

**Developing a Measure of Cognitive Deconstruction**

Submitted by

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**Statement of Authorship and Sources**

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### **Abstract**

The aim of this thesis was to develop a reliable and valid measure of cognitive deconstruction, a defensive state marked by a person's attempted refusal to engage in meaningful thought and undertake integrative, interpretive mental acts (Baumeister, 1990a). Cognitive deconstruction has been described to occur for some people following the experience of social exclusion. Cognitive deconstruction limits meaningful thought, and subsequently allows a person to escape from aversive self-awareness and emotional distress that may arise should he or she interpret the exclusion. The eight specific characteristics of cognitive deconstruction described by Baumeister (1990a) include cognitive immediacy, procedure orientation, passivity and impulsivity, close-mindedness, inconsistencies, disinhibition, lack of emotion, and cognitive vulnerability. These characteristics of cognitive deconstruction had not yet been assessed simultaneously or through the use of a self-report questionnaire, so the aim of this thesis was to develop a reliable and valid measure of cognitive deconstruction that allows for the measurement of the deconstructed state and further empirical evaluation of the theory (Baumeister, 1990a).

To achieve the above aim four studies were undertaken. The first study constructed and assessed the 120-item Cognitive Deconstruction Questionnaire (CDQ-120). Following the construction of the CDQ-120, this scale in conjunction with a measure of social isolation was administered to 50 males and 188 females. An exploratory factor analysis resulted in a six-factor structure accounting for a total of 74.71% of explained variance. These six factors, following appropriate relabeling, were Cognitive Vulnerability, Time Perception, Close-Mindedness, Emotion, Changeability, and Immediacy. A total of 18 items remained on the measure following factor analysis and subsequent item reduction. The modified measure, referred to as the CDQ-18, demonstrated respectable internal consistency ( $\alpha = .72$ ) and known-groups validity.

Study two confirmed the factor structure and internal properties of the revised CDQ-18. Participants involved were 110 males and 197 females. Confirmatory factor analysis of the CDQ-18 revealed that the Immediacy Factor did not fit the model. It was subsequently removed resulting in a 15-item five factor scale titled the CDQ-15. The CDQ-15 was the final version of the questionnaire and demonstrated respectable reliability ( $\alpha = .77$ ). Known groups validity was found and some factors displayed preliminary convergent validity.

Study three attempted to validate the CDQ-15 in an experimental setting, implementing a modified replication of an experimental manipulation (see Twenge, Catanese, and Baumeister, 2002). Participants, 13 men and 52 women, completed the CDQ-15 under the deception of being accepted or rejected by their peers. Contrary to prediction, the CDQ-15 was unable to differentiate between participants in the exclusion condition and participants in the accepted condition, even upon removing the potential influence of prior high levels of social connectedness.

The final study, involving 196 men and 150 women, found adequate criterion-related validity between the CDQ-15 and variables theoretically proposed to be highly associated to cognitive deconstruction, namely personal agency, meaning in life, and self-awareness. The CDQ-15 also identified higher levels of cognitive deconstruction in participants who reported both greater exposure to exclusionary events and long-term feelings of social exclusion.

The findings from this thesis suggest that the CDQ-15 is a reliable measure of cognitive deconstruction. Furthermore, it was found that this measure demonstrates content validity, construct validity, known-groups validity, and criterion related validity. Although requiring further psychometric evaluation, the CDQ-15 is able to identify

characteristics of cognitive deconstruction in people who experience social exclusion and provides further support for the theory of cognitive deconstruction (Baumeister, 1990a).

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## Table of Contents

<b>Statement of Authorship and Sources .....</b>	<b>II</b>
<b>Abstract .....</b>	<b>III</b>
<b>Statement of Appreciation .....</b>	<b>VI</b>
<b>Table of Contents.....</b>	<b>VIII</b>
<b>List of Tables.....</b>	<b>XVIII</b>
<b>List of Figures .....</b>	<b>XX</b>
<b>List of Appendicies .....</b>	<b>XXII</b>
<b>Chapter One: Introduction.....</b>	<b>1</b>
<b>Conceptualising Social Exclusion .....</b>	<b>1</b>
<b>Causes of Exclusionary Behaviour .....</b>	<b>3</b>
<b>Conceptualising Belonging.....</b>	<b>6</b>
<b>The Need to Belong Theory.....</b>	<b>8</b>
<b>Four Fundamental Needs .....</b>	<b>10</b>
<b>Social Exclusion and Emotion.....</b>	<b>14</b>
<b>Exclusion Theory of Anxiety and Cognitive Deconstruction.....</b>	<b>18</b>
<b>The Characteristics and Consequences of the Deconstructed State .....</b>	<b>25</b>
Cognitive immediacy. ....	26
Procedure orientation. ....	27
Passivity and impulsivity. ....	31
Close mindedness. ....	33
Inconsistencies. ....	34



