symbols*.

7.3.3.3.6. Predictors of T2 Turnover Intentions

In considering the hypothesised effects for turnover intention, the results partially supported the hypotheses. Overall, the research model accounted for 63% of the total variance in employee turnover intention at T2. In line with expectations, ACC at T2 demonstrated a significant negative direct effect on turnover intention (B = -0.317), suggesting employees who are more committed to change are less likely to express a desire to leave the organisation.

A number of other change perceptions and beliefs also showed significant direct influences on turnover intentions. T2 levels of transformational leadership and job satisfaction showed direct effects in a negative direction (B = -0.082, B = -0.558, respectively), indicating that employees who are more satisfied with their job, and whose leaders display charismatic qualities, are less likely to have intentions to leave the organisation. For other T2 predictor variables however (i.e., change participation, change efficacy) significant direct (albeit weak) effects were demonstrated but in the opposite direction (see Table 7.15), suggesting that individuals who are more involved in the change and have greater confidence in its execution, have higher turnover intentions compared to other employees with less positive views about the change. In both of these instances, when the indirect effects were taken into consideration, overall non-significant effects were found.

Considering the effects of study variables over time on turnover intention, five variables at T1 demonstrated direct effects (change participation, change efficacy, ACC, job satisfaction, turnover intention). Employees who reported higher perceived participation, greater confidence and lower turnover intentions at T1 were also likely to demonstrate lower turnover intentions at T2 (B = -0.099, B = -0.115, B = 0.558, respectively). However, for ACC and job satisfaction, the weak-to-moderate direct effects were in the opposite direction (B = 0.167, B = 0.277, respectively). When considering the influence of indirect effects on these two variables, the directionality of these results was reversed (see Table 7.15 for total effects), and the resulting total effects were negative. No direct effects were shown for any of the demographic variables, however indirect effects were found for age (B = -0.078) and level of seniority (B = 0.021).

In summary, the overall influence of variables on turnover intention at T2, the largest effects were demonstrated by job satisfaction, initial levels of turnover, and ACC. Employee job satisfaction at T2 was the largest predictor of later levels of turnover ($\beta = -0.671$), followed by initial levels of turnover intention ($\beta = 0.554$),

followed by job satisfaction at T1 ($\beta = -0.444$), and ACC at T2 ($\beta = -0.296$). Significant effects were also demonstrated by employee attributes, change perceptions and belief variables, including DRtC (positive relationship), and change participation, trust in management, transformational leadership, change efficacy, management support and personal valence (negative relationships, see total effects in Table 7.15). These results suggest that individuals who were more satisfied with their job, were more committed to change, and who had more positive perceptions and beliefs about change were less likely to express intentions to leave their organisation.

		Dire	ct effect	S			Indii		Total effects‡						
	95%Cl								95%Cl						
IV	stand	unstand	lower	upper	р	stand	unstand	lower	upper	р	stand	unstand	lower	upper	р
Age	-	-	-	-	-	156	078	104	054	.004	156	078	104	054	.004
Level	-	-	-	-	-	.027	.021	.005	.038	.008	.027	.021	.005	.038	.008
DRtC ₁	-	-	-	-	-	.116	.196	.083	.291	.006	.116	.196	.083	.291	.006
Part₁	104	099	159	039	.005	014	014	086	.065	.717	119	112	174	050	.005
Tlshp₁	-	-	-	-	-	153	131	200	058	.008	153	131	200	058	.008
Chef₁	081	115	221	020	.028	.081	.115	050	.275	.192	.000	.000	134	.159	.942
Msup₁	-	-	-	-	-	098	134	300	010	.024	098	134	300	010	.024
ACC ₁	.144	.167	.059	.243	.010	341	397	503	276	.007	198	230	335	128	.004
Satis₁	.316	.277	.178	.364	.007	760	666	763	572	.006	444	389	454	317	.006
Turn₁	.537	.558	.483	.636	.006	.017	.018	.005	.038	.008	.554	.576	.498	.663	.005
DRtC ₂	-	-	-	-	-	.099	.153	.057	.272	.003	.099	.153	.057	.272	.003
Part ₂	.198	.191	.094	.278	.007	281	270	351	202	.004	083	080	163	.015	.084
Trust ₂	.102	.097	002	.200	.055	322	306	415	224	.003	220	209	313	121	.004
Tlshp2	103	082	146	013	.026	088	070	144	014	.017	190	152	227	073	.006
Chef ₂	.109	.138	.002	.270	.039	107	136	229	050	.004	.002	.002	149	.159	.980
Msup ₂	-	-	-	-	-	128	151	254	061	.004	128	151	254	061	.004
Pval ₂	.081	.081	019	.149	.126	113	114	152	068	.007	032	032	110	.041	.387
ACC ₂	296	317	424	177	.010	-	-	-	-	-	296	317	424	177	.010
Satis ₂	671	558	659	469	.004	-	-	-	-	-	671	558	659	469	.004

Table 7.15: Study 3 - Significant direct, indirect and total effects on T2 employee turnover intention (ML estimates with bootstrap correction).

Legend:

§: indirect effects are calculated as the product of all model path coefficients connecting indirect predictors with the outcome, an indirect effect is considered significant if its bootstrap corrected 95%CI does not include zero; **‡**: the total effect is the sum of the direct and indirect effects. For abbreviations refer to list of *Abbreviations and Symbols*.

7.4. Discussion

The objective of the study was to understand and assess the change-related variables that influence employee job satisfaction, behavioural intentions to support change and turnover intention over time. The results of this study provide a comprehensive model for understanding the relative influence of individual attributes, perceptions, beliefs, and commitment on these change-related outcomes. Results indicated that a mediated model fit the data best, although contrary to expectations, the hypothesised model was not supported. The following sections provide a summary of the findings of Study 3 and discussion of its strengths and limitations. Further detail relating to the importance of each antecedent in predicting ACC and employee change outcomes, and implications of these findings is discussed in Chapter 8.

7.4.1. Summary of Findings

The final model of change differs from the hypothesised model in three key ways. Firstly, the results indicated that the factors considered important in shaping an employee's ACC, job satisfaction and turnover intentions are not fixed. For example, when considering the predictors of T1 ACC, DRtC, change information, change participation, management support and personal valence each demonstrated direct effects on ACC. Examining the predictors of T2 ACC however, employee attributes, all T2 change perception and change belief variables demonstrated direct effects on T2 levels of ACC. As detailed in Table C.2 in Appendix C, similar results were found for the predictors of job satisfaction and turnover intentions at T1 and T2. Taken together, these results suggest that the antecedents of an individual's ACC, job satisfaction and turnover intention vary over the duration of an organisational change.

When considering reasons for this result, it may be that the study design played a role. Compared to previous research (see Table 2.1 in Chapter 2), this study sought to intentionally include more variables in its investigation in order to understand the relative importance of variables in the prediction of change outcomes. Therefore, it may be that in the presence of other antecedent variables, ACC does not directly impact job satisfaction. Additionally, considering these findings in the context of the specific change taking place within the sampled organisation, at T1 the change had just been announced and introduced, whereas at T2 employees understood the impacts of the change in more detail as they were working within the new structure. Therefore it might be the case that what determines an employee's ACC and change outcomes differs over the lifespan of the change. Change is a dynamic process, therefore it is likely that the antecedents of commitment and outcomes during change are also dynamic in nature.

The second distinction between the final model from the hypothesised model relates to the role of ACC. Whilst the results for each of the change outcomes are described below (see sections 7.4.4, 7.4.5, and 7.4.6), in the final model, ACC demonstrated significant direct effects on only one of the three change outcomes (turnover intention). The absence of a finding between ACC and both job satisfaction and change-supportive behavioural intentions was unexpected, as extensive research has demonstrated the important role of ACC in these variables (e.g., Bouckenooghe et al., 2014; Meyer et al., 2007; Neubert & Cady, 2001; Rafferty & Restubog, 2009). With regard to job satisfaction, no cross-sectional relationships were found between T2 ACC and job satisfaction. Initial levels of ACC did demonstrate an indirect effect with T2 job satisfaction, however this effect was fully mediated by job satisfaction at T1. In the assessment of change-supportive behavioural intentions, ACC did not demonstrate a significant effect either directly or indirectly. Once again, this result differs from a wide body of research demonstrating that individuals who see the value in change and have a desire to support the change (i.e., high ACC) are more likely to engage in more discretionary activities intended to ensure the success of the change (Bouckenooghe et al., 2014; Meyer et al., 2007; Neubert & Cady, 2001). Whilst a number of change perceptions and beliefs directly predicted behavioural support intentions (see section 7.4.5), the results of this study suggest further investigation is required to unpack the relationship between the study variables, in particular the role of ACC.

The last difference between the hypothesised model and the final model relates to the directionality of the results. The directionality of a number of variable paths was not aligned with previous research (and at times was counter-intuitive). It is important to note that the large majority of these effects were weak, and in most instances the regression weight was less than 0.1. Nonetheless, further assessment is required to understand whether these effects are unique to the current sample, or whether each of the relationship have a larger impact on ACC.

7.4.2. Autoregressive and Cross-Lagged Effects

The present results demonstrate that initial levels of each of the study variables were the strongest predictor of their later scores. These results support previous research (e.g., Morin et al., 2016; van den Heuvel et al., 2013) that has demonstrated the ability for initial levels of variables to predict their later counterparts. However, the results of the current study suggest that employee perceptions, beliefs and

commitment are also influenced by other variables. For example, a number of crosslagged effects were demonstrated for T2 levels of employee perceptions, beliefs and commitment to change. Within the final model, between 27% and 84% of the variance in T2 variables considered within the model was accounted for. Given this large range, it is likely that other constructs (not included in the model) may partially explain the variables with lower variance percentages. Therefore, whilst it is the case that initial levels of individual perceptions, beliefs and commitment are the strongest predictors of later levels, a number of other variables might play a role in determining later levels. Further analyses should ensure that each of these putative effects is controlled for in the understanding of employee perceptions, beliefs and commitment to change over time.

7.4.3. Predictors of Affective Commitment to Change

Considering the influence of nominated variables in the prediction of ACC over time, a mediated model was demonstrated through the change beliefs. Strong, positive direct effects were demonstrated by each of the change beliefs, supporting the research hypotheses. As hypothesised, employee attributes and a number of change perception variables also demonstrated direct effects, however as detailed above in section 7.4.1, the variables influencing ACC varied over time. The overall effects indicated that ACC is higher for employees who are dispositionally inclined to accept change (Fugate & Kinicki, 2008), perceive the information during change to be relevant and timely (Rafferty & Restubog, 2009; Rogiest et al., 2015; van den Heuvel et al., 2013), have an opportunity to participate and provide feedback on the change (e.g., Amiot et al., 2006; Bouckenooghe et al., 2009; Soumyaja et al., 2015), and have greater trust in their managers (e.g., Neves & Caetano, 2009). Considering the role of transformational leadership, unexpectedly, an inverse relationship was found with ACC. These results suggested that employees who perceive their leaders as demonstrating transformational leadership qualities were less likely to be affectively committed to the change. It may be the case that under certain conditions and stages during change, the rhetoric and inspirational words from leaders is not enough to elicit ACC from individuals (see section 8.2.6 in Chapter 8 for further discussion).

7.4.4. Predictors of Job Satisfaction

Maximising the satisfaction of employees in the workplace is a key concern for business leaders. Therefore it is no surprise that researchers regularly investigate the antecedents and correlates of employee job satisfaction during organisational change. As detailed above in section 7.4.1, contrary to expectation and previous research (e.g.,

Bouckenooughe et al., 2014), ACC did not demonstrate a direct effect on job satisfaction. Despite the absence of this finding, a number of significant relationships were found for other variables. Initial level of job satisfaction was the strongest predictor of later levels of job satisfaction. The presence of a trusting relationship with management was the next highest predictor of job satisfaction, supporting the work of Bordia et al. (2011). Change participation demonstrated positive direct (crosssectional), and indirect (longitudinal) effects on job satisfaction, indicating that employees who have an opportunity to participate and engage in the change are more likely to be satisfied in their role. Transformational leadership also positively influenced job satisfaction, suggesting that the visionary and inspirational style of transformational leaders resonates with employees, and results in increases in their job satisfaction (Braun, Peus, Weisweiler, & Frey, 2013). Finally, an employee's general tendency to resist change was negatively associated with job satisfaction. The influence of DRtC on satisfaction highlights the importance of understanding which employees have predispositions to resist change during the implementation of an organisational change, so that appropriate supports and initiatives can be put in place to enhance retention.

Fully mediated effects were found for initial levels of change efficacy and personal valence, although unexpectedly, the relationship between personal valence and job satisfaction was negative. Whilst some research has demonstrated support for the positive influence of change efficacy on satisfaction (Holt et al., 2007a; Mardhatillah et al., 2017), further research is required to understand the role of the change beliefs in predicting job satisfaction, particularly given the directionality for personal valence was contrary to expectation.

7.4.5. Predictors of Change-Supportive Behavioural Intentions

As detailed above, the final model of employee intentions to support the change derived in Study 3 accounted for only 27% of the variance, so this should be taken into account when considering the model findings. As detailed above in section 7.4.1, contrary to expectation, ACC did not demonstrate a significant effect on behaviour intention. Considering other variables within the research model, no direct longitudinal associations were found with any variable, however direct cross-sectional effects were demonstrated by change participation, change efficacy, and job satisfaction. These results suggest that employees were more likely to report higher behavioural support intentions when they had an opportunity (or at least a perceived opportunity) to provide input and feedback into the change process (e.g., Jimmieson et al., 2008), has confidence in their ability to manage and implement the change successfully

(Cunningham et al., 2002), and were happier and more satisfied with their work. Considering the indirect effects, employee attributes and each of the change perceptions significantly influenced behavioural intentions (at both a longitudinal and cross-sectional perspective), with the exception of change information, which failed to yield an effect over time. Together, these results highlight that the nature of change supportive behavioural intentions is complex, and that employee's use a number of factors to inform their behaviour.

7.4.6. Predictors of Turnover Intentions

In considering the predictors of employee turnover intention, the results of the study generally supported the hypotheses. In line with expectations and previous research (e.g., Shin et al., 2015), the results showed that employees who were more affectively committed to organisational change were less likely to consider leaving the organisation. A number of other effects on turnover intention were also demonstrated by employee attributes, change perception variables, change beliefs variables, as well as job satisfaction. Overall, level of employee job satisfaction at T2 was the strongest predictor of turnover intentions, followed by initial levels of turnover intention and initial levels of job satisfaction. The results for job satisfaction demonstrate support for previous research (e.g., Amoit et al., 2006; Bordia et al., 2011) by showing that employees who are more satisfied are less likely to express a desire to leave the organisation.

Cross-sectional and longitudinal effects were found for both DRtC and transformational leadership, suggesting that employees who are predisposed to resist change are more likely to express a desire to leave the organisation, whilst employees who work alongside leaders who are charismatic and motivated are less likely to express a desire to leave the organisation. The influence of leadership style supports previous research (e.g., Tse, Huang, & Lam, 2013), although given the absence of research investigating the role of DRtC on turnover intention, the present findings provide a new insight into the research area. Direct associations were found between management support and turnover intention, suggesting that employees who have trust in the managers are less likely to express a desire to leave the organisation (e.g., Michaelis et al., 2009). Mixed results however were found for change participation. Previous research has found change participation to be negatively associated with turnover intention (Wanberg & Banas, 2000), and whilst this result was supported from a longitudinal perspective, at T2 this effect was unexpectedly positive. Finally, for the change beliefs significant overall effects were demonstrated for management support (at both T1 and T2), suggesting that individuals who believe their managers are
supportive of the change are less likely to leave the organisation. The results relating to change efficacy were mixed, and largely unsupported the influence of the variable on turnover intention. No significant results were found for personal valence.

Given the results for some of the variables were unexpected and ambiguous, further investigation is required to further explore these relationships understand the impact and significance of these results.