Disinhibition. ....	34
Emotion. ....	36
Cognitive vulnerability. ....	38
<b>Rationale for Research</b> .....	<b>39</b>
<b>Thesis Aims</b> .....	<b>41</b>
<b>Chapter Two: Development of a Measure of Cognitive Deconstruction</b> .....	<b>45</b>
<b>Item Development and Content Validity</b> .....	<b>45</b>
<b>Generating an Item Pool</b> .....	<b>48</b>
<b>Measurement Format</b> . ....	<b>51</b>
<b>Determining Scale Instructions</b> .....	<b>53</b>
<b>Initial Item Screening</b> .....	<b>53</b>
<b>Chapter Three: The Evaluation of a Preliminary Measure of Cognitive</b>	
<b>Deconstruction in a Development Sample (Study One)</b> .....	<b>56</b>
<b>Study One Aims and Research Questions</b> .....	<b>58</b>
<b>Method</b> .....	<b>58</b>
<b>Participants</b> .....	<b>58</b>
<b>Materials</b> .....	<b>60</b>
The Cognitive Deconstruction Questionnaire - 120. ....	60
The Friendship Scale. ....	61
<b>Procedure</b> .....	<b>62</b>
<b>Results</b> .....	<b>63</b>
<b>Data Screening and Cleaning</b> .....	<b>63</b>
Data screening. ....	64
Missing data. ....	64

<b>Descriptive Statistics</b> .....	<b>64</b>
Outliers. ....	64
Normality and linearity. ....	65
FS scale means and frequencies. ....	65
<b>Exploratory Factor Analysis</b> .....	<b>66</b>
The factor analytic model. ....	66
Factorability of R. ....	66
Factor extraction. ....	67
Method of factor analysis and factor rotation. ....	70
Factor interpretation. ....	70
<b>Reliability Analysis</b> .....	<b>74</b>
Item reliability and internal consistency. ....	74
<b>Exploration of Demographic Characteristics on the CDQ-18: Age, Marital Status, and Gender</b> .....	<b>78</b>
<b>Known Group's Validity</b> .....	<b>79</b>
<b>Discussion</b> .....	<b>83</b>
<b>The Factor Structure of the CDQ-18</b> .....	<b>83</b>
Cognitive vulnerability. ....	84
Close mindedness. ....	84
Emotion. ....	84
Inconsistencies and disinhibition. ....	85
Cognitive immediacy. ....	86
Procedure orientation. ....	87
Passivity and impulsivity. ....	88
Factor structure conclusions. ....	89

<b>Internal Consistency .....</b>	<b>89</b>
<b>Known Groups Validity .....</b>	<b>91</b>
<b>Conclusion .....</b>	<b>92</b>
<b>Chapter Four: Refining a Measure of Cognitive Deconstruction (Study Two).....</b>	<b>93</b>
<b>Aim and Research Questions .....</b>	<b>94</b>
<b>Method.....</b>	<b>95</b>
<b>Participants.....</b>	<b>95</b>
<b>Materials .....</b>	<b>96</b>
The CDQ-18. ....	96
The Friendship Scale. ....	97
The Positive and Negative Affect Scale. ....	97
Saucier's Big Five Mini-Markers. ....	99
<b>Procedure.....</b>	<b>100</b>
<b>Results.....</b>	<b>101</b>
<b>Data Cleaning and Screening.....</b>	<b>101</b>
Data screening. ....	101
Missing data. ....	102
Outliers. ....	102
<b>Normality, Linearity, and Homoscedasticity.....</b>	<b>103</b>
<b>Descriptive Statistics .....</b>	<b>104</b>
Scale means and frequencies. ....	104
<b>Examining the Influence of Sample Characteristics: Age, Marital Status, and Gender.....</b>	<b>105</b>
<b>Confirmatory Factor Analysis.....</b>	<b>111</b>
The model. ....	111