7.4.7. Strengths and Limitations

This study offers a number of important strengths to the investigation of individual variables in organisational change. Firstly, it provides a valuable extension to the literature by simultaneously testing employee attributes, perceptions, beliefs, commitment and some of the outcomes of organisational change. As detailed in section 1.3.2 (see Chapter 1), a gap in the research literature relates to the fact that variables have typically been investigated in isolation. Therefore a strength offered by this study is that 14 different variables covering employee demographics, individual differences, process, context, beliefs, commitment and outcomes of change were included, thereby allowing for a comprehensive, systematic and simultaneous investigation into the reactions and outcomes during organisational change.

Secondly, by collecting data over a six-month period, an investigation of how the variables and effects operate over time was enabled. The consideration of crosssectional, longitudinal and cross-lagged pathways in the assessment of change outcomes provides an understanding of the complex nature of employee attributes, perceptions, beliefs and commitment, and the dynamic network in which they operate. Employing a longitudinal research design also sought to reduce the possible influence of CMV (Podsakoff et al., 2003).

While acknowledging the strengths of the study, it is also important to note some of its limitations. Firstly, whilst steps were taken to reduce CMV (as described above), it was not possible to fully reduce this bias. All data collected for this study was self-report, and was collected via an online survey. The majority of variables assessed relate to individual attributes, perceptions and beliefs, which are difficult for others to measure and observe. And whilst self-report surveys for this kind of research are still the most widely practiced data collection method (Saksvik & Hetland, 2009), the possibility that mono-method bias may have influenced the findings could not be eliminated (Podsakoff et al., 2003).

A second limitation relates to the scales used in the study. As detailed in section 7.3.3.1.2, the change efficacy scale at T1 failed to demonstrate adequate

reliability. Whilst the scale at T2 satisfied the 0.7 threshold (Nunally, 1978), consideration of this should be taken into account when analysing the results as they relate to change efficacy. Additionally, in order to achieve adequate fit for the longitudinal models, a number of additional items were removed from the study scales. Given the number of scales used in this investigation, and the fact that each of the constructs are theoretically related, the presence of item cross-loadings is not completely unexpected. However whilst each scale demonstrated adequate validity and reliability (except change efficacy), further validation of the reduced-item scales is required.

Another limitation is that the model derived in this study did not account for as much variance in change-supportive behavioural intentions compared to job satisfaction and turnover intention (27%, 73% and 63% respectively). As detailed in sections 7.4.1 and 7.4.5, the findings related to behavioural intentions were also contrary to expectation, with ACC failing to demonstrate a significant influence. One reason for this result may relate to the way in which change-supportive behavioural intentions were selected following interviews with the organisation's senior leaders and change managers. It is possible however, that the behaviours identified were not as explicit or tactical as initially perceived, or that the individuals had not been given the opportunity to demonstrate these behaviours. Given these unexpected results, further investigation is required to better understand behavioural intentions, and the circumstances by which they can be increased.

A final limitation relates to the group sampled. As detailed in section 7.2.3, employees from 12 countries across the Asia Pacific region participated in the study. Previous research has suggested that national culture can influence a number of variables in the investigation of organisational change (e.g., Fu & Yuki, 2000; Jackson, Meyer, & Wang, 2013; Oreg et al., 2008). To date however, there is no consensus on how employee perceptions and reactions to change differ by culture (Meyer et al., 2011). Multigroup comparisons can be used to understand differential effects between cultures. However within the current study, this was not possible due to sample size restrictions. Whilst understanding cultural differences on study variables was not the focus of the study, given the unique aspects of national culture (e.g., Hofstede, 2001), further research should be undertaken to understand whether the model developed in the current study differs across cultures.

In summary, this study sought to understand the dynamic and complicated relationships that comprise employee attributes, perceptions, beliefs, commitment and

outcomes during organisational change. Understanding the individual triggers that cause an individual to positively respond to change is a potentially powerful mechanism for organisations. The results demonstrate that employee perceptions, beliefs, commitment and outcomes of organisational change all evolve over time, and are influenced by a number of distal and proximal variables. At a high level, the positive attributes, perceptions, beliefs and commitment an individual has about change positively influences their job satisfaction and behavioural intention the change, which in turn decreases their turnover intentions. The proceeding chapter presents the final, overall discussion of this research program, along with the theoretical and practical implications.

Chapter 8: General Discussion

This final chapter summarises the main findings across each of the three aims of the research program, and critically considers the influence of each of the research variables in the context of organisational change. The strengths and limitations are described, and in doing so, a number of areas for improvement are identified. The chapter concludes by detailing the practical implications within the area of organisational change, and outlines opportunities for future research.

The present research program introduced and examined an integrated model of the antecedents, mediators and change-related outcomes of employee affective commitment to change. The findings contribute significantly to our understanding of reactions of individual employees to organisational change by:

- (i) combining elements of multiple theories into a single model,
- (ii) developing reduced-item scales to maximise the efficiency with which data is collected,
- (iii) empirically investigating the relationship between the selected variables within and across time, and
- (iv) testing a series of integrated effects in real-world organisational conditions with employees directly affected by large-scale changes.

To the best of the researcher's knowledge, this is the first research program to empirically integrate such a comprehensive set of variables in order to better understand the interplay of employee attributes, perceptions, beliefs and commitment with the outcomes during organisational change. The research reveals the importance of a key set of antecedents in shaping an individual employee's commitment and reactions to change.

The following sections briefly summarise the results as they pertain to each of the three research aims, before integrating the findings of each predictor variable into the existing literature.

8.1. Overview of Key Findings

8.1.1. Aim 1: Scale Efficiency in the Measurement of Change

The first aim of the research program concerned the development of reduceditem item scales in the measurement of employee attributes, perceptions, beliefs and commitment to organisational change. The results of Study 1 demonstrate that a number of change-related measures can be reduced in length whilst not compromising the scale's psychometric properties. In Study 1, an item reduction of 42% was demonstrated across nine of the measures using a systematic process of scale reduction. Unexpectedly for the DRtC scale (Oreg, 2003), the whole cognitive rigidity sub-scale required removal in order to satisfy accepted psychometric thresholds. As detailed in section 5.4.1 (see Chapter 5), other researchers have also identified issues with the cognitive rigidity sub-scale. Whilst removal of this sub-scale yielded no further issues in Study 2 or 3, further research and consideration is required to understand the broader implications for Oreg's conceptualisation of cognitive rigidity.

Study 2 and Study 3 sought to cross-validate these findings on different samples. In Study 2, all the reduced-item scales demonstrated adequate model fit, with the exception of change information. Each scale also satisfied accepted reliability and validity thresholds. Generating results of this kind was a positive step in establishing cross-validation of the shortened measures in a separate organisational sample.

Considering the results of Study 3, once again general support was provided for the reduced item scales. Compared with Study 2, the change information scale demonstrated adequate model fit, and performed across all reliability thresholds. As detailed in section 7.3.3.1, some additional items required removal in Study 3 in to obtain model fit for the measurement model. This meant that some scales were reduced to two items. Whilst the necessary elimination of these additional items was unexpected, overall each of the measures demonstrated satisfactory performance on validity thresholds. For reliability thresholds, all measures satisfied the 0.7 threshold (Nunally, 1978) except for change efficacy, which was slightly below this (0.673).

The question of what constitutes an optimal number of items in measurement scales continues to be a point of discussion. Whilst commonly accepted convention is to have at least three items in a scale (e.g., Larwin & Harvey, 2012), other researchers have begun challenging this strict rule (e.g., Bergkvist & Rossiter, 2007; Diamantopoulos, Sarstedt, Fuchs, Wilczynski, & Kaiser, 2012; Franke, Rapp, & Andzulis, 2013). Taken together, the results reported above provide general support for the use of reduced-item measures in the assessment of individual attributes, perceptions and outcomes of change.

Given the prevalence of self-report questionnaires in psychosocial research (Pather & Uys, 2008), the results provide a positive step in assisting researchers to better understand employee factors to change in a more efficient manner. Moreover,

164

given the number of influential variables in the final model, the number of items required to gather data for these analyses is large. The demand for employee time is increasing, and survey fatigue seems to be a ubiquitous feeling among employees, therefore it is important that researchers are as efficient with employee response time as possible, whilst getting maximum value out of the questionnaires used (Evans & Mathur, 2005).

8.1.2. Aim 2: Understanding the Antecedents of Affective Commitment to Change

The second aim of the research program concerned developing an understanding of the antecedents of ACC. It has been suggested that employees with high ACC are more likely to see the value in a change initiative, and are therefore more willing to do what the change requires and engage in more discretionary activities intended to ensure the success of the change (Bouckenooghe et al., 2014; Herscovitch & Meyer, 2002). Considering the findings, the analysed models accounted for 63%, 72% and 84% of the variance in ACC in Study 2, Study 3 (T1) and Study 3 (T2) respectively. Across both Study 2 and 3, evidence was found for mediated models predicting ACC from both a cross-sectional and longitudinal perspective. Whilst the models were not identical across each analysis, a number of consistent findings were demonstrated.

With regard to the cross-sectional analyses, across Study 2 and 3, mediated models of ACC were developed, with employee attributes and all change perception variables influencing ACC through the change belief variables. Concerning the change beliefs, management support and personal valence demonstrated positive direct effects on ACC across all studies, whilst change efficacy only demonstrated a direct effect in Study 2, and at T2 in Study 3 (no direct effect was found at T1 in Study 3). Whilst not hypothesised in the original research model, some direct effects on ACC were consistently exhibited by change perception variables (change participation, trust in management). Change participation showed a positive direct influence on ACC across all studies. For transformational leadership, overall the results were largely unsupportive of the influence of leadership style on ACC.

Finally, with regard to participant demographics, all three variables demonstrated a mediated effect on ACC throughout the research studies. In general, the results showed that older, male employees were more likely to report high ACC than younger, female employees. Some mediated results were also found for employee level, suggesting more junior employees were more committed to change than senior employees. Whilst the results between age and level on ACC seem counter-intuitive, within Study 2 there was a significant negative correlation between age and level, whilst no significant correlation was found between the variables in Study 3.

Overall, the reported results took a significant step forward in understanding the complex relationships between employee demographics, employee attributes, perceptions of change, and the mediating role of change beliefs on ACC. The final model suggested that ACC is influenced by a combination of distal and proximal variables, and that the interaction of these variables results in a significant impact on employee ACC. By demonstrating this support for a mediated model of affective commitment, further support is provided for the Interactionist Perspective (House et al., 1996).

8.1.3. Aim 3: Understanding the Antecedents of Employee Outcomes During Change

The final aim of the research program concerned the evaluation of employee attributes, change perceptions, beliefs and commitment, and how these variable interact to predict employee outcomes of change over time. Considering the final model developed in Study 3, 73% of the variance was explained for employee satisfaction, 63% for turnover intentions, and 27% for behavioural support intentions.

The final research model of change differed from the proposed model in three ways. Firstly it was found that the factors influencing employee outcomes of change differed over time, suggesting that the influence of employee change perceptions and beliefs shift over the course of an organisational change (see section 8.5). Secondly, ACC's role in shaping job satisfaction and change-supportive behavioural was not as strong as predicted, instead each of these outcome variables was simultaneously influenced by a number of other change perceptions and beliefs. Finally, the directionality of some of the model pathways were contrary to expectation.

Rather than replicating the summary of each change outcome model (as detailed in section 7.4 in Chapter 7), the next section provides a discussion and analysis of how each antecedent variable operates within the context of organisational change.

8.2. Theoretical Contributions

The results of this research program provide a number of significant contributions to progress the understanding of how employee attributes, perceptions,

beliefs, and commitment towards organisational change influences key outcomes. In light of the findings described above, the following sections compare the results from the research program for each of the model variables with the findings of previous research.

8.2.1. Demographic Variables (Age, Gender, Level of Seniority)

The research regarding employee demographic variables in the context of organisational change research has not received a great amount of focus. Although, three demographic variables (i.e., age, gender, level of seniority) were used mainly as control variables, the results across Studies 2 and 3 suggest they may each play an influential role in shaping employee beliefs, commitment and outcomes during change. Previously, no consistent trends have been reported for the relationship between demographic variables and either ACC or the three outcome variables. Some researchers have found no significant association between the demographics and study variables (e.g., Holt et al., 2007a; Rogiest et al., 2015; Vakola et al., 2004), whilst a number of other research findings have demonstrated inconsistent support (see Table 2.1 in Chapter 2).

With regard to employee gender, it was found that males demonstrated higher ACC than female, which contradicts the research of Rogiest et al. (2015) who found the opposite. For the outcome variables, males were more likely to demonstrate positive behavioural intentions that females, a result that once again contradicts the findings of Jimmieson et al. (2008). No results were found linking gender to job satisfaction or turnover intentions.

Employee age yielded a number of significant associations with study variables. Previous research has shown that older employees are less supportive of change than younger employees (Cordery, Sevstos, Mueller & Parker, 1993; Furst & Cable, 2008), but the results from the present research suggest otherwise. Across Study 2 and Study 3, significant positive effects were found between age and ACC. In Study 3, age also demonstrated a positive direct effect on behavioural intention, and a positive indirect effect on job satisfaction and intention to remain with the organisation. Taken together, these results suggest that older employees are more likely to demonstrate greater commitment to change, as well as indicating positive influences on change related outcomes. Whilst speculative, given the work experience older employees have relative to their younger colleagues, it could be argued that over time they have learnt that change is inevitable, and therefore realised that adopting a positive and supportive mindset will benefit them in the longer term. Moreover, as employees get older and nearer to retirement age, the balance between the cost and benefits of leaving one organisation for another may change, and therefore older employees are less likely to consider leaving the organisation.

Finally, little research has attempted to understand what influence, if any, seniority plays on change outcome variables. In the present research, no association was found between employee level and behavioural intentions. Level of seniority was negatively related to job satisfaction and positively related to turnover intention, suggesting that more senior employees were less likely to be satisfied, and more likely to consider leaving the organisation. Considering the absence of a correlation between age and seniority in Study 3, these counter-intuitive results can be considered separately. It could be argued that with increasing seniority, employee responsibilities also increase, which might lead to a decrease in job satisfaction. Moreover, as individual's gain more seniority in an organisation, their 'employability' increases and therefore they may perceive greater benefits from working in another organisation.

8.2.2. Dispositional Resistance to Change

Much research has been conducted investigating the role that individual characteristics play in shaping both employee reactions and the outcomes of change (Oreg et al., 2011). It has been argued that individual dispositions may be one of the reasons individuals differ in the way they perceive and respond to the same change experience (Judge et al., 1999; Vakola 2016). To date, there is no consensus as to what role individual dispositions play in shaping perceptions to organisational change when also considering more proximal factors. This research has taken positive steps to answer the call by researchers (Vakola, 2014) to unpack the interrelations between change factors and individual dispositions.

The results across Study 2 and 3 demonstrate that individual predispositions do play a role in organisational change. Contrary to expectation, DRtC had a direct influence on predicting a number of variables including the three change belief variables, ACC and job satisfaction both from a cross-sectional and longitudinal perspective. Moreover, indirect results were also found for behavioural intentions and turnover intentions. The presence of direct and mediated results provide strong support for the Interactionist perspective (House et al., 1996), and suggest that one of the reasons employees respond to change in different ways is due to their predispositions (e.g., Judge et al., 1999; Oreg, 2003; Vakola, 2013).

Taken together, these findings suggest that individuals may process their experiences of change through a pre-existing (dispositional) filter. Employees'

perspectives of change can differ based on what they perceive to be favourable conditions and processes (as detailed in the following sections), but the results reported here suggest that this perspective is shaped by their enduring predispositions.

8.2.3. Change Information

In practical terms, a challenge for change practitioners is often to educate individuals that change is not just about communication per se, although effective communication is important. The results of this research program provide support for this argument. Whilst quality information and communication influenced a number of change belief variables, the broader network of change variables predominantly mediated the influence of communication on ACC and outcome variables.