A priori goodness-of-fit criterion. ....	112
Graphical specification of the model. ....	113
Model identification and latent factor scaling. ....	116
Model estimation. ....	117
Model evaluation. ....	118
Respecification of the hypothesised five-factor CFA model. ....	124
Evaluation of the five-factor, second-order CFA model of the CDQ-15. ....	126
<b>Item Reliability and Internal Consistency</b> .....	<b>131</b>
<b>Validity Testing</b> .....	<b>133</b>
Convergent validity. ....	133
Known groups validity. ....	136
<b>Study Two Discussion</b> .....	<b>139</b>
<b>Factor Structure of the CDQ-15</b> .....	<b>139</b>
<b>Internal Consistency of the CDQ-15</b> .....	<b>142</b>
<b>The Validity of the CDQ-15</b> .....	<b>143</b>
Convergent validity. ....	143
Known groups validity. ....	146
<b>Conclusion</b> .....	<b>147</b>
<b>Chapter Five: Investigating the Efficacy of the CDQ-15 in an Experimental Setting</b> <b>(Study Three)</b> .....	<b>149</b>
<b>Aims and Hypotheses</b> .....	<b>152</b>
<b>Method</b> .....	<b>152</b>
<b>Participants</b> .....	<b>152</b>
<b>Materials</b> .....	<b>153</b>

<b>Procedure</b> .....	<b>154</b>
<b>Results</b> .....	<b>156</b>
<b>Data Cleaning and Assumption Testing</b> .....	<b>156</b>
Data screening. ....	156
Missing data. ....	156
Outliers. ....	156
Normality. ....	157
<b>Descriptive and Inferential Statistics</b> .....	<b>158</b>
<b>The Difference between Acceptance and Rejection on the CDQ-15</b> .....	<b>160</b>
<b>Study Three Discussion</b> .....	<b>162</b>
<b>Explanation of Findings</b> .....	<b>162</b>
<b>Implications for Future Research</b> .....	<b>168</b>
<b>CDQ-15 Development</b> .....	<b>169</b>
<b>Conclusions</b> .....	<b>170</b>
<b>Chapter Six: Validating the CDQ-15 in a Non-Clinical Adult Population (Study Four)</b> .....	<b>172</b>
<b>Meaningful Thought and Personal Agency</b> .....	<b>173</b>
<b>Meaning in Life</b> .....	<b>175</b>
<b>Self-Awareness</b> .....	<b>177</b>
<b>Social Exclusion and Loneliness</b> .....	<b>178</b>
<b>Aims, Hypothesis, and Research Questions</b> .....	<b>179</b>
<b>Method</b> .....	<b>180</b>
<b>Participants</b> .....	<b>180</b>
<b>Materials</b> .....	<b>181</b>

Exclusion Exposure Measure. ....	182
The CDQ-15. ....	183
The UCLA Loneliness Scale. ....	183
The Behavior Identification Form. ....	184
The Situational Self-Awareness Scale. ....	185
The Meaning in Life Questionnaire. ....	187
<b>Procedure.....</b>	<b>188</b>
<b>Results.....</b>	<b>188</b>
<b>Data Cleaning and Assumption Testing .....</b>	<b>188</b>
Data screening. ....	188
Missing data. ....	188
Outliers. ....	189
Normality. ....	189
Linearity and Homoscedasticity. ....	190
<b>Descriptive statistics.....</b>	<b>191</b>
<b>The Influence of Sample Characteristics: Age, Marital Status, and Gender .....</b>	<b>192</b>
<b>Correlation Analysis and Criterion-Related Validity .....</b>	<b>194</b>
<b>Regression Analysis .....</b>	<b>195</b>
<b>Multivariate Analysis of Variance (MANOVA).....</b>	<b>196</b>
Exclusion exposure and cognitive deconstruction. ....	196
Loneliness and cognitive deconstruction. ....	199
<b>Study Four Discussion.....</b>	<b>201</b>
<b>The Influence of Age, Marital Status, and Gender on the CDQ-15.....</b>	<b>202</b>
<b>The Relationship between Meaning in Life and Cognitive Deconstruction .....</b>	<b>203</b>

<b>The Relationship between Meaningful Thought/Personal Agency and Cognitive Deconstruction.....</b>	<b>204</b>
<b>The Relationship between Self-Awareness and Cognitive Deconstruction .....</b>	<b>205</b>
<b>Criterion-Related Validity .....</b>	<b>207</b>
<b>The Relationship between Social Exclusion, Loneliness, and Cognitive Deconstruction.....</b>	<b>207</b>
<b>Conclusion .....</b>	<b>210</b>
<b>Chapter Seven: Integrative Discussion.....</b>	<b>211</b>
<b>Thesis Findings.....</b>	<b>211</b>
Study one. ....	212
Study two. ....	213
Study three. ....	213
Study four. ....	214
Summery of findings. ....	215
<b>Implications of this Research.....</b>	<b>216</b>
<b>Limitations.....</b>	<b>218</b>
Gender. ....	218
Dichotimisation of continuous variables. ....	219
Missing data. ....	220
Utilising trait measures. ....	221
Measuring social exclusion. ....	222
<b>Future Research.....</b>	<b>223</b>
Exploration of the psychometric properties of the CDQ-15. ....	223
Norm development. ....	225
Exploration of the CDQ-15 in a experimental setting. ....	226

Cognitive deconstruction and belongingness needs. .... 226

**Conclusions..... 227**

**References..... 229**

**Appendices ..... 254**



### List of Tables

<b>Table 2.1</b>	Descriptions of Dimensions of Cognitive Deconstruction as Defined by Baumeister (1990a) .....	47
<b>Table 3.1</b>	Factors Corresponding to Eigenvalues Greater than One .....	68
<b>Table 3.2</b>	Pattern Matrix of the Structure of Six CDQ Factors .....	72
<b>Table 3.3</b>	The Final Set of Items and Corresponding Questions on the Six-Factor Cognitive Deconstruction Questionnaire .....	73
<b>Table 3.4</b>	Pearson's Correlation Coefficients, Corrected Item-Scale Correlations, Item means, Item variances, and Alpha Reliabilities if Item Deleted for the Preliminary Cognitive Deconstruction Questionnaire .....	76
<b>Table 3.5</b>	Correlations, Reliabilities, and Descriptive Statistics for the Six Cognitive Deconstruction Questionnaire Factors .....	77
<b>Table 3.6</b>	Correlations between the Six CDQ Factors .....	81
<b>Table 3.7</b>	Mean, Standard Errors, and Univariate Analyses on Cognitive Deconstruction Questionnaire Factors Scores across the Friendship Scale Social Isolation Levels .....	82
<b>Table 4.1</b>	Pearson Correlation Coefficients for Sample Characteristics and Participants Total Scale Scores .....	106
<b>Table 4.2</b>	Scale Means and Standard Deviations for Males and Females .....	107
<b>Table 4.3</b>	Mean, Standard Errors, and CDQ Subscale Findings for Males and Females .....	109
<b>Table 4.4</b>	Correlations between the Six CDQ Factors .....	116
<b>Table 4.5</b>	Goodness-of-Fit Statistics and Corresponding Model Fit Descriptions for the Hypothesised Six-Factor, Second-Order Confirmatory Factor Analysis Model of the Cognitive Deconstruction Questionnaire .....	119

<b>Table 4.6</b>	Feasibility Statistics of Freely Estimated Individual Parameters in the Six-Factor, Second Order Confirmatory Factor Analysis Model of the Cognitive Deconstruction Questionnaire .....	122
<b>Table 4.7</b>	Standardised Residuals of the Hypothesised Six-Factor, Second-Order Confirmatory Factor Analysis Model of the Cognitive Deconstruction Questionnaire .....	123
<b>Table 4.8</b>	Goodness-of-Fit Statistics and Corresponding Model Fit Descriptions for the Hypothesised Five-Factor, Second-Order Confirmatory Factor Analysis Model of the CDQ .....	126
<b>Table 4.9</b>	Feasibility Statistics of Freely Estimated Individual Parameters in the Five-Factor, Second Order Confirmatory Factor Analysis Model of the Cognitive Deconstruction Questionnaire .....	128
<b>Table 4.10</b>	Standardised Residuals of the Hypothesised Five-Factor, Second-Order Confirmatory Factor Analysis Model of the Cognitive Deconstruction Questionnaire .....	129
<b>Table 4.11</b>	Pearson's Correlation Coefficients, Corrected Item-Factor Correlations, Item means, Item variances, and Alpha Reliabilities if Item Deleted for the Cognitive Deconstruction Questionnaire .....	132
<b>Table 4.12</b>	Reliabilities and Descriptive Statistics for the Five CDQ Factors .....	133
<b>Table 4.13</b>	Pearson Correlation Coefficients between the Five Cognitive Deconstruction Questionnaire Factors, the Positive and Negative Affect Scales, and the Mini-Markers Factors .....	135
<b>Table 4.14</b>	Mean, Standard Errors, and Univariate Analyses on Cognitive Deconstruction Questionnaire Factors Scores across the Friendship Scale Social Isolation Levels .....	137