In support of previous research (Holt et al., 2007a), change information positively influenced each of the three beliefs about change. Providing employees with timely, relevant and clear information about what is happening and why, helps employees to better understand the change. The receipt of such information positively influences perceived management support for the change, in addition to building employee confidence in executing the change and enhancing employee understanding of the benefits of the change.

The results of these effects of change information on the change beliefs resulted in mediated effects on ACC. The positive influence of perceived quality and timeliness of information on ACC supports previous research (e.g., Rafferty & Restubog, 2009; Rogiest et al., 2015; van den Heuvel et al., 2013), and the mediated results found in both Study 2 and 3 suggest that whilst communication is important, its influence alone is not sufficient to influence an individual's commitment.

In relation to the change outcomes, change information showed no significant influence on job satisfaction, although indirect effects were found for change behaviour and turnover intentions over time. The receipt of timely, credible and relevant information had a positive influence on an employee's likelihood of engaging in supportive behaviours through its positive association with change efficacy. The results largely support the work of previous researchers who found adequate information both increases planned behavioural change (Jimmieson et al., 2008) and facilitates adaptive employees attitudes and behaviour over time (van den Huevel et al., 2013). With regard to turnover intention, an individual's perception of a positive communication climate was associated with their desire to remain with the organisation, as mediated through ACC. Overall, the results for this variable demonstrate that organisations must consider a number of conditions when establishing their communication strategy. Using the change beliefs as a guide, organisations must ensure that their communication adequately describes reasons for undertaking the change, articulation of why the chosen strategy is appropriate, how employees will (or will not) benefit, in addition to outlining how they will be supported through the journey to ensure they are equipped with the tools, knowledge and skills to carry out their job in the future.

8.2.4. Change Participation

In support of the crucial role employees play in the change process the results of Studies 2 and 3 clearly showed the importance of allowing and facilitating employee participation. Change participation demonstrated the most frequent (and at times strongest) effects on change beliefs, commitment and outcomes. Whilst it was predicted that participation would indirectly influence both ACC (through the change beliefs) and the change outcomes (through ACC), unexpectedly change participation exerted direct influences on ACC and all three of the change outcome variables. These results support the findings of a number of previous researchers. With respect to participation, employees who are invited to take part in the planning and implementation of a change are more likely to make an effort to understand and accept the underlying reasons and proposed change objectives (Holt et al., 2007a), thereby facilitating ACC (Devos et al., 2007).

It has been suggested that employee participation in an organisational change can make the realities of the change clearer, while also benefiting the change managers by allowing them to gain more information regarding employee perspectives and changeoriented skills (Lines, 2004). Evidence for this in the present study was seen in a number of ways. In Study 3, employees who felt they had an opportunity to participate in change planning exhibited greater satisfaction with their job, increased likelihood of engaging in change supportive behaviour and were more likely to express a desire to stay with the organisation.

Together, these results provide evidence that actively engaging employees in the change process leads to a number of benefits to the organisation, and these benefits are enduring over time. Not only did change participation predict a number of outcome variables, but it also demonstrated a number of cross-lagged effects on other predictor variables. Active participation in change may entail activities aimed at a) increasing knowledge about the change while critically analysing its guiding principles, and b) increasing competency to cope with change requirements, namely the provision of

training consistent with required new tasks and responsibilities (Armenakis et al., 1993). Participation can take a number of guises including formal vs. informal, voluntary vs. mandated or tactical vs. strategic. Given this, managers must become creative in how they can increase actual employee participation in change (Bordia et al., 2004).

8.2.5. Trust in Management

For organisations, it is important to ensure that employees trust their managers and leaders, and believe that they are reliable and act with integrity. During organisational change this is even more important, as employees become more vulnerable to the actions and decisions of others.

The degree to which employees perceived their managers to be trustworthy positively influenced the belief that their manager supported the change, in addition to the confidence they felt in implementing changes in their role or duties. Having a trusting relationship with management can reduce feelings of uncertainty (Lines, Selart, Espedal, & Johansen, 2005), and also increase employee confidence in the implementation of change. No relationship was found between trust and personal valence in Study 2, although a positive association was found in Study 3. The combination of these influences led to employees being more motivated and committed to the change, a finding which supported previous research (Michaelis et al., 2009; Soumyaja et al., 2015; Vakola, 2014). The benefit of this was shown on a number of change outcomes. Employees who perceived management as trustworthy were more likely to be satisfied at work, which in turn influenced their likelihood of remaining with the organisation and engaging in change supportive behaviour.

These results are intuitive, as enhancing support and promoting trust in coworkers works to increase an employee's attitudes and comfort with change (Eby et al., 2000, Wanberg & Banas, 2000; Oreg et al., 2011). However, in addition to this, the results reported here clearly demonstrate the influential role of trust during organisational change, as the benefits of even the most well-thought out and designed change may not be realised if a leader perceived as untrustworthy is promoting the change.

8.2.6. Transformational Leadership

In recent years, the role of leadership style in influencing employees during change has received increasing attention. Researchers have argued that a leader needs to inspire employees and lead with charisma if employees are to believe and commit to change in the workplace (e.g., Howarth & Rafferty, 2009; Santhidran, Chandran, & Borromeo, 2013). However in Study 2 and 3, the results did not support these previous findings. Inconsistent results were found for the relationship between transformational leadership and ACC. In Study 2 no significant relationship between the variables was found, whilst the results of Study 3 suggested transformational leadership negatively influenced ACC. One potential explanation for these results relates to the fact that a reduced-item version of the scale developed by Carless (2000). The original scale included consideration the seven facets of transformational leadership (vision, staff development, supportive leadership, empowerment, innovative thinking, lead by example, charisma), whilst the abridged version included three facets (staff development, empowerment, charisma). As detailed in section 5.3, the abridged scale demonstrated acceptable convergent validity. The scale also demonstrated acceptable reliability properties across all studies. Given this, further research is required to understand whether the results relating to the transformational leadership and ACC are a result of the scale used, or whether further investigation is required to unpack the relationship between the two constructs.

Despite the unexpected results between transformational leadership and ACC, the results relating to the change outcome variables largely supported the association between transformational leadership and job satisfaction, turnover intentions and behavioural intentions. The positive influence of transformational leadership on the outcome variables is also consonant with previous research in finding that employees who work with a leader who displays transformational characteristics are more likely to be satisfied in their role (Griffith, 2004), remain at the organisation (Braun et al., 2013) and engage in change supportive behaviour (Carter et al., 2013).

Considering the theoretical implications for each of the results, it may be the case that during different stages of a change, different leadership styles are required to engage, support and lead employees. For example, whilst transformational leaders attempt to motivate employee action during the change through their charisma and inspiring vision, depending on the stage of the change process, this might be viewed simply as leadership rhetoric. Therefore considering the lifespan of a change process, transformational leadership is likely to be more important at the early stages when the need for change is being identified and promoted, and the change strategy is being designed. However, as the change program moves through to development and implementation, transactional leadership may be more influential in enhancing employee commitment to execute the strategy, as its style relies on dealing with irregularities, and promising followers performance-based rewards that not only

motivate followers but also reinforce appropriate behaviour and discourage inappropriate behaviour (Bass, 1990).

Moving towards this more integrated style of leadership has the advantage of understanding how the different facets of leadership influence employee reactions and outcomes in the change process at different points in time. Researchers have long argued that the most effective leaders use both transformational and transactional leadership methods as required by different circumstances (Avolio, Bass, & Jung, 1999), a concept that is still supported today (e.g., Dumas & Beinecke, 2018; Orazi, Turrini, & Valotti, 2013). Therefore in light of the present findings, further research is required to determine the role that different stages of the change process play in shaping the relationship between transformational leadership, ACC and employee outcomes during change.

8.2.7. Change Beliefs

The concept of change readiness and the beliefs employees have about organisational change has been widely discussed (see sections 1.3 and 2.2.2.3). The present research sought to integrate the literature in this area and to examine the role change beliefs play in bridging the gap between change perceptions and ACC. Given the dynamic nature of each of these antecedents (with the exception of DRtC), Holt et al. (2007a) argued that periodic assessment of the change beliefs during the change process would be beneficial, as leaders would receive an updated sense of what actions may need to be taken in order to make the change successful.

As detailed in Study 2 (see section 6.3.2.1), and discussed further in section 8.6, the change appropriateness scale was removed from the analysis due to its strong relationship with ACC. Despite this, a number of significant findings were found for the remaining three change beliefs, which are detailed below.

8.2.7.1 Change Efficacy

Change efficacy represents the confidence an individual has in her or his abilities to successfully implement change. The results across Studies 2 and 3 showed that change efficacy is consistently influenced by an employee's change dispositions, information received and degree of trust in their managers. Participating in change and having leaders who embody transformational qualities also showed some support, however this was mixed across Studies 2 and 3. These results support previous work by Gist and Mitchell (1992), who argued that employees typically ask themselves three questions when self-evaluating their degree of change efficacy: Do I know what is required to effectively implement change? Do I have the resources to effectively

implement change? Can I effectively implement the change given the current change context?

The perceived change efficacy of employees had during the changes reported here resulted in increases in ACC, a finding that supports the work of previous researchers (Herold et al., 2007; Holt et al., 2007a; Neubert & Cady, 2001). Importantly, these results extend the durability of the effect, as the positive link was found over a period of six months.

Extending the influence of change efficacy to the change outcomes, the results of Study 3 demonstrated that change self-efficacy influenced employee satisfaction at work, intentions to remain with the organisation and behavioural support intentions. The confidence and self-belief employees had in their skills and abilities was one of only a handful of drivers for developing change supportive behavioural intentions from both a cross-sectional and enduring perspective. From a cross-sectional perspective, these results support the work of Cunningham et al. (2000) who showed that workers with confidence in their ability to cope with change were more likely to contribute to the organisational change. These findings also support Amiot et al. (2006), who argued that employees with low change efficacy experienced higher levels of stress as a result of doubting their abilities to respond to the altered demands of the job during organisational change.

Overall, the results support Bandura's (1977) conceptualisation that selfefficacy underpins the belief that an employee can successfully execute the behaviour required to produce desired change outcomes. The fact that higher levels of change efficacy can enhance both ACC and reactions to a number of outcomes implies that failing to facilitate this confidence will have the converse effect. Organisational leaders must therefore develop a strategy early in the planning stage and deploy initiatives that target the knowledge, skills and abilities required for the organisational change. Doing so will enhance the efficacy of employees early in the change program, resulting in enduring positive benefits over the course of the change.

8.2.7.2 Management Support

Across the research program, the degree to which employees believed that their manager(s) supported the organisational change was a strong predictor of ACC. These findings support the work of Ford et al. (2003) in demonstrating that employees who perceive that their managers believe in and support the change, are more likely to be committed to it. Management support can be deduced by employees from their managers' behaviour and communication related to the change, in addition to changerelated policies and practices (Armenakis et al., 1993; Eby et al., 2000). The positive influence of management support on ACC speaks to the importance of Bandura's social learning theory (1986), whereby if employees believe their leaders do not support the change, then they also will not support and commit to it.

Management support also demonstrated a number of cross-lagged relationships with other variables such as change information, trust in management and change efficacy. The results suggested that employee's who initially believed their managers were supportive of the change were more likely to report higher levels of management trust, in addition to believing that they had received timely and quality information. The reciprocal results (between management support, change information and trust in management) highlight that the variables contained within the change model not only form an integrated network, but also a dynamic process whereby perceptions and beliefs influence each other over time.

In terms of change outcomes, management support was found to influence only employee turnover intentions (and this effect was mediated by ACC). The fact that no direct effect was found between management support and turnover intentions supports the research of Holt et al. (2007), however further research is required to investigate the mediated relationship. The absence of significant findings between management support and job satisfaction supports the work of Holt et al. (2007a), although this finding runs contrary to Mardhatillah et al. (2017) who found that the degree to which a manager supports an organisational change positively influences employee satisfaction. Finally, considering behavioural support intentions, the failure of management support to positively influence employee behavioural intentions supports the previous research of McKay et al. (2013) who also found that there was no relationship between management support and change-resistant behavioural intentions.

Overall, the results provide support for the notion that managers' perceptions about change and their change-related behaviour have direct impacts on their subordinates' commitment to change, and subsequent change-related perceptions. However, the subsequent influence of management support on change outcomes was not supported. Despite this, the influence and importance of management support should not be discounted. Management support was a strong predictor of employee ACC, therefore if the perceptions and attitudes of managers can be enhanced to support change, this will filter down through the organisation to create a workforce that is more committed.

8.2.7.3 Personal Valence

DRtC, change information and change participation each demonstrated a significant effect on personal valence across the studies. Trust in management and transformational leadership also demonstrated a positive influence on personal valence, however these results did not carry across both studies. Taken together, the results suggest that employees' disposition to resist change, in addition to their perception of receiving quality information and having input into the change predicts the belief that they will personally benefit from the change.

The results also demonstrate that if an individual perceives the change will lead to benefits for them, they are more likely to be committed. Whilst this supports the work of Fedor et al. (2006), the results contradict the findings of Holt et al. (2007a) and Adil, (2016). In the context of Vroom's (1964) motivation theory it could be argued that employee behavioural intentions would be driven by the expectation that a desired outcome would result from the change. However, this was not supported, as no association between personal valence and behavioural intentions was found. In addition, personal valence did not influence turnover intention, and the absence of this finding is supported by previous research (Holt et al., 2007a; McKay et al., 2013). Finally, whilst a small indirect effect was demonstrated between initial levels of personal valence and later levels of job satisfaction, the effect was very weak, and in the opposite direction to expectation, suggesting further investigation is required to understand whether a true association exists.

Overall, whilst the results support the relationship between personal valence and ACC, further investigation is required to understand whether personal valence plays a role in shaping employee-related change outcomes.

8.2.8. Affective Commitment to Change

As detailed above, a number of the results pertaining to the role of ACC in predicting change outcomes were unexpected. Whilst the results of Study 3 demonstrated the influence of ACC in shaping employee turnover intentions, no such evidence was found for the positive influence of ACC on employee satisfaction at work, or the likelihood of employees engaging in change supportive behaviours.

Regarding the inverse relationship between ACC and turnover, the results provide further support for previous research, both from a cross-sectional (Shin et al., 2015) and longitudinal perspective (Rafferty & Restubog, 2009). In agreement with commitment research, employees with higher levels of ACC were less likely to consider leaving the organisation, and this effect endured over time. However, the absence of evidence for the influence of ACC on job satisfaction and behavioural support runs counter to a number of previous studies (e.g., Bouckenooghe et al., 2014; Herscovitch & Meyer, 2002; Rafferty & Restubog, 2009). In attempting to understand the reasons for these contradictory findings, an initial explanation could be that that the results are unique to the sample tested. However given this research program is one of the first to simultaneously consider such a large suite of antecedents and outcomes during change, further analysis is warranted. Whilst speculative, one reason could simply relate to the fact that the other variables included in the model were more influential than ACC in predicting job satisfaction and behavioural intentions.

Another reason may be that the overall change commitment profile of employees influenced the findings. The present research examined only the role of ACC in shaping change outcomes, as it has been shown to have the strongest and most consistent positive relationship with behavioural support in specific change initiatives (see section 2.1 in Chapter 2). However, research by Gellatly, Meyer, and Luchak (2006) suggested that the role of NCC cannot be discounted. In their research, Gellatly et al. found that employee citizenship behaviours were greater for employees who reported a pure normative profile, compared to a pure affective profile. Moreover, the researchers found that the relationship between ACC and citizenship behaviour was stronger when NCC and CCC were both low than when one of the two was high. Acknowledging the study of Gellatly et al. (2006) was not conducted in the context of organisational change, it may be the case that the commitment profile of employees had a mix of ACC, CCC and NCC, rather than just having dominant ACC.