<b>Table 5.1</b>	Descriptive Statistics of Accepted and Rejected Participant Scores on the Cognitive Deconstruction Questionnaire, the Friendship Scale, and the Positive and Negative Affect Schedule .....	159
<b>Table 6.1</b>	Scale and Factor Means and Standard Deviations .....	191
<b>Table 6.2</b>	Pearson Correlation Coefficients for Sample Characteristics and Participants Total Scale Scores .....	193
<b>Table 6.3</b>	Standard Multiple Regression Analyses for Variables Predicting Cognitive Deconstruction .....	196
<b>Table 6.4</b>	Descriptive Statistics and Univariate Analyses on the Cognitive Deconstruction Questionnaire Factors for Participants with less and more exclusion .....	199
<b>Table 6.5</b>	Descriptive Statistics and Univariate Analyses on the Cognitive Deconstruction Questionnaire Factors for Participants in the High and Low Scoring Groups on the UCLA Loneliness Scale .....	201

### List of Figures

<i>Figure 3.1.</i>	Scree test suggesting extraction of six factors.....	69
<i>Figure 3.2.</i>	Means for socially isolated and socially connected participants on each of the Cognitive Decpnstruction factors.....	83
<i>Figure 4.1.</i>	Hypothesised six-factor, second-order confirmatory factor analysis model of the Cognitive Deconstruction Questionnaire .....	114
<i>Figure 4.2.</i>	Standardised parameter estimates and percentage of variance accounted for related to the hypothesised six-factor, second-order confirmatory factor analysis model of the Cognitive Deconstruction Questionnaire ....	121
<i>Figure 4.3.</i>	Hypothesised five-factor, second-order confirmatory factor analysis model of the Cognitive Deconstruction Questionnaire .....	125
<i>Figure 4.4.</i>	Standardised parameter estimates and percentage of variance accounted for related to the hypothesised five-factor, second-order confirmatory factor analysis model of the Cognitive Deconstruction Questionnaire ....	130
<i>Figure 4.5.</i>	Means for socially islated and socially connected participants on each of the Cognitive Deconstruction Questionnaire .....	138

### List of Appendices

<i>Appendix A</i>	Statements Depicting the Eight Theoretical Dimensions of Cognitive Deconstruction.....	254
<i>Appendix B</i>	Items Generated and Included in the Item Pool for the Characteristics of Cognitive Deconstruction.....	258
<i>Appendix C</i>	Instructions, Definitions, and Item Allocation Forms Provided to the Panel of Psychologists.....	266
	C.1 Instructions.....	266
	C.2 Definitions.....	267
	C.3 Item Allocation Form.....	270
<i>Appendix D</i>	Instructions and the Construct Relevance Form Provided to the Panel of Psychologists.....	280
	D.1 Instructions .....	280
	D.2 Construct Relevance Form.....	281
<i>Appendix E</i>	Study One Questionnaire.....	292
	E.1 Demographic Information .....	292
	E.2 CDQ-120.....	293
	E.3 Friendship Scale.....	302
<i>Appendix F</i>	ACU Human Research Ethics Committee Approval Form (Studies One and Two).....	303
<i>Appendix G</i>	Studies One, Two, and Four Information Letter to Participants.....	304
<i>Appendix H</i>	Study Two Questionnaires.....	306
	H.1 CDQ-18 .....	306