8.3. Strengths and Contributions of the Research Program

The present research has answered the call for a longitudinal investigation to assess the complexities and dynamic nature of change (Devos et al., 2007; Vakola, 2016) and offers a number of contributions to the literature. Firstly, a number of theories and models have been connected in this research. Bringing together a number of theories including those on the Interactionist perspective (House et al., 1996), leadership (Bass, 1990), social influence (Bandura, 1982), commitment (Allen & Meyer, 1990), turnover (Mobley 1977; Griffeth et al., 2000), and planned behaviour (Ajzen, 1991) into one body of research has allowed for an integrated, albeit complex approach to developing a better understanding of how employee perceptions, beliefs, and commitment, lead to outcomes during change. Whereas the majority of extant research has typically connected one or two of these theories, this research program has been able to connect the individual links of the above theories and present a new research model.

Secondly, this research has responded to the call from researchers for a comprehensive empirical investigation into the influence of individual variables during change (Oreg et al., 2011; Parent et al., 2012; Rogiest et al., 2015; van den Heuvel et al., 2013). It has been suggested for some time that employee beliefs, reactions to organisational change, and subsequent outcomes are influenced by a series of attributes and perceptions (Oreg et al., 2011). Despite this, empirical investigations examining these putative effects have been limited, and the majority of research to date has investigated only a small number of variables at a time. Whilst previous research has demonstrated that a number of variables significantly predict employee beliefs, commitment and/or outcomes, it is difficult to determine whether these individual variables will have the same influence when examined as part of a larger set of variables. The issue of model misspecification has been noted by Kline (2005), who argued that structural models are often misspecified because all the variables associated with a phenomenon are not measured simultaneously. The current research has advanced previous knowledge by simultaneously testing a large nomological network of mediating processes to try and explain which employee factors are most influential in determining an employee's commitment to change, and how these interact to impact outcomes. By teasing apart the concept of employee-related change variables in this manner, this research has made a valuable contribution to our understanding of how specific variables contribute to positive employee beliefs and beneficial outcomes during organisational change.

The majority of extant literature has been limited by its cross-sectional nature. Whilst recent investigations have begun to examine employee perceptions and reactions to change over time (Morin et al., 2016; Shin et al., 2015; Straatman, Rothenhofer, Meier, & Mueller, 2018; van den Heuvel et al., 2013), none have examined an extensive suite of employee variables. To fill this gap and address the call for longitudinal research (Kirrane, Lennon, O'Connor, & Fu, 2016; Parent et al., 2012; Shin et al., 2015), Study 3 made a start by adopting a longitudinal methodology, which investigated the impact of organisational change across two time points. This design feature potentially allowed an assessment of the processes by which change perceptions influence employee beliefs, commitment and reactions over time.

In order to maximise the generalisability of the outcomes, an attempt was made to recruit participants from different work settings and context. Sampling employees across different organisations has been identified as an area requiring research attention (Shin et al., 2015; van den Heuvel et al., 2013). The present set of studies assessed employees from three organisations, covering two industries across both the private and public sector. The results derived from the research suggest that organisations are not alike; just as organisations attract individuals with different skills for different roles, the result of the research suggests that different organisations also attract individuals with different sets of core attributes and beliefs.

8.4. General Limitations

Despite its theoretical and methodological strengths, the research program has some general and methodological limitations that should be taken into account in future research. Firstly, the possibility that CMV influenced a number of relationships in the model could not be entirely eliminated. Within this research program, all data were collected from a single source, namely employee self-report measures, which is a common measurement approach in many areas of psychology.

A number of procedural remedies (as recommended by Podsakoff et al., 2003; Podsakoff, MacKenzie, & Podsakoff, 2012) were adopted to reduce CMV. Firstly, an attempt was made to minimise the scale properties shared by the measures of the predictor and criterion variables. A different number of scale points were used across the different scales, with scales employing either a five-, six- or seven-point scale (see Table 5.2 and section 7.2.4). In addition, the scale descriptions across some of the measures differed from agreement descriptors (e.g., DRtC, change information) to likelihood descriptors (e.g., turnover intention, behaviour intention). Secondly, within the overall survey form, an attempt was made to provide proximal separation of the different scales. Survey items for different scales were structured in such a way that the scales relating to antecedents, mediators and commitment variables were all separated. Finally, for Study 3, further steps were taken to reduce potential CMV by collecting data at two points. Given only two time points were assessed, the ability to further investigate causality was limited. Increasing the number of measurement points over time would allow for more sophisticated analyses to be conducted (e.g., using a latent growth curve model), thereby providing a more precise account of the casual relations within the research model. Additionally, future approaches to reducing the potential for CMV might include expanding the investigation beyond self-report measures. For example, more objective assessments of the outcome variables could be considered in terms of actual turnover data, performance scores, manager ratings of behaviour and absenteeism.

Another limitation relates to the fact that the sample size obtained across all three studies was not as large as expected. The final response rates for the three studies were (39%, 43% and 41% respectively), and this may be considered a weakness given the preference in social science research and SEM analyses to draw conclusions from large samples to obtain higher statistical power (Cheung & Lau, 2008; Byrne, 2016). Additionally, considering the employees sampled within Study 3, it is possible that a selection bias towards more committed employees took place. Some evidence for this rests in the fact that employees who completed both T1 and T2 surveys reported higher ACC and personal valence compared to employees who completed only one survey. Additionally, demographic differences were found for age and gender (see section 4.3.3.1 in Chapter 4). Therefore the possibility that the sample underrepresented certain demographic profiles or subgroups cannot be eliminated.

Another limitation relates to the way in which change was implemented. In large organisations (such as those examined in Study 2 and Study 3), the implementation of organisational change is often delegated to leaders across organisational teams and locations. Given this, there is the potential for nesting effects. Within Study 2, participating employees were from one organisation across different teams, however the implementation of the change was centrally administered through the IT department. It is therefore a possibility that some of the variance of the study variables was reduced due to commonalities in the implementation approach. For Study 3, employees were employed by the same organisation and were in the same team, however they resided in different countries. It is not explicitly known how the change was implemented across each of the 12 countries. Each country however had its own geographical leader who was responsible for implementing the change, therefore there is the possibility that there were nesting effects. Nested designs can limit the knowledge gained within factorial designs, as researchers are unable to produce interaction effects (Allen, 2017). Eliminating the possibility of nesting effects from this research area is also unlikely given the nature of organisational structures, however researchers must be mindful of the potential for these effects to inflate or reduce variable variance.

Finally, whilst the scales used for the research program were selected from previous research, it should be noted that in Study 1 and 2, the change participation and change justice scales did not display optimal levels of reliability, nor did the change efficacy scale in Study 3, therefore caution should be used when considering the findings relating to change participation. For change justice, further SEM analyses in Study 2 resulted in the removal of the scale from the research model (see section 6.3.2.1 in Chapter 6). Whilst the change justice scale has demonstrated sound psychometric properties in previous studies (e.g., Elovanio et al., 2010; 2015;

Heponiemi et al., 2013; Hietapakka et al., 2013), it did not achieve this in the present research. Possible reasons for this were proposed in section 6.4 (see Chapter 6).

8.5. Practical Implications

The results of this research program present a number of practical implications pertaining to the planning, management, support and evaluation of organisational change. The first relates to the fact that there is no 'silver bullet' in garnering employee commitment and support for change. Traditional approaches adopted by organisations to increase support for change have focused mainly on communication initiatives such as emails, and information sessions. The findings of this research program provide a detailed account demonstrating that employee commitment and outcomes during change are influenced by a number of other factors.

Given that each of the outcomes was influenced differently by a different set of variables, understanding how these variables interact can help inform the initiatives organisational leaders put in place to support employees and improve the change process. For example, in order to increase ACC, employees need to believe in the change, including the benefits and value it will bring. And to achieve this, employees need to understand the rationale for the change, be confident in their ability to execute the change, and feel supported by management during the process. Initiatives could therefore be developed to provide employees with targeted training and coaching on what is required to transition to the new post-change ways of working, thereby boosting their ACC over time.

The second implication relates to the findings that were found relating to DRtC. Researchers who ignore the role of individual dispositions incorrectly assume that employees are alike in their evaluations of what is actually changing (Hemme Bowers, & Todd, 2018). However, whilst employees fulfilling the same role have similarities in their skills, knowledge and abilities, they way they observe and interact with the world is different. Understanding the differences between people and sub-groups of employees in the workforce is important, and the results demonstrate that the inherent differences among employees significantly influence their reactions and the outcomes during change. The results of the research also indicate that demographic variables cannot be ignored. Appreciation of the fact that individuals are unique, and understanding the qualities that differentiate people may help organisations to develop and deploy targeted initiatives and support mechanisms to assist employees before and during the change process. Moreover, the influence of employee dispositions has potential practical applications in the selection of employees to act as agents or

champions of change. This could further be extended to the selection of individuals into roles that inherently require a significant amount of change (Vakola et al., 2004).

A third implication relates to the malleability of the study variables over time. The results of this research indicate that (aside from DRtC, as described above), the factors influencing an employees reactions and outcomes during change are not stable over time. That is, at different points during the change process, those factors that influence employees in shaping their commitment, satisfaction, behaviour and retention are not fixed, but can change over time and different stages of the change process. Whilst recent research has suggested that an employee's ACC is relatively stable over time (e.g., Kam, Morin, Meyer, & Topolnytsky, 2016; Morin et al., 2016), the present research suggests that the underlying factors influencing the construct are not stable. This outcome supports the work of other researchers, who have found that the perceptions employees have towards change, and the reasons for them differ over time (Hemme et al., 2018; Vakola, 2016). The implications for this are two-fold. Firstly, given an individual's perceptions, beliefs and outcomes during change are not fixed, leaders can play a proactive role in the development of change initiatives to ready their workforce for change and support employees during the change process. Secondly, if organisational leaders can adequately understand what drives employee perceptions at different stages of the change, they can put in place the right combination of strategies and initiatives to increase the likelihood of employee commitment and support for change.

Finally, the success of carrying out each of the previously mentioned approaches is ultimately dependent on the specific outcomes the organisation requires from the change. As described in Chapter 1, the people component of change is often a secondary consideration for senior leaders. However in order to effectively manage employees during change, the organisation must first define what the desired outcomes for those employees are in the context of the change. The varying types of change that can happen from a content perspective are likely to influence the indicators of success (e.g., retention of key employees during a merger, adoption of a new behaviour resulting from process changes, increased performance following a technological implementation). Additionally, at different stages of an organisational transformation, the required (or desired) employee outcomes are also likely to change. Therefore, for organisations to successfully plan and deliver change support initiatives', defining what constitutes success is vital, as is the regular assessment and review of the outcome indicators during the change process.

8.6. Future Research Directions

The current research program has undertaken a number of positive steps in developing a more comprehensive and sophisticated understanding of the antecedents and employee outcomes during organisational change. Based on the current results, a number of opportunities exist to extend investigations in the future.

Firstly, given the number of variables contained within the research model, reducing the number of scale items provided an opportunity to measure individual change attributes, perceptions, beliefs and commitment in a more efficient manner. Given the findings related to some of the research scales (see section 8.4), further research should continue to validate the scales on different organisational populations to ensure they can be applied across a number of research areas whilst maintaining scientific and practical value.

Secondly, the findings in Study 2 relating to the removal of change justice and appropriateness scales also warrant further investigation. With regard to change justice, the literature in this area continues to develop, demonstrating that an individual's perception of fairness during change can influence affective commitment to change (Bernerth et al., 2007; Foster, 2010) in addition to outcome variables including job satisfaction (Colquitt et al., 2001) and turnover intentions (Griffeth et al., 2000). Therefore whilst the final model in this research program represents a major step forward, further investigation should focus on what role (if any) change justice plays, over and above other variables. The other findings in Study 2 showed unexpected multicollinearity between appropriateness and affective commitment to change. Multicollinearity may lead to improper solutions such as non-positive definite VCM or negative variances (Tanaka, 1987). Given its strong relationship with ACC, the decision was made to remove the appropriateness scale from the research model. As detailed in section 5.4 (see Chapter 5), there are conceptual similarities between appropriateness and ACC, and previous research has demonstrated the significant relationship between the two variables (Adil, 2016). However the findings within this research were much stronger that those previously demonstrated. As a result, future research should continue to investigate whether the results are unique to the current organisational samples, or whether there are broader implications for both constructs.

The consideration of cultural differences in organisational change is becoming increasingly important due to globalisation, in addition to technological advances providing employees from different countries with a platform to work together remotely (Ashta, Stokes, & Hughes, 2018). With a few exceptions (e.g., Jackson et al., 2013, Oreg et al., 2008), little research has examined the effects of culture on employee responses to organisational change in a systematic way. Whilst Study 3 included participants across the Asia Pacific region, the sample size was too small to conduct moderation analyses. Considering the countries included, it is likely that a number of differences exist among the cultures, with particular reference to the western countries in Oceania (i.e., Australia, New Zealand) compared to the other countries in Asia (e.g., China, Hong Kong, Vietnam). Given the fact that differences have been found across these cultures in other research areas (e.g., Hofstede, 2001), future research is required to understand what role culture plays in shaping an individuals perceptions, reactions and outcomes during change.

A central aim of the research program was to understand the extend to which each predictor variable in the model contributed towards explaining the criterion variables. This research used SEM as the main analytical procedure to investigate the results, however as detailed within sections 6.4 and 7.4, a number of the relationships between variables were high, whilst others were not in the expected direction. Another statistical approach for consideration is Relative Importance Analysis (RIA; Tonindandel & LeBreton, 2011). Relative importance is used to describe the predictive contribution a variable makes towards a criterion variable; both by itself and in combination with other variables (Johnson & LeBreton, 2004). RIA uses two types of analyses: dominance analysis (Budescu 1993) and relative weight analysis (Fabbris 1980; Johnson 2000). Dominance analysis enables researchers to examine changes in R² through the addition of variables to a regression model. Relative weight analysis seeks to overcome the issue of high intercorrelations between predictors through the creation of a new set of orthogonal predictors to conduct regression analyses. Given the high intercorrelations evident among some study variables in this research program, and the presence of some counter-intuitive findings, the application of RIA to supplement existing analyses may enable greater clarity in the results derived. Given this, future researchers should seek to apply this statistical approach to their investigations to further the knowledge about the roles played by individual variables during organisational change.

Finally, as detailed in section 8.4, CMV could not be completely reduced in this research program due to the use of a single-source measurement approach. With the rapid advancements being made in workforce data and analytics, researchers can look towards business practitioners for opportunities to overcome the bias. Additionally, given the survey fatigue that is evident across many organisations, leaders are seeking new and different ways to obtain employee data without imposing on their time. Whilst the maturing of data availability across organisations differs substantially, many organisations are looking towards improving the type of data captured to replace the

184

traditional decision-making methods based on anecdotal experience, hierarchy and risk avoidance (Nielsen & McCullogh, 2018). From a people perspective, organisations have sought to utilise available HR data in a more effective manner. Other organisations have sought to obtain data from wearable technology, computer usage (including software and emails) in addition to understanding how information filters throughout an organisation (through social network analysis). Each of these data points presents an opportunity for researchers; for example, computer usage can be used to measure adoption of new software or processes during IT change, whilst social network analyses can be adopted to determine whether information and messaging about the change has penetrated different functions and levels. Whilst the use of new and different methods allows researchers to reduce bias in their analyses, researchers should also investigate how these methods can provide a different dimension for research into employee perceptions and behaviour during change.

8.7. Conclusion

The question of what shapes an employee's reactions and outcomes during change is complex and subject to a large number of factors. This research program sought to provide a systematic investigation of the development of these factors.

Across a series of studies, the importance of enhancing positive change perceptions and beliefs to increase to an individual's commitment to organisational change was demonstrated. Additionally, indicators such as change participation, trust in management, and change efficacy were found to influence an employee's satisfaction at work, likelihood of exhibiting change-supportive behaviours, and likelihood of remaining employed at the organisation. The integration of research variables achieved in the current research across a large number of theories and dimensions has facilitated the advancement of our understanding of which variables are the most influential, and under what circumstances.

The need to understand the interplay between change-related factors is becoming more important in today's organisations, as expectations to execute change in a planned, efficient and effective manner are increasing rapidly. In this context, there is an increasing need for organisations to make data-driven people decisions. Senior organisational leaders are seeking to understand what they can do to better assess and understand the experience of employees during change in order to maximise the likelihood of change success. The findings of this research inform a more detailed understanding of how the network of variables described underpins employee perceptions, beliefs and behaviour. Future research should consider how the needs of employees evolve during the lifespan of a change. Such an understanding could facilitate more successful management of change, thereby providing organisations with a competitive advantage.

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Appendix A: Research Scales and Items Used in the Research Program

		Stu	dv
Scale / item	1	2	3
Dispositional resistance to change			
I don't change my mind easily.	\checkmark		
Once I've come to a conclusion, I'm not likely to change my mind.	√		
I often change my mind.*	√		
My views are very consistent over time.	v	/	/
If I were to be informed that there's going to be a significant change	v	v	v
strossed			
When things don't go according to plans, it stresses me out	\checkmark	\checkmark	\checkmark
When I am informed of a change of plans, I tense up a bit.	\checkmark	\checkmark	\checkmark
If my boss changed the criteria for evaluating employees, it would	\checkmark		
probably make me feel uncomfortable even if I thought I'd do just as			
well without having to do any extra work.			
I generally consider changes to be a negative thing.	\checkmark		
I like to do the same old things rather than try new and different ones.	√	\checkmark	\checkmark
Whenever my life forms a stable routine, I look for ways to change it.*	√	/	()
I'd rather be bored than surprised.	√	√	√a
I'll take a routine day over a day full of unexpected events any time.	√	√	∨
Changing plans seems like a real hassle to me.	v V	v V	v v
even if I think the change may ultimately benefit me	•	v	v
I sometimes find myself avoiding changes that I know will be good for	\checkmark	\checkmark	\checkmark
me			
Often, I feel a bit uncomfortable even about changes that may	\checkmark	\checkmark	\checkmark
potentially improve my life.			
Change information			
The information I have received about the change has been timely.	√	,	,
The information I have received about the change has been useful.	√	√	√
I have received adequate information about the forthcoming change.	√	~	√a
The information I have received has adequately answered my	V	V	V
questions about the change.			
Change participation	\checkmark	\checkmark	\checkmark
is occurring	•	·	·
I have been able to participate in the implementation of the change	\checkmark	\checkmark	\checkmark
that has been proposed and that is occurring.			
If I wanted to, I could have input into the decisions being made about	\checkmark	\checkmark	\checkmark
the change.			
Change justice			
The outcome of the change will reflect the effort I have put into my	\checkmark	\checkmark	
work.			
The outcome of the change will be appropriate for the work I have	\checkmark	\checkmark	
completed.	/	/	
Ny senior leader(s) have treated me with respect during this change.	√	v	
ivity senior leader(s) have freated the with dignity during this change.	v √	v V	
individuals' specific needs	*	•	

Table A.1: List of scale items used in Study 1, 2 and 3 of the research program.

		Stu	dy
Scale / item	1	2	3
The procedures involved in the change have been applied	\checkmark	\checkmark	
The procedures involved in the change have been free of hiss	\checkmark	\checkmark	
I have been able to express my views and feelings during the change	✓	✓	
Trust in management			
Managers at my organisation are sincere in their attempts to meet the workers' point of view	\checkmark		
I feel quite confident that the firm will always try to treat me fairly	\checkmark	\checkmark	√a
Our organisation has a noor future unless it can attract better	\checkmark		·
managers *			
Management can be trusted to make sensible decisions for our	\checkmark	\checkmark	\checkmark
organisation's future.			
Management at work seems to do an efficient job.	\checkmark	\checkmark	\checkmark
Management would be quite prepared to gain advantage by deceiving	\checkmark		
the workers.*			
Transformational leadership			-
My immediate supervisor communicates a clear and positive vision of	\checkmark		
the future.			
My immediate supervisor treats staff as individuals, supports, and	\checkmark	\checkmark	\checkmark
encourages their development.			
My immediate supervisor gives encouragement and recognition to	\checkmark		
statt.	/		
My immediate supervisor encourages thinking about problems in new	V		
ways and questions assumptions.	1	1	1
my infinediate supervisor rosters trust, involvement and co-operation	•	•	·
My immediate supervisor is clear about his/her values and practices	\checkmark		
what he/she preaches			
My immediate supervisor instills pride and respect in others and	\checkmark	\checkmark	\checkmark
inspires me by being highly competent.			
Appropriateness			
This change makes my job easier.	\checkmark		
There are a number of rational reasons for this change to be made	\checkmark		
In the long run, I feel it will be worthwhile for me if the organisation	\checkmark	\checkmark	
adopts this change.			
I think that the organisation will benefit from this change.	√	\checkmark	
It doesn't make much sense for us to initiate this change.*	~	/	
This change will improve our organisation's overall efficiency.	√	\checkmark	
When this change is implemented, I don't believe there is anything for	\checkmark		
me to gain."	./		
This change matches the priorities of our organisation.	v √		
compating also *	•		
There are legitimate reasons for us to make this change	\checkmark		
Change efficacy	-		
My past experiences make me confident that I will be able to perform	\checkmark		
successfully after this change is made.			
There are some tasks that will be required when we change that I don't	\checkmark		
think I can do well.*			
I do not anticipate any problems adjusting to the work I will have when	\checkmark		
this change is adopted.			

	<u> </u>	Stu	ay
Scale / item	1	2	3
When I set my mind to it, I can learn everything that will be required when this change is adopted.	\checkmark	\checkmark	√a
I have the skills that are needed to make this change work.	\checkmark	\checkmark	\checkmark
When we implement this change, I feel I can handle it with ease.	\checkmark	\checkmark	\checkmark
Management support			
Management has sent a clear signal this organisation is going to	\checkmark		
I think we are spending a lot of time on this change when the senior	\checkmark		
leaders don't even want it implemented.	./	./	<i>(</i> a
Cur organisation's senior leaders have put all their support benind this change effort.	v	v	√ u
The organisation's most senior leaders are committed to this change.	\checkmark	\checkmark	\checkmark
Every senior leader has stressed the importance of this change.	\checkmark		
Our senior leaders have encouraged all of us to embrace this change.	\checkmark	~	\checkmark
Personal valence			
My future in this job will be limited because of this change.*	\checkmark	\checkmark	\checkmark
I am worried I will lose some of my status in the organisation when this	\checkmark	\checkmark	\checkmark
This change will discust many of the personal relationships I have	\checkmark	\checkmark	\checkmark
developed *	•	•	•
Affective commitment to change			
Anective commitment to change	./	./	./
I believe in the value of this change.	•	v	v
I think that management is making a mistake by introducing this change.*	v		
This change is a good strategy for this organisation	\checkmark	\checkmark	√ a
This change serves an important purpose	\checkmark	\checkmark	\checkmark
Things would be better without this change *	\checkmark		
This change is not necessary *	\checkmark		
Inh satisfaction			
I feel fairly satisfied with my present job			\checkmark
Most days Lam enthusiastic about my work			\checkmark
Each day at work seems like it will never end *			√a
I find real enjoyment in my work			√
I consider my job to be rather uppleasant *			∙ √a
Turnover intention			-
How likely are you to remain with [Organisation] over the port 12			\checkmark
months?			-
Behavioural intentions to support the change			
In the next 3 months, how likely is it that you will			
Attend calls/meetings/sessions relating to the change.			\checkmark
Connect and engage with new employees in the new organisational			\checkmark
structure. Proactively learn about the new organisational structure, including			\checkmark
ways of working.			

Legend: * indicates reverse scored item a indicates item removed from final analyses, see section 7.3.3.1 in Chapter 7.

Appendix B: Supplementary Data Tables for Study 2

			ML esti	mation		Boots	Bootstrap correction				
						95%	6CI				
DV	IV	β	В	SE	р	Lower	Upper	р			
DRtC	Age	223	125	.021	.001	295	146	.005			
	Gender	-	-	-	-	-	-	-			
	Level	-	-	-	-	-	-	-			
Info	Age	-	-	-	-	-	-	-			
	Gender	-	-	-	-	-	-	-			
	Level	107	160	.049	.001	170	042	.003			
Part	Age	.058	.051	.032	.110	015	.137	.151			
	Gender	-	-	-	-	-	-	-			
	Level	059	068	.043	.112	134	.014	.107			
Trust	Age	-	-	-	-	-	-	-			
	Gender	.087	.178	.044	.001	.045	.128	.004			
	Level	-	-	-	-	-	-	-			
Tlshp	Age	-	-	-	-	-	-	-			
	Gender	-	-	-	-	-	-	-			
	Level	-	-	-	-	-	-	-			
Chef	Age	-	-	-	-	-	-	-			
	Gender	129	224	.046	.001	192	078	.002			
	Level	170	181	.028	.001	229	109	.004			
	DRtC	194	282	.039	.001	252	140	.004			
	Info	.529	.379	.021	.001	.468	.584	.003			
	Part	400	370	.025	.001	463	351	.002			
	Irust	.196	.168	.038	.001	.076	.324	.003			
	lishp	.094	.074	.032	.021	020	.190	.103			
Msup	Age	.051	.045	.020	.026	.007	.095	.032			
	Gender	060	112	.044	.011	107	008	.014			
	Level	054	062	.028	.026	098	005	.038			
	DRIC	.044	.069	.038	.069	010	.091	.121			
	Info	.483	.374	.020	.001	.431	.538	.004			
	Part	.098	.098	.024	.001	.044	.140	.005			
	Tlohn	.414	.303	.024	.001	.300	.400	.005			
Dual			-	-	-	-		-			
FVal	Age Gondor	- 140	- 2/1	-	-	- 202	- 001	-			
	Lovel	149	241	.044	.001	202	091	.003			
		.079	- 330	.027	.004	- 301	- 188	.004			
	Info	473	314	020	001	400	533	005			
	Part	- 493	- 424	020	001	- 556	- 423	.000			
	Trust	083	066	036	.001	- 016	163	109			
	Tishp	154	113	030	001	072	235	005			
ACC	Age	-	-	-		-		-			
	Gender	-	-	-	-	-	-	-			
	Level	-	-	-	-	-	-	-			
	DRtC	.058	.112	.050	.027	.000	.111	.044			
	Info	.063	.060	.035	.083	024	.159	.194			
	Part	.174	.215	.039	.001	.111	.242	.002			

Table B.1: Study 2 - Regression weights estimates derived from ML estimation and bootstrap correction for the final affective commitment model.

			ML esti	mation		Bootst	Bootstrap correc				
						95%	SCI				
DV	IV	β	В	SE	р	Lower	Upper	р			
	Trust	-	-	-	-	-	-	-			
	Tlshp	032	034	.028	.234	095	.037	.409			
	Chef	.423	.564	.049	.001	.330	.508	.005			
	Msup	.276	.341	.046	.001	.188	.358	.005			
	Pval	.209	.301	.053	.001	.125	.295	.005			

 Legend:
 red font highlights non-significant estimates.
 For abbreviations refer to list of Abbreviations and Symbols.

 Eliminated paths not shown due to space restrictions.

Direct effects								Indirect effects§					Total effects‡				
				959	%CI	_			959	%CI	_				95%CI	_	
DV	IV	stand	unstand	lower	upper	р	stand	unstand	lower	upper	р	stand	unstand	lower	upper	р	
DRtC	Age	243	125	295	146	.005	-	-	-	-	-	223	125	295	146	.005	
	Gender	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Level	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Info	Age	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Gender	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Level	107	160	170	042	.003	-	-	-	-	-	107	160	170	042	.003	
Part	Age	.058	.051	015	.137	.151	-	-	-	-	-	.058	.051	015	.137	.151	
	Gender	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Level	059	068	134	.014	.107	-	-	-	-	-	059	068	134	.014	.107	
Trust	Age	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Gender	.087	.178	.045	.128	.004	-	-	-	-	-	.087	.178	045	.128	.004	
	Level	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Tlshp	Age	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Gender	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Level	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Chef	Age	-	-	-	-	-	.020	-016	016	.054	.260	.020	.016	016	.054	.260	
	Gender	129	224	192	078	.002	.017	.030	.008	.036	.001	112	194	175	061	.002	
	Level	170	181	229	.109	.004	033	035	071	.008	.085	203	216	272	142	.003	
	DRtC	194	282	252	140	.004	-	-	-	-	-	194	282	252	140	.004	
	Info	.529	.379	.468	.584	.003	-	-	-	-	-	.529	.379	.468	.584	.003	
	Part	400	370	463	351	.002	-	-	-	-	-	400	370	463	351	.002	
	Trust	.196	.168	.076	.324	.003	-	-	-	-	-	.196	.168	.076	.324	.003	
	Tlshp	.094	.074	020	.190	.103	-	-	-	-	-	.094	.074	030	.190	.103	
Msup	Age	.051	.045	.007	.095	.032	004	004	019	.011	.553	.047	.042	.004	.088	.041	
•	Gender	060	112	107	008	.014	.036	.068	.019	.054	.004	024	044	077	.026	.332	
	Level	054	062	098	005	.038	058	067	092	024	.004	112	129	161	059	.006	
	DRtC	044	069	- 010	091	121	-	-	-	-	-	044	069	- 010	091	121	

Table B.2: Study 2 - Direct, indirect and total effects on employee affective commitment to change (ML estimates with bootstrap correction).

	Direct effects						Indirect effects§					Total effects‡				
				959	%CI	_			959	%CI	-				95%CI	_
DV	IV	stand	unstand	lower	upper	р	stand	unstand	lower	upper	р	stand	unstand	lower	upper	р
	Info	.483	.374	.432	.538	.004	-	-	-	-	-	.483	.374	.432	.538	.004
	Part	.098	.098	.044	.146	.005	-	-	-	-	-	.098	.098	.044	.146	.005
	Trust	.414	.383	.356	.468	.005	-	-	-	-	-	.414	.383	.356	.468	.005
	Tlshp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pval	Age	-	-	-	-	-	.026	.020	022	.068	.221	.026	.020	022	.068	.221
	Gender	149	241	202	091	.005	.007	.012	.000	.017	.068	142	229	198	084	.004
	Level	.079	.078	.019	.141	.004	022	021	060	.019	.264	.058	.057	015	.124	.124
	DRtC	245	330	301	188	.005	-	-	-	-	-	245	330	301	188	.005
	Info	.473	.314	.400	.533	.006	-	-	-	-	-	.473	.314	.400	.533	.006
	Part	493	424	556	423	.005	-	-	-	-	-	493	424	556	423	.005
	Trust	.083	.066	016	.163	.109	-	-	-	-	-	.083	.066	016	.163	.109
	Tlshp	.154	.113	.072	.235	.005	-	-	-	-	-	.154	.113	.072	.235	.005
ACC	Age	-	-	-	-	-	.024	.026	.003	.044	.023	.024	.026	.003	.044	.023
	Gender	-	-	-	-	-	083	193	128	050	.003	083	193	128	050	.003
	Level	-	-	-	-	-	122	173	173	074	.003	122	173	173	074	.003
	DRtC	.058	.112	.000	.111	.047	121	235	160	078	.005	064	123	125	004	.043
	Info	.063	.060	023	.154	.191	.456	.436	.389	.510	.005	.519	.496	.449	.587	.004
	Part	.174	.215	.134	.296	.003	245	303	306	183	.004	017	088	137	.001	.052
	Trust	-	-	-	-	-	.215	.245	.136	.305	.003	.215	.245	.136	.305	.003
	Tlshp	032	034	097	.042	.438	.072	.076	.016	.128	.019	.040	-042	047	.122	.330
	Chef	.423	.564	.448	.673	.005	-	-	-	-	-	.423	.564	.330	.508	.005
	Msup	.276	.341	.226	.444	.005	-	-	-	-	-	.276	.341	.188	.358	.005
	Pval	.209	.301	.173	.424	.006	-	-	-	-	-	.209	.301	.125	.295	.005

Note: Eliminated paths not shown due to space restrictions

Legend: §: indirect effects are calculated as the product of all model path coefficients connecting indirect predictors with the outcome, an indirect effect is considered significant if its bootstrap corrected 95%CI does not include zero; ‡: the total effect is the sum of the direct and indirect effects. For abbreviations refer to list of *Abbreviations and Symbols*.