	H.2 Positive and Negative Affect Scale.....	308
	H.3 Saucier’s Big Five Mini Markers.....	310
<i>Appendix I</i>	Unstandardised parameter estimates in the six-factor, second-order confirmatory factor analysis model of the CDQ-18 .....	311
<i>Appendix J</i>	Unstandardised parameter estimates in the five-factor, second-order confirmatory factor analysis model of the CDQ-18 .....	312
<i>Appendix K</i>	The Fifteen-Item Cognitive Deconstruction Questionnaire (CDQ-15)...	313
<i>Appendix L</i>	ACU Human Research Ethics Committee Approval Form (Study Three).....	315
<i>Appendix M</i>	Study Three Participants Information and Consent Forms.....	316
	M.1 Participant Information Form.....	316
	M.2 Participant Consent Form.....	317
<i>Appendix N</i>	Study Four Questionnaire Booklet.....	318
	N.1 Demographic Information.....	318
	N.2 Exclusion Exposure Measure.....	319
	N.3 CDQ-15.....	320
	N.4 UCLA Loneliness Scale.....	322
	N.5 Behavior Identification Form.....	324
	N.6 Situational Self-Awareness Scale.....	326
	N.7 Meaning in Life Questionnaire.....	327
<i>Appendix O</i>	ACU Human Research Ethics Committee Approval Form (Study Four) .....	328

## **Chapter One: Introduction**

### **Conceptualising Social Exclusion**

The majority of people will be subjected to social exclusion at some time in their lifespan. The experience of being silenced, teased, bullied, excluded, rejected, and ostracized can begin early in life and extend into old age. It may occur in the schoolyard by peers, the workplace by colleagues, or in intimate relationships by loved ones. By the time adulthood is reached, all people will at some time have been a victim and a perpetrator of social exclusion (Williams, Forgas, von Hippel, & Zadro, 2005).

Social exclusion has become of heightened interest over the last two decades. Many of the early studies investigating exclusion manipulated physical isolation in order to understand its subsequent psychological effects. For example, McCulloch and Haslerud (1921) investigated the affective responses and behavioural manifestations of infant chimpanzees reared in isolation and found that they were intensely disturbed by a wide range of objects and elicited aggressive behaviour. Zingg (1940) investigated physical ostracism in his examination of extreme cases of isolation that depict occurrences of people being physically ostracized from society and any human contact. Such severe isolation resulted in extreme disturbance to the language, sexual habits, locomotion, posture, and cognitive development among many other factors for these people. Schachter (1959) isolated five participants, placing them in a windowless room and evaluated their reactions to isolation and individual differences in the time they could endure alone. The first participant broke down after two hours and requested to be released, three participants were able to remain in isolation for two days, however, one felt very uneasy and stated he would not cooperate in the experiment again. One participant was isolated for eight days and reported experiencing uneasiness by the eighth day and delight at having contact with

others again (Schachter, 1959). Mettee, Taylor, and Fisher (1971) explored less drastic forms of physical ostracism through examining physical avoidance and 'being shunned', finding that those who experienced being shunned avoided any future contact with the sources of ostracism. Recent studies however, have focused more upon the common occurrence of social exclusion that people experience in their daily lives and not simply physical isolation.

Exclusion, rejection, and ostracism are all terms utilized in describing the experience of being a social outcast (Williams, Forgas, von Hippel, & Zadro, 2005). Precise definitions of these terms are lacking and as a result the terms are often used interchangeably in psychological literature. In general, the expression that is most fitting for this thesis is social exclusion, which refers to the denial or removal of a person's relationship with another person, group, or social network for any reason (MacDonald, Kingsbury, & Shaw, 2005). The person may be considered included prior to the removal of the relationship by the person, group or social network, or he or she may already be experiencing exclusion in which the denial of the relationship is reiterated (Leary, 2005). Social exclusion, however, does not necessarily mean that the person is ignored completely, rather that he or she are removed from reciprocal relationship (Williams et al., 2005). Rejection also refers to the cessation as a member within a relationship or group but is accompanied by an explicit action that declares this whereas social exclusion does not always involve this action (Williams et al., 2005). Therefore even though there are subtle differences, social exclusion and rejection are often treated as synonymous. Another term that describes the experience of being a social outcast is ostracism. Ostracism is described as an act which ignores and excludes a person or group (Williams, 2001). Ostracism connotes extreme dissociation in which the ostraciser does not provide any form of social acknowledgement, such as through completely ignoring, avoiding, and excluding



the person (Williams & Zadro, 2005). In social exclusion and rejection, the person is removed out of relationship or reinforced with indicators that he or she does not have relationship with the particular person, group, or social network. Interaction may occur, however, it is likely to be negative or dismissive in nature. In the case of ostracism, the person is not acknowledged in any way and the victim is treated as though he or she does not exist. Review of the literature presented below, however, reveals that terms utilised in research do not always accurately reflect the above definitions and all three terms appear to be used interchangeably despite the subtle differences amongst them. The focus and term referred to and utilised in the current thesis will be social exclusion. In order to provide a comprehensive review of the literature concerning social exclusion, however, prior research concerning rejection and ostracism will be examined in conjunction with social exclusion research in order to account for the similarities amongst the three terms.