Appendix C: Supplementary Data Tables for Study 3

			ML estir	nation		Bootstrap correction					
						9	5%CI				
DV	IV	β	В	SE	р	Lowe	er Upper	- р			
DRtC ₁	Age	206	061	.010	.000	08	2037	.004			
DRtC ₁	Level	.105	.048	.015	.002	.01	6 .072	.008			
Part ₁	Level	117	095	.025	.000	15	8047	.002			
Trust₁	Age	054	023	.011	.040	05	2001	.047			
Chef ₁	Tlshp₁	074	045	.017	.008	09	1 .007	.085			
Chef₁	Trust₁	.292	.244	.027	.000	.16	0.342	.004			
Chef ₁	Part	.055	.037	.018	.041	00	7.082	.096			
Chef₁	Info ₁	.358	.203	.017	.000	.16	2.250	.003			
Chef₁	Age	.067	.024	.008	.003	.00	4 .039	.021			
Chef₁	DRtC ₁	477	567	.029	.000	64	6492	.005			
Msup ₁	TIshp ₁	.063	.039	.019	.041	02	5.101	.239			
Msup ₁	Trust₁	.397	.342	.030	.000	.25	3 .455	.002			
Msup ₁	Part₁	.055	.038	.020	.059	01	5 .090	.175			
Msup ₁	Info ₁	361	211	.018	.000	.15	9 270	.003			
Msup ₁	Age	.102	.037	.009	.000	.01	8 .056	.004			
Msup ₁	Gender	056	074	.027	.006	13	5012	.014			
Msup ₁	Level	.043	.024	.012	.040	00	1 .046	.063			
Msup ₁	DRtC ₁	089	110	.033	.000	18	0026	.010			
Pval₁	Trust₁	.283	.289	.030	.000	.18	4 .382	.005			
Pval₁	Part	095	078	.024	.001	13	5024	.007			
Pval₁	Info ₁	.215	.149	.022	.000	.09	5 .210	.003			
Pval₁	Level	.054	.036	.016	.024	.00	4 .066	.014			
Pval₁	DRtC ₁	543	791	.039	.000	87	8691	.005			
	Pval ₁	.287	.285	.029	.000	.21	3.355	.005			
ACC ₁	Msup ₁	.578	.682	.032	.000	.58	0.772	.004			
ACC ₁	Part₁	.336	.273	.019	.000	.22	7.327	.003			
	Info ₁	098	068	.019	.000	11	8015	.013			
	Level	044	029	.013	.028	05	1003	.034			
	DRtC ₁	.079	.115	.037	.002	.03	9.209	.009			
Satis₁	ACC1	.172	.229	.063	.000	.07	5.383	.004			
Satis₁	Pval₁	166	220	.056	.000	36	1089	.003			
Satis₁	Msup ₁	165	259	.082	.002	52	4013	.038			
Satis₁	Chef	.218	.353	.080	.000	.12	9.600	.004			
Satis₁	Tlshp₁	.326	.319	.033	.000	.20	5.431	.007			
Satis	Trust₁	.273	.369	.054	.000	.20	9.517	.005			
Satis ₁	Part	.067	.073	.034	.034	01	5.139	.092			
Satis₁	Age	.139	.080	.015	.000	.05	3.105	.005			
Satis₁	Gender	.063	.131	.053	.014	.00	7.250	.033			
Satis	DRtC ₁	193	371	.071	.000	54	1190	.002			
Turn₁	Satis	832	700	.027	.000	76	7629	.005			
Turn₁	ACC	225	252	.039	.000	32	8167	.004			
Turn₁	Chef ₁	.232	.317	.054	.000	.17	0.419	.006			
Turn₁	Tlshp₁	.071	.059	.026	.025	.00	1.142	.048			
Turn₁	Trust₁	.111	.127	.040	.002	.03	4 .232	.009			
Turn₁	Part₁	.133	.121	.027	.000	.06	9.190	.002			

Table C.1: Study 3 - Regression weights estimates derived from ML estimation and bootstrap correction for the final model.

			ML estir	nation		Bootstrap correction				
						959	%ĊI			
DV	IV	β	В	SE	р	Lower	Upper	p		
Turn₁	Info₁	078	060	.025	.015	120	008	.030		
Turn₁	Age	.033	.016	.012	.172	009	.039	.183		
Turn₁	DRtC ₁	.144	.233	.050	.000	.117	.357	.004		
DRtC ₂	Age	057	018	.009	.030	034	001	.030		
$DRtC_2$	DRtC₁	.661	.724	.029	.000	.638	.797	.007		
Info ₂	Level	045	038	.021	.079	082	.007	.079		
Info ₂	Gender	.046	.090	.045	.046	001	.192	.053		
Info ₂	Info₁	.448	.391	.029	.000	.334	.457	.005		
Info ₂	Part₁	.119	.122	.037	.000	.049	.204	.003		
Info ₂	Msup ₁	.123	.183	.071	.010	.045	.348	.006		
Info ₂	Trust	.073	.094	.041	.022	.012	.179	.021		
Info ₂	ACC1	093	117	.051	.021	222	010	.018		
Part ₂	Level	034	027	.022	.204	076	.022	.250		
Part ₂	Part₁	.613	.604	.030	.000	.522	.674	.006		
Part ₂	Msup ₁	029	042	.045	.356	136	.054	.361		
Part ₂	Satis	.100	.091	.025	.000	.039	.145	.009		
Trust ₂	Age	032	017	.012	.142	047	.009	.220		
Trust ₂	Trust ₁	430	536	039	000	440	640	007		
Trust ₂	Info	042	036	026	167	- 011	091	189		
Trust ₂	Part₄	104	103	033	002	034	164	005		
Trust ₂	Chef ₁	- 067	- 099	.000	083	- 222	017	104		
Trust ₂	Msup	122	176	066	007	035	343	013		
Tishn ₂	Part₄	120	142	036	000	079	218	004		
	Chef	- 046	- 082	070	243	- 251	.210	203		
Tishp ₂	Tishn₁	524	563	028	000	475	640	007		
Tishp ₂	Msup ₁	080	137	073	.062	- 032	353	125		
Chef ₂	Info	209	152	022	000	090	210	006		
Chef ₂	Trust ₂	180	135	023	000	070	210	004		
Chef ₂	Tishna	.100	057	016	000	016	.210	018		
Chef ₂	Gender	- 095	- 136	025	000	- 198	- 082	003		
Chef ₂	Chef.	604	675	035	000	584	772	006		
Chef	Info	- 122	- 077	018	000	- 112	- 044	005		
	Trust	- 112	- 104	026	000	- 150	- 060	.000		
	Msun	- 124	- 135	.020	000	- 208	- 072	.004		
	DRtC	229	304	037	000	210	392	.004 000		
		- 416	- 505	032	000	- 588	- 420	004		
	Part	188	142	017	000	.000	י_ב. 102	004		
Msup _o	Info	383	299	022	000	226	364	.004		
Msup ₂	Part _o	- 110	- 007	018	000	- 140	- 052	004		
Msup ₂		422	037 3∕1∩	025	000	276	002 ⊿1∩	.00 -1 003		
Msup ₂	Tishna	-152 152	.0 4 0 107	010	000	.210	17/	.003		
Msup ₂		062	Ω <u>/</u> 1	019	000	.005 019	. 174 065	.003		
Meuna	Maun	201	150	020	000	.010 201	520	.003		
Meuna	Info	.0 04 _ 070	_ 0/0	.030 019	005	.001 _ AQ2	- 005	023		
Meuna		- 190	049	010	.003	003	- 116	0020		
Meup-		109	190	.030	.000	202		.000		
Meup		003	030	025	.040	004 _ 100	.002	020		
NISUP2		050	124	.020	.010	120	007	.020		
rval2 Dvol	IIIIU2 Truct-	. 140	.134 254	.027	.000	.U/ I 100	.181 000	.000		
	Gondor	.209	.204	.UZ1	000.	. IOU 105	.3∠ð ∩∩4	.009		
	Buol	034	ו סט סדד	.030 024	.000	130	.004 0 <i>5 1</i>	.003		
rvdl ₂	rvai ₁	.070	.112	.031	.000	.0ŏ/	.004	.007		

				notion		Bootstrap correction					
			IVIL estir	nation		BOOISI	ap correc	Suon			
	N /	0	Б	05		95%					
	Truct	ββ	<u>В</u>		<u>p</u>	Lower	Upper	<u> </u>			
Pval ₂		152	180	.038	.000	251	104	.006			
Pval ₂		.023	.020	.022	.350	029	.069	.439			
Pval ₂		.382	.642	.053	.000	.540	.772	.003			
Pval ₂		485	744	.043	.000	865	642	.001			
Pval ₂	Part ₁	.052	.049	.021	.021	.010	.086	.022			
Pval ₂	l Ishp₁	058	049	.022	.026	084	009	.025			
Pval ₂	Into ₁	068	055	.023	.019	090	003	.033			
ACC ₂	Part ₂	.355	.319	.021	.000	.257	.383	.004			
ACC ₂	I rust ₂	.092	.082	.022	.000	.010	.158	.027			
ACC ₂	Tlshp ₂	169	127	.016	.000	169	080	.004			
ACC ₂	Chef ₂	.215	.255	.038	.000	.149	.367	.002			
ACC ₂	Msup ₂	.335	.369	.035	.000	.273	.470	.005			
ACC ₂	Pval₂	.382	.358	.027	.000	.294	.434	.003			
ACC ₂	Gender	029	049	.025	.052	104	.007	.077			
ACC ₂	ACC ₁	.467	.508	.030	.000	.421	.581	.012			
ACC ₂	Part₁	132	117	.019	.000	161	078	.003			
ACC ₂	Msup₁	105	134	.041	.001	227	036	.009			
ACC ₂	Pval₁	153	166	.032	.000	228	098	.006			
ACC ₂	Satis₁	057	047	.021	.025	096	005	.021			
ACC ₂	Turn₁	057	056	.022	.012	097	014	.010			
ACC ₂	DRtC ₁	055	086	.044	.048	186	002	.037			
ACC ₂	DRtC ₂	.100	.144	.037	.000	.049	.228	.004			
	Age	.038	.018	.007	.012	.004	.033	.013			
	Info ₂	124	107	.020	.000	156	055	.005			
ACC ₂	Chef₁	085	113	.045	.012	198	.010	.068			
Satis ₂	TIshp ₂	.176	.169	.031	.000	.070	.278	.004			
Satis ₂	Age	109	.066	.012	.000	.045	.090	.002			
Satis ₂	Satis₁	459	483	.028	.000	402	.570	.004			
Satis ₂	Part₁	- 111	- 126	029	000	- 187	- 074	003			
Satis ₂	Tishn	- 074	- 077	032	017	- 149	000	051			
Satis		- 161	- 297	057	000	- 425	- 152	007			
Satis ₂	Part _o	285	330	035	.000	250	440	001			
Satisa	Meupo	.203	.000	.000	2/1	- 074	.++0	327			
Satis ₂		.043	.001	.052	.241	074	201	.527			
Satie		276	.210	0/1	000	260	.531 510	.003			
Satie-	Truet.	.0 4 0 _ 115	- 16/	044	000	.200	.042 _ 091	004			
Satis-	Info	113	104	.044	.000	201	001	105			
Satis	Chof	002	057	.033	.000	147	.USZ	000			
SallS ₂ Robay		COU.	.039		.052	020	.220	004			
DendV ₂	Age	.1/4	.077	.014	.000	.040	.107	.004			
Denav ₂		057	039	.021	.072	081	.005	.070			
Behav2		.183	.155	.034	.000	.080	.224	.005			
Behav ₂	Satis ₂	.187	.13/	.031	.000	.069	.213	.003			
Benav ₂		.129	.144	.053	.007	.012	.262	.033			
Behav ₂	ACC ₂	.061	.057	.046	.215	057	.163	.308			
[urn₂	Part ₂	.198	.191	.035	.000	.094	.278	.007			
Turn ₂	Tlshp ₂	103	082	.026	.002	146	013	.026			
Turn ₂	Satis ₂	671	558	.033	.000	659	469	.004			
Turn ₂	Chef ₂	.109	.138	.056	.013	.002	.270	.039			
Turn₂	Turn₁	.537	.558	.036	.000	.483	.636	.006			
Turn ₂	Part₁	104	099	.031	.001	159	039	.005			
Turn ₂	Chef ₂	081	115	.054	.033	221	020	.028			

			ML estir	mation	Boots	trap corre	ction	
					95	%CI	_	
DV	IV	β	В	SE	р	Lower	Upper	p
Turn ₂	Satis₁	.316	.277	.037	.000	.178	.364	.007
Turn ₂	ACC ₂	296	317	.053	.000	424	177	.010
Turn ₂	Pval ₂	.081	.081	.035	.022	019	.149	.126
Turn ₂	ACC ₁	.144	.167	.048	.000	.059	.243	.010

 Legend: red font highlights non-significant estimates. For abbreviations refer to list of Abbreviations and Symbols.

 Eliminated paths not shown due to space restrictions.

	Direct effects					Indirect effects§					Total effects‡					
				959	%CI				95%CI					95%	%CI	
DV	IV	stand	unstand	lower	upper	р	stand	unstand	lower	upper	_ р	stand	unstand	lower	upper	р
DRtC ₁	Age	206	061	082	037	.004	-	-	-	-	-	206	061	082	037	.004
DRtC ₁	Level	.105	.048	.016	.072	.008	-	-	-	-	-	.105	.048	.016	.072	.008
Part₁	Level	117	095	158	047	.002	-	-	-	-	-	117	095	158	047	.002
Trust ₁	Age	054	023	052	001	.047	-	-	-	-	-	054	023	052	001	.047
Chef ₁	Age	.067	.024	.004	.039	.021	.082	.029	.014	.044	.005	.149	.053	.031	.073	.005
Chef ₁	Level	-	-	-	-	-	056	031	048	014	.006	056	031	048	014	.006
Chef ₁	DRtC ₁	477	567	646	492	.005	-	-	-	-	-	477	567	646	492	.005
Chef ₁	Info₁	.358	.203	.162	.250	.003	-	-	-	-	-	.358	.203	.162	.250	.003
Chef ₁	Part₁	.055	.037	007	.082	.096	-	-	-	-	-	.055	.037	007	.082	.096
Chef ₁	Trust₁	.292	.244	.160	.342	.004	-	-	-	-	-	.292	.244	.160	.342	.004
Chef ₁	Tlshp₁	074	045	091	.007	.085	-	-	-	-	-	074	045	091	.007	.085
Msup₁	Age	.102	.037	.018	.056	.004	003	001	011	.008	.757	.099	.036	.013	.058	.004
Msup₁	Gender	056	074	135	012	.014	-	-	-	-	-	056	074	135	012	.014
Msup₁	Level	.043	.024	001	.046	.063	016	009	020	003	.007	.027	.015	009	.039	.254
Msup₁	DRtC ₁	089	110	180	026	.010	-	-	-	-	-	089	110	180	026	.010
Msup₁	Info₁	.361	.211	.159	.270	.003	-	-	-	-	-	.361	.211	.159	.270	.003
Msup₁	Part₁	.055	.038	015	.090	.175	-	-	-	-	-	.055	.038	015	.090	.175
Msup₁	Trust₁	.397	.342	.253	.455	.002	-	-	-	-	-	.397	.342	.253	.455	.002
Msup₁	Tlshp₁	.063	.039	025	.101	.239	-	-	-	-	-	.063	.039	025	.101	.239
Pval₁	Age	-	-	-	-	-	.097	.042	.020	.063	.004	.097	.042	.020	.063	.004
Pval₁	Level	.054	.036	.004	.066	.014	046	030	052	005	.030	.008	.005	039	.045	.806
Pval₁	DRtC ₁	543	791	878	691	.005	-	-	-	-	-	543	791	878	691	.005
Pval₁	Info₁	.215	.149	.095	.210	.003	-	-	-	-	-	.215	.149	.095	.210	.003
Pval₁	Part₁	095	078	135	024	.007	-	-	-	-	-	095	078	135	024	.007
Pval₁	Trust₁	.283	.289	.184	.382	.005	-	-	-	-	-	.283	.289	.184	.382	.005
ACC ₁	Age	-	-	-	-	-	.068	.030	.012	.046	.005	.068	.030	.012	.046	.005
ACC ₁	Gender	-	-	-	-	-	033	051	097	008	.013	033	051	097	008	.013
ACC ₁	Level	044	029	051	003	.034	013	009	040	.016	.479	057	038	078	.000	.042
ACC ₁	DRtC ₁	.079	.115	.039	.209	.009	208	301	382	210	.005	128	186	266	093	.006

Table C.2: Study 3 - Direct, indirect and total effects on final model (ML estimates with bootstrap correction).

			Direc	t effects	6			Indire	§		Total effects‡					
				95%	%CI				95%CI		_			95%	6CI	
DV	IV	stand	unstand	lower	upper	р	stand	unstand	lower	upper	р	stand	unstand	lower	upper p	
ACC ₁	Info₁	098	068	118	015	.013	.270	.187	.148	.236	.002	.173	.119	.059	.197 .002	
ACC ₁	Part₁	.336	.273	.227	.327	.003	.005	.004	038	.051	.920	.340	.277	.219	.350 .004	
ACC ₁	Trust₁	-	-	-	-	-	.311	.316	.243	.417	.002	.311	.316	.243	.417 .002	
ACC ₁	Tlshp₁	-	-	-	-	-	.036	.027	018	.066	.255	.036	.027	018	.066 .255	
ACC ₁	Msup₁	.578	.682	.580	.772	004	-	-	-	-	-	.578	.682	.580	.772 .004	
ACC ₁	Pval₁	.287	.285	.213	.355	005	-	-	-	-	-	.287	.285	.213	.355 .005	
Satis₁	Age	.139	.080	.053	.105	005	.037	.021	.002	.038	.017	.176	.101	.072	.130 .005	
Satis₁	Gender	.063	.131	.007	.250	033	.004	.008	008	.032	.314	.067	.138	.016	.251 .034	
Satis₁	Level	-	-	-	-	-	056	049	073	028	.004	056	049	073	028 .004	
Satis₁	DRtC ₁	193	371	541	190	002	021	040	177	.101	.651	214	411	532	282 .006	
Satis₁	Info₁	-	-	-	-	-	.012	.011	028	.054	.526	.012	.011	028	.054 .526	
Satis₁	Part₁	.067	.073	015	.139	092	.077	.084	.041	.140	.002	.145	.157	.087	.234 .004	
Satis₁	Trust₁	.273	.369	.209	.517	005	.005	.006	052	.075	.780	.277	.375	.222	.529 .005	
Satis₁	Tlshp₁	.326	.319	.205	.431	007	020	020	053	.002	.073	.306	.299	.198	.407 .005	
Satis₁	Chef₁	.218	.353	.129	.600	004	-	-	-	-	-	.218	.353	.129	.600 .004	
Satis₁	Msup₁	165	259	524	013	.038	.100	.156	.056	.273	.003	066	103	337	.153 .419	
Satis₁	Pval₁	166	220	361	089	.003	.049	.065	.021	.111	.003	117	155	292	017 .028	
Satis₁	ACC ₁	.172	.229	.075	.383	.004	-	-	-	-	-	.172	.229	.075	.383 .004	
Turn₁	Age	.033	.016	009	.039	183	163	079	101	057	.004	130	063	093	033 .004	
Turn₁	Gender	-	-	-	-	-	048	084	169	.003	.060	048	084	169	.003 .060	
Turn₁	Level	-	-	-	-	-	.046	.034	.014	.055	.006	.046	.034	.014	.055 .006	
Turn₁	DRtC ₁	.144	.233	.117	.357	.004	.096	.155	.046	.257	.008	.239	.388	.231	.512 .006	
Turn₁	Info₁	078	060	120	008	030	.034	.026	022	.066	.285	044	034	097	.023 .263	
Turn₁	Part₁	.133	.121	.069	.190	002	184	168	225	109	.004	051	047	131	.034 .260	
Turn₁	Trust₁	.111	.127	.034	.232	.009	233	265	389	151	.003	122	138	291	.023 .079	
Turn₁	Tlshp₁	.071	.059	.001	.142	.048	280	230	313	152	.005	209	172	277	051 .011	
Turn₁	Chef₁	.232	.317	.170	.419	006	182	247	414	087	.004	.051	.069	153	.252 .523	
Turn₁	Msup₁	-	-	-	-	-	076	100	297	.081	.258	076	100	297	.081 .258	
Turn₁	Pval₁	-	-	-	-	-	.033	.036	069	.152	.497	.033	.036	069	.152 .497	
Turn₁	ACC ₁	225	252	328	167	.004	143	160	267	052	.004	369	412	553	272 .003	
Turn₁	Satis₁	832	700	767	629	005	-	-	-	-	-	832	700	767	629 .005	
DRtC ₂	Age	057	018	034	001	030	136	044	060	028	.005	193	063	084	035 .006	

	Direct effects							Indire	ct effects	§		Total effects‡					
				959	%CI	_			95%CI		_			959	%CI	_	
DV	IV	stand	unstand	lower	upper	р	stand	unstand	lower	upper	р	stand	unstand	lower	upper	р	
DRtC ₂	Level	-	-	-	-	-	.069	.035	.012	.054	.006	.069	.035	.012	.054	.006	
DRtC ₂	DRtC ₁	.661	.724	.638	.797	.007	-	-	-	-	-	.661	.724	.638	.797	.007	
Info ₂	Age	-	-	-	-	-	.002	.001	006	.008	.775	.002	.001	006	.008	.775	
Info ₂	Gender	.046	.090	001	.192	.053	004	008	023	.000	.072	.042	.083	010	.182	.083	
Info ₂	Level	045	038	082	.007	.079	005	004	016	.003	.239	050	042	084	.002	.061	
Info ₂	DRtC ₁	-	-	-	-	-	.001	.002	021	.023	.870	.001	.002	021	.023	.870	
Info ₂	Info₁	.448	.391	.334	.457	.005	.028	.025	003	.056	.072	.476	.416	.361	.471	.005	
Info ₂	Part ₁	.119	.122	.049	.204	.003	025	025	053	.000	.056	.094	.096	.030	.166	.004	
Info ₂	Trust₁	.073	.094	.012	.179	.021	.020	.026	017	.080	.209	.093	.120	.054	.200	.005	
Info ₂	Tlshp₁	-	-	-	-	-	.004	.004	002	.020	.172	.004	.004	002	.020	.172	
Info ₂	Msup₁	.123	.183	.045	.348	.006	054	080	161	007	.016	.069	.103	036	.225	.129	
Info ₂	Pval₁	-	-	-	-	-	027	033	066	004	.014	027	033	066	004	.014	
Info ₂	ACC ₁	093	117	222	010	.018	-	-	-	-	-	093	117	222	010	.018	
Part ₂	Age	-	-	-	-	-	.015	.008	.002	.015	.014	.015	.008	.002	.015	.014	
Part ₂	Gender	-	-	-	-	-	.008	.016	.002	.037	.034	.008	.016	.002	.037	.034	
Part ₂	Level	034	027	076	.022	.250	078	063	097	033	.003	112	090	149	040	.002	
Part ₂	DRtC ₁	-	-	-	-	-	019	033	062	009	.007	019	033	062	009	.007	
Part ₂	Info₁	-	-	-	-	-	009	008	030	.013	.463	009	008	030	.013	.463	
Part ₂	Part₁	.613	.604	.522	.674	.006	.013	.013	.004	.027	.016	.626	.617	.537	.684	.007	
Part ₂	Trust₁	-	-	-	-	-	.016	.020	016	.056	.302	.016	.020	016	.056	.302	
Part ₂	Tlshp₁	-	-	-	-	-	.029	.026	.008	.047	.004	.029	.026	.008	.047	.004	
Part ₂	Chef ₁	-	-	-	-	-	.022	.032	.010	.070	.010	.022	.032	.010	.070	.010	
Part ₂	Msup₁	029	042	136	.054	.361	007	009	041	.012	.347	036	051	151	.053	.311	
Part ₂	Pval₁	-	-	-	-	-	012	014	034	002	.027	012	014	034	002	.027	
Part ₂	ACC ₁	-	-	-	-	-	.017	.021	.006	.044	.005	.017	.021	.006	.044	.005	
Part ₂	Satis ₁	.100	.091	.039	.145	.009	-	-	-	-	-	.100	.091	.039	.145	.009	
Trust ₂	Age	032	017	047	.009	.220	021	011	027	.003	.108	054	028	059	.002	.062	
Trust ₂	Gender	-	-	-	-	-	007	013	038	003	.009	007	013	038	003	.009	
Trust ₂	Level	-	-	-	-	-	005	004	017	.005	.322	005	004	017	.005	.322	
Trust ₂	DRtC ₁	-	-	-	-	-	.021	.037	021	.106	.203	.021	.037	021	.106	.203	
Trust ₂	Info₁	.042	.036	011	.091	.189	.020	.017	009	.043	.177	.063	.053	.003	.097	.025	
Trust ₂	Part₁	.104	.103	.034	.164	.005	.003	.003	005	.016	.397	.107	.107	.034	.169	.004	

			Direc	t effects	3			Indire	§		Total effects‡							
				959	%CI				95%CI					959	%CI			
DV	IV	stand	unstand	lower	upper	р	stand	unstand	lower	upper	_ р	stand	unstand	lower	upper	р		
Trust ₂	Trust₁	.430	.536	.440	.640	.007	.029	.036	003	.079	.062	.459	.572	.485	.680 .0	04		
Trust ₂	Tlshp₁	-	-	-	-	-	.013	.011	001	.032	.065	.013	.011	001	.032 .0	65		
Trust ₂	Chef₁	067	099	222	.017	.104	-	-	-	-	-	067	099	222	.017 .1	04		
Trust ₂	Msup ₁	.122	.176	.035	.343	.013	-	-	-	-	-	.122	.176	.035	.343 .0	13		
Tlshp ₂	Age	-	-	-	-	-	.001	.001	006	.007	.865	.001	.001	006	.007 .8	65		
Tlshp ₂	Gender	-	-	-	-	-	004	010	037	.001	.072	004	010	037	.001 .0	72		
Tlshp ₂	Level	-	-	-	-	-	009	009	022	.004	.141	009	009	022	.004 .1	41		
Tlshp ₂	DRtC ₁	-	-	-	-	-	.015	.031	033	.108	.390	.015	.031	033	.108.3	90		
Tlshp ₂	Info₁	-	-	-	-	-	.012	.012	013	.046	.329	.012	.012	013	.046 .3	29		
Tlshp ₂	Part₁	.120	.142	.079	.218	.004	.002	.002	005	.015	.515	.122	.144	.082	.218 .0	04		
Tlshp ₂	Trust₁	-	-	-	-	-	.018	.027	017	.081	265	.018	.027	017	.081 .2	65		
Tlshp ₂	Tlshp₁	.524	.563	.475	.640	.007	.008	.009	002	.035	.090	.533	.572	.492	.654 .0	06		
Tlshp ₂	Chef ₁	046	082	251	.048	.203	-	-	-	-	-	046	082	251	.048 .2	03		
Tlshp ₂	Msup₁	.080	.137	032	.353	.125	-	-	-	-	-	.080	.137	032	.353 .1	25		
Chef ₂	Age	-	-	-	-	-	.110	.044	.027	.061	.004	.110	.044	.027	.061 .0	04		
Chef ₂	Gender	095	136	198	082	.003	.016	.022	.007	.043	.007	079	113	177	061 .0	02		
Chef ₂	Level	-	-	-	-	-	076	046	067	029	.004	076	046	067	029 .0	04		
Chef ₂	DRtC ₁	.229	.304	.210	.392	.006	550	731	857	601	.007	321	427	506	357 .0	03		
Chef ₂	Info₁	122	077	112	044	.005	.282	.178	.142	.214	.005	.160	.101	.069	.133 .0	04		
Chef ₂	Part₁	-	-	-	-	-	.194	.145	.101	.189	.007	.194	.145	.101	.189 .0	07		
Chef ₂	Trust₁	112	104	159	060	.004	.233	.218	.141	.295	800.	.122	.114	.039	.171 .0	09		
Chef ₂	Tlshp₁	-	-	-	-	-	.004	.002	034	.044	.867	.004	.002	034	.044 .8	67		
Chef ₂	Chef₁	.604	.675	.584	.772	.006	012	013	042	.007	.194	.592	.662	.569	.757 .0	07		
Chef ₂	Msup₁	124	135	208	072	.004	.037	.040	007	.093	.116	088	095	170	020 .0	16		
Chef ₂	Pval₁	-	-	-	-	-	008	007	013	002	.004	008	007	013	002 .0	04		
Chef ₂	ACC ₁	-	-	-	-	-	016	015	035	.001	.078	016	015	035	.001 .0	78		
Chef ₂	Satis₁	-	-	-	-	-	.019	.013	.006	.025	.005	.019	.013	.006	.025 .0	05		
Chef ₂	DRtC ₂	416	505	588	420	.004	-	-	-	-	-	416	505	588	420 .0	04		
Chef ₂	Info ₂	.209	.152	.090	.210	.006	-	-	-	-	-	.209	.152	.090	.210 .0	06		
Chef ₂	Part ₂	.188	.142	.092	.193	.004	-	-	-	-	-	.188	.142	.092	.193 .0	04		
Chef ₂	Trust ₂	.180	.135	.070	.210	.004	-	-	-	-	-	.180	.135	.070	.210 .0	04		
Chef ₂	Tlshp ₂	.090	.057	.016	.095	.018	-	-	-	-	-	.090	.057	.016	.095 .0	18		