### **Causes of Exclusionary Behaviour**

The experience of exclusion, rejection, and ostracism commonly occurs in all cultures and societies. Governments and ruling bodies, religions, military institutions, small organisations, tribes, and groups of all kinds practice exclusion, rejection, and ostracism in response to people or groups of people who fail to comply and deviate from what is defined as acceptable behaviour and required expectations (Williams, 2001). A group, that is, two or more people who influence one another through social interaction (VandenBos, 2007), provide a social comparative frame of reference within which people can align and coordinate their perceptions, beliefs, feelings, thoughts and actions, and which provide a sense of uniformity. Groups also, however, often contain fringe members whom the group will attempt to socialize so that they conform to group norms (Levine & Moreland, 1994). Following the socialization process, should any deviants continue to violate normative group expectancies and undermine group unity, they face exclusion from

the benefits attributed to those who conform to group norms and are considered non-deviant in-group members (Hogg, Fielding, & Darley, 2005). The subjective groups dynamics model predicts that deviance that undermines the norms established within a group will attract hostile reactions (Marques, Paez, & Abrams, 1998). Should deviance occur, however, that actually validates group norms it is likely to be met with positive evaluations. Those group members who behave outside the standard group norms but who contribute positively to the subjective validity of the group by their deviant actions will be met with tolerance and approval (Marques, Paez, & Abrams, 1998). This model was investigated by Abrams, Marques, Bown, and Dougill (2001) who explored anti-norm deviance, which undermines the groups position, and pro-norm deviance, which validates and supports the groups norms, ethos, and aims and may enhance its distinctiveness relative to opposing out-groups. In this study teenage participants were asked to evaluate others of the same gender who were being considered for a job promotion in an organization. All candidates were considered to be the same in intelligence, attractiveness, politeness and competence. Of these candidates however, one was more feminine and one was considered more masculine than the remaining (normative) candidates. Both the masculine and feminine candidates were considered to deviate to the same degree from the remaining normative candidates according to the teenage participants. The participants regarded themselves as significantly more similar to the normative candidates as to either the more masculine or feminine candidate. Despite this objective equivalence between the anti-norm and pro-norm candidates, however, the pro-norm candidate was rated as having more in common with the group than the anti-norm candidate. Furthermore, the normative candidates were considered to be more attractive than both the pro-norm and anti-norm candidates, but the pro-norm candidate was considered significantly more attractive than the anti-norm candidate. Thus although the pro-norm and anti-norm candidates were more

disliked by participants, pro-norm candidates were considered more tolerable than anti-norm candidates consistent with the idea that pro-norm deviants were less undermining of in-group norms and also that anti-norm deviants will be first to face regulation through exclusion.

Baumeister and Tice (1990) describe three main reasons why people practice exclusion. The first is based upon incompetence in which the person(s) fail to make satisfactory contributions to the group success, survival, and wellbeing, and thus are excluded for being an unproductive drain on the group's capital. The second is based upon immorality in which a person or group of people may be excluded for violating group norms, rules, conventions, and expectations, and by doing so undermining the assumptions that the group interaction is based upon and that which makes group interaction feasible. Exclusion will apply to people who are poor at regulating interpersonal behaviours according to group specification. They will be recognised as rule-breakers, as disruptive, and as occupying the potential to jeopardize the groups system for living together (Baumeister & Tice, 1990). Hogg, Fielding, and Darley (2005) state that those people who are poor at regulating their behaviour according to group norms may experience dislike and mistrust from other group members and may subsequently be treated negatively and cast as deviants. This proposal that the violation of group norms can serve as a catalyst for exclusion has been described by the subjective group dynamics model (Marques, Abrams, and Serodio, 2001). This model proposes that those who deviate from the group's norms threaten the integrity of the group and face exclusion. According to Marques, Abrams, and Serodio (2001) the reaction towards those who deviate from group norms and whether or not they are excluded depends on three considerations: firstly, whether or not the deviant person occupies a position on the boundary with the out-group or are clearly separate from them; secondly whether or not he or she is a threat to the group's valence and

distinctiveness, and finally whether or not the deviant's behaviour that violates the group norms and hence group integrity is attributed to only the deviant or the group as a whole.