			Direc	t effects	3			Indire	§		Total effects‡					
				959	%CI				95%CI					959	%CI	
DV	IV	stand	unstand	lower	upper	_ р	stand	unstand	lower	upper	_ р	stand	unstand	lower	upper p	
Msup ₂	Age	-	-	-	-	-	.035	.015	001	.031	.079	.035	.015	001	.031 .079	
Msup ₂	Gender	-	-	-	-	-	011	017	064	.028	495	011	017	064	.028 .495	
Msup ₂	Level	.062	.041	.018	.065	.003	003	002	022	.017	.775	.060	.039	.010	.068 .007	
Msup ₂	DRtC ₁	-	-	-	-	-	055	078	144	015	.011	055	078	144	015 .011	
Msup ₂	Info₁	072	049	083	005	.023	.354	.241	.195	.292	.004	.282	.192	.150	.236 .005	
Msup ₂	Part₁	-	-	-	-	-	.048	.038	011	.094	.106	.048	.038	011	.094 .106	
Msup ₂	Trust₁	189	190	262	116	.005	.387	.388	.309	.473	.005	.198	.198	.128	.279 .004	
Msup ₂	Tlshp₁	053	038	084	.002	.062	.112	.082	.037	.133	.004	.059	.043	004	.077 .060	
Msup ₂	Chef ₁	-	-	-	-	-	038	046	104	.004	.071	038	046	104	.004 .071	
Msup ₂	Msup₁	.394	.459	.381	.520	.011	.095	.110	.027	.211	.011	.489	.569	.452	.678 .007	
Msup ₂	Pval₁	-	-	-	-	-	009	009	020	.000	.050	009	009	020	.000 .050	
Msup ₂	ACC ₁	-	-	-	-	-	038	037	073	005	.010	038	037	073	005 .010	
Msup ₂	Satis₁	-	-	-	-	-	012	009	016	003	.006	012	009	016	003 .006	
Msup ₂	DRtC ₂	050	065	120	007	.020	-	-	-	-	-	050	065	120	007 .020	
Msup ₂	Info ₂	.383	.299	.226	.364	.004	-	-	-	-	-	.383	.299	.226	.364 .004	
Msup ₂	Part ₂	119	097	140	052	.004	-	-	-	-	-	119	097	140	052 .004	
Msup ₂	Trust ₂	.422	.340	.276	.410	.003	-	-	-	-	-	.422	.340	.276	.410 .003	
Msup ₂	Tlshp ₂	.158	.107	.065	.174	.003	-	-	-	-	-	.158	.107	.065	.174 .003	
Pval ₂	Age	-	-	-	-	-	.078	.039	.015	.060	.006	.078	.039	.015	.060 .006	
Pval ₂	Gender	034	061	135	.004	.063	.006	.011	007	.029	.233	028	051	121	.010 .096	
Pval ₂	Level	-	-	-	-	-	004	003	039	.028	.847	004	003	039	.028 .847	
Pval ₂	DRtC ₁	.382	.642	.540	.772	.003	684	-1.148	-1.334	992	.004	301	506	628	404 .003	
Pval ₂	Info₁	068	055	090	003	.033	.231	.185	.126	.239	.008	.162	.130	.076	.178 .005	
Pval ₂	Part₁	.052	.049	.010	.086	.022	018	017	073	.026	.431	.034	.032	025	.088 .268	
Pval ₂	Trust₁	152	180	251	104	.006	.333	.393	.280	.485	.008	.181	.213	.133	.303 .007	
Pval ₂	Tlshp₁	058	049	084	009	.025	.011	.010	005	.025	.271	046	040	071	.000 .051	
Pval ₂	Chef₁	-	-	-	-	-	013	018	055	.020	.290	013	018	055	.020 .290	
Pval ₂	Msup₁	-	-	-	-	-	.041	.057	.006	.111	.027	.041	.057	.006	.111 .027	
Pval ₂	Pval₁	.670	.772	.687	.854	.007	007	008	021	.001	.059	.663	.764	.680	.848 .007	
Pval ₂	ACC ₁	-	-	-	-	-	009	011	035	.009	.278	009	011	035	.009 .278	
Pval ₂	Satis₁	.023	.020	029	.069	.439	-	-	-	-	-	.023	.020	029	.069 .439	
Pval ₂	DRtC ₂	485	744	865	642	.001	-	-	-	-	-	485	744	865	642 .001	

			Direc	t effects	\$			Indire	§		Total effects‡							
				959	%CI				95%CI					959	%CI			
DV	IV	stand	unstand	lower	upper	p	stand	unstand	lower	upper	р	stand	unstand	lower	upper p			
Pval ₂	Info ₂	.146	.134	.071	.197	.006	-	-	-	-	-	.146	.134	.071	.197 .006			
Pval ₂	Trust ₂	.269	.254	.180	.328	.009	-	-	-	-	-	.269	.254	.180	.328 .009			
ACC_2	Age	.038	.018	.004	.033	.013	.049	.023	.006	.039	.019	.087	.041	.023	.065 .003			
ACC_2	Gender	029	049	104	.007	.077	044	074	122	033	.002	073	123	202	052 .003			
ACC ₂	Level	-	-	-	-	-	039	028	061	.000	.054	039	028	061	.000 .054			
ACC ₂	DRtC ₁	055	086	186	002	.037	072	113	225	005	.040	127	200	280	137 .002			
ACC ₂	Info₁	-	-	-	-	-	.113	.085	.031	.132	.007	.113	.085	.031	.132 .007			
ACC_2	Part₁	132	117	161	078	.003	.429	.379	.300	.448	.009	.297	.262	.207	.318 .009			
ACC_2	Trust₁	-	-	-	-	-	.221	.245	.174	.336	.004	.221	.245	.174	.336 .004			
ACC_2	Tlshp₁	-	-	-	-	-	065	052	093	009	.025	065	052	093	009 .025			
ACC_2	Chef ₁	085	113	198	.010	.068	.104	.138	.041	.235	.010	.019	.025	070	.110 .664			
ACC_2	Msup₁	105	134	227	036	.009	.415	.533	.418	.658	.006	.311	.399	.279	.496 .006			
ACC_2	Pval₁	153	166	228	098	.006	.386	.418	.340	.513	.005	.233	.252	.190	.322 .004			
ACC_2	ACC ₁	.467	.508	.421	.581	.012	.009	.010	009	.031	225	.476	.518	.430	.591 .010			
ACC_2	Satis₁	057	047	096	005	.021	.092	.075	.040	.119	.003	.035	.029	013	.068 .142			
ACC_2	Turn₁	057	056	097	014	.010	-	-	-	-	-	057	056	097	014 .010			
ACC_2	DRtC ₂	.100	.144	.049	.228	.004	292	419	521	347	.001	192	276	380	192 .002			
ACC_2	Info ₂	124	107	156	055	.005	.229	.197	.145	.262	.004	.105	.090	.022	.161 .015			
ACC_2	Part ₂	.355	.319	.257	.383	.004	.001	.001	029	.035	.908	.356	.320	.249	.385 .005			
ACC_2	Trust ₂	.092	.082	.010	.158	.027	.282	.251	.205	.312	003	.374	.333	.247	.430 .004			
ACC_2	Tlshp₂	169	127	169	080	.004	.072	.054	.035	.091	.002	097	073	119	024 .005			
ACC_2	Chef ₂	.215	.255	.149	.367	.002	-	-	-	-	-	.215	.255	.149	.367 .002			
ACC_2	Msup ₂	.335	.369	.273	.470	.005	-	-	-	-	-	.335	.369	.273	.470 .005			
ACC_2	Pval ₂	.382	.358	.294	.434	.003	-	-	-	-	-	.382	.358	.294	.434 .003			
Satis ₂	Age	.109	.066	.045	.090	.002	.085	.051	.025	.075	.005	.193	.117	.085	.150 .003			
Satis ₂	Gender	-	-	-	-	-	.022	.048	025	.117	.164	.022	.048	025	.117 .164			
Satis ₂	Level	-	-	-	-	-	045	042	073	020	.003	045	042	073	020 .003			
Satis ₂	DRtC ₁	.133	.270	.159	.391	.003	223	452	609	327	.004	090	182	292	075 .008			
Satis ₂	Info₁	-	-	-	-	-	.025	.024	028	.078	.349	.025	.024	028	.078 .349			
Satis ₂	Part₁	111	126	187	074	.003	.313	.357	.276	.445	.003	.202	.231	.155	.311 .003			
Satis ₂	Trust₁	115	164	261	081	.004	.305	.435	.302	.572	.005	.190	.271	.174	.377 .004			
Satis ₂	Tlshp ₁	074	077	149	.000	.051	.249	.257	.164	.354	.005	.175	.180	.110	.250 .006			

	Direct effects							Indire		Total effects‡								
				959	%CI	_			95%CI		_			959	%CI	_		
DV	IV	stand	unstand	lower	upper	р	stand	unstand	lower	upper	р	stand	unstand	lower	upper	р		
Satis ₂	Chef ₁	-	-	-	-	-	.112	.191	.026	.375	.017	.112	.191	.026	.375	.017		
Satis ₂	Msup ₁	-	-	-	-	-	.028	.046	133	.259	.562	.028	.046	133	.259	.562		
Satis ₂	Pval ₁	-	-	-	-	-	056	079	162	011	.024	056	079	162	011	.024		
Satis ₂	ACC ₁	-	-	-	-	-	.086	.121	.041	.202	.003	.086	.121	.041	.202	.003		
Satis ₂	Satis₁	.459	.483	.402	.570	.004	.029	.031	.012	.053	.008	.488	.514	.423	.599	.005		
Satis ₂	DRtC ₂	161	297	425	152	.007	029	054	124	.006	.071	190	351	483	220	.005		
Satis ₂	Info ₂	052	057	147	.032	.195	.030	.033	005	.075	.082	022	024	104	.064	.542		
Satis ₂	Part ₂	.285	.330	.250	.440	.001	.007	.008	018	.033	.568	.293	.338	.258	.450	.002		
Satis ₂	Trust ₂	.346	.395	.260	.542	.004	.030	.034	008	.075	.119	.376	.430	.304	.565	.005		
Satis ₂	Tlshp ₂	.176	.169	.070	.278	.004	.013	.012	002	.029	.087	.188	.181	.082	.288	.004		
Satis ₂	Chef ₂	.065	.099	025	.228	.099	-	-	-	-	-	.065	.099	025	.228	.099		
Satis ₂	Msup ₂	.043	.061	074	.177	.327	-	-	-	-	-	.043	.061	074	.177	.327		
Behav ₂	Age	.174	.077	.046	.107	.004	.058	.026	.016	.038	.004	.232	.103	.069	.133	.005		
Behav ₂	Gender	-	-	-	-	-	009	014	038	.007	.166	009	014	038	.007	.166		
Behav ₂	Level	057	039	081	.005	.070	041	028	044	013	.003	098	066	108	017	.017		
Behav ₂	DRtC ₁	-	-	-	-	-	069	103	148	054	.006	069	103	148	054	.006		
Behav ₂	Info₁	-	-	-	-	-	.030	.022	.007	.042	.006	.030	.022	.007	.042	.006		
Behav ₂	Part₁	-	-	-	-	-	.195	.163	.118	.207	.006	.195	.163	.118	.207	.006		
Behav ₂	Trust₁	-	-	-	-	-	.068	.071	.032	.110	.006	.068	.071	.032	.110	.006		
Behav ₂	Tlshp₁	-	-	-	-	-	.034	.026	.008	.047	.012	.034	.026	.008	.047	.012		
Behav ₂	Chef ₁	-	-	-	-	-	.102	.128	.033	.206	.017	.102	.128	.033	.206	.017		
Behav ₂	Msup ₁	-	-	-	-	-	.006	.008	068	.073	.882	.006	.008	068	.073	.882		
Behav ₂	Pval₁	-	-	-	-	-	.000	.000	033	.032	.990	.000	.000	033	.032	.990		
Behav ₂	ACC ₁	-	-	-	-	-	.046	.047	018	.104	.173	.046	.047	018	.104	.173		
Behav ₂	Satis₁	-	-	-	-	-	.114	.088	.046	.128	.004	.114	.088	.046	.128	.004		
Behav ₂	Turn₁	-	-	-	-	-	003	003	011	.002	.186	003	003	011	.002	.186		
Behav ₂	DRtC ₂	-	-	-	-	-	101	136	187	083	.005	101	136	187	083	.005		
Behav ₂	Info ₂	-	-	-	-	-	.029	.024	002	.046	.073	.029	.024	002	.046	.073		
Behav ₂	Part ₂	.183	.155	.080	.224	.005	.101	.085	.050	.125	.004	.284	.240	.171	.298	.005		
Behav ₂	Trust ₂	-	-	-	-	-	.116	.097	.055	.145	.005	.116	.097	.055	.145	.005		
Behav ₂	Tlshp ₂	-	-	-	-	-	.041	.029	.007	.057	.017	.041	.029	.007	.057	.017		
Behav ₂	Chef ₂	.129	.144	.012	.262	.033	.025	.028	005	.064	.087	.154	.172	.041	.276	.011		

			Direc	t effects	6			Indire		Total effects‡						
				959	%CI				95%CI					959	%CI	_
DV	IV	stand	unstand	lower	upper	р	stand	unstand	lower	upper	р	stand	unstand	lower	upper	р
Behav ₂	Msup ₂	-	-	-	-	-	.028	.030	015	.076	219	.028	.030	015	.076	.219
Behav ₂	Pval ₂	-	-	-	-	-	.023	.021	021	.061	.281	.023	.021	021	.061	.281
Behav ₂	ACC_2	.061	.057	057	.163	.308	-	-	-	-	-	.061	.057	057	.163	.308
Behav ₂	Satis ₂	.187	.137	.069	.213	.003	-	-	-	-	-	.187	.137	.069	.213	.003
Turn ₂	Age	-	-	-	-	-	156	078	104	054	.004	156	078	104	054	.004
Turn ₂	Gender	-	-	-	-	-	012	022	081	.031	.395	012	022	081	.031	.395
Turn ₂	Level	-	-	-	-	-	.027	.021	.005	.038	.008	.027	.021	.005	.038	.008
Turn ₂	DRtC ₁	-	-	-	-	-	.116	.196	.083	.291	.006	.116	.196	.083	.291	.006
Turn ₂	Info₁	-	-	-	-	-	040	032	078	.016	.168	040	032	078	.016	.168
Turn ₂	Part₁	104	099	159	039	.005	014	014	086	.065	.717	119	112	174	050	.005
Turn₂	Trust₁	-	-	-	-	-	074	088	211	.001	.053	074	088	211	.001	.053
Turn₂	Tlshp₁	-	-	-	-	-	153	131	200	058	.008	153	131	200	058	.008
Turn₂	Chef₁	081	115	221	020	.028	.081	.115	050	.275	.192	.000	.000	134	.159	.942
Turn ₂	Msup₁	-	-	-	-	-	098	134	300	010	.024	098	134	300	010	.024
Turn₂	Pval₁	-	-	-	-	-	.041	.048	040	.124	.311	.041	.048	040	.124	.311
Turn ₂	ACC ₁	.144	.167	.059	.243	.010	341	397	503	276	.007	198	230	335	128	.004
Turn ₂	Satis₁	.316	.277	.178	.364	.007	760	666	763	572	.006	444	389	454	317	.006
Turn ₂	Turn₁	.537	.558	.483	.636	.006	.017	.018	.005	.038	.008	.554	.576	.498	.663	.005
Turn ₂	DRtC ₂	-	-	-	-	-	.099	.153	.057	.272	.003	.099	.153	.057	.272	.003
Turn ₂	Info ₂	-	-	-	-	-	.018	.017	037	.074	.557	.018	.017	037	.074	.557
Turn ₂	Part ₂	.198	.191	.094	.278	.007	281	270	351	202	.004	083	080	163	.015	.084
Turn ₂	Trust ₂	.102	.097	002	.200	.055	322	306	415	224	.003	220	209	313	121	.004
Turn ₂	Tlshp ₂	103	082	146	013	.026	088	070	144	014	.017	190	152	227	073	.006
Turn ₂	Chef ₂	.109	.138	.002	.270	.039	107	136	229	050	.004	.002	.002	149	.159	.980
Turn ₂	Msup ₂	-	-	-	-	-	128	151	254	061	.004	128	151	254	061	.004
Turn ₂	Pval ₂	.081	.081	019	.149	.126	113	114	152	068	.007	032	032	110	.041	.387
Turn ₂	ACC ₂	296	317	424	177	.010	-	-	-	-	-	296	317	424	177	.010
Turn ₂	Satis ₂	671	558	659	469	.004	-	-	-	-	-	671	558	659	469	.004

Note: Eliminated paths not shown due to space restrictions

Legend: §: indirect effects are calculated as the product of all model path coefficients connecting indirect predictors with the outcome, an indirect effect is considered significant if its bootstrap corrected 95%CI does not include zero; **‡**: the total effect is the sum of the direct and indirect effects. For abbreviations refer to list of *Abbreviations and Symbols*.