The third reason why people practice exclusion according to Baumeister and Tice (1990) is based on the person's attractiveness to the group. Whilst some people are viewed as being aesthetically appealing, those who face exclusion are considered personally unattractive in some fashion, which renders their companionship unappealing, unpleasant, and objectionable (Baumeister & Tice, 1990). Unattractive characteristics may include insensitivity towards other group members, perceived dangerousness, chronic complaining, or be based on differences from the group in terms race, gender and/or class and thus extend into systemic discrimination (Williams, 2001). For those persons, however, who do not demonstrate incompetence, that do not violate group norms, and who are not considered to be personally unattractive, group inclusion and belongingness is fostered.

### **Conceptualising Belonging**

The concept and importance attributed to belonging has been well recognised in psychological literature and the understanding that people have a desire to connect with others and maintain strong and close interpersonal bonds is not new (Bowlby, 1969, 1973; Erikson, 1964; Harlow, 1958; Maslow, 1954; Rosenberg, 1979). Research such as that undertaken by Maslow (1968) suggests that the need to form and sustain successful and satisfying relationships with others is one of the most fundamental of human strivings. Maslow developed a hierarchy of five sets of goals that may be considered as basic human needs. These included physiological needs, safety needs, love needs, self-esteem needs, and self-actualisation needs. He suggested that establishing and maintaining these basic needs motivated human behaviour. Love needs, which refer to the need for affection, acceptance, and belongingness, fall in the middle of Maslow's human motivation hierarchy after the most basic needs of food, thirst, and safety. Maslow theorizes that for a place in

the group, the person will strive intensely and relentlessly. In addition to this, it was stated that the thwarting of the basic need of love and belongingness can result in maladjustment and more severe psychopathology (Maslow, 1968).

Bowlby (1969) also theorized regarding the importance of the need to develop and sustain relationships in his theory of attachment. Attachment behaviour has been defined as desiring, seeking, and maintaining proximity to another person (Bowlby, 1969).

Bowlby posited that the attachment relationship between the infant and the principal caregiver is an instinctive behaviour that develops as the infant interacts with the environment and forms an emotional bond with the principal figure in that environment.

Bowlby (1979) suggested that the need and desire for relationship and attachment extends into adulthood and is an attempt to recapture the intimate contact that was once shared with the principal caregiver. In Erikson's (1964) model of the life cycle, a stage of development is defined as intimacy versus isolation. This stage depicts a person's desire to establish affiliations and partnerships with others, hence intimacy, and reports that if intimacy is not developed due to a failure to sacrifice and compromise as necessary, then isolation followed by self-absorption results (Erikson, 1968). The danger posited in this stage by Erikson (1964) is that if the person fails to establish belonging and intimacy with others that the possibility of psychopathology increases along with disruption to the next stage of critical development. Another example that demonstrates the desire for people to belong is Billig and Tajfel's (1973) minimal group paradigm, which highlighted that people desire to belong to a group as demonstrated through seeking social inclusion and avoiding the experiences of social exclusion.

Such theories demonstrate that the need for belongingness has been thoroughly explored and is a useful method for understanding human motivation and behaviour. This primary need to belong and form at least a minimum quantity of interpersonal relationships

appears to be universal, as groups and affectional bonds are formed all over the world, in all human societies (Lakin & Chartrand, 2005). The innate quality of belongingness in humans has been suggested to possess an evolutionary foundation, which fosters survival and reproduction (Baumeister & Leary, 1995; Bowlby, 1958). According to Lorenz's (1957) theory of instinctive and innate behaviour, certain species-specific behaviours that develop in the absence of any environmental influence (animals reared in isolation) are products of natural selection (Lorenz, 1957, as cited in Airew, 1996). In other words, it was proposed by Lorenz that innate traits are genetically transmitted rather than culturally transmitted. This is consistent with Bowlby's (1958) theory of attachment that suggests that the desire for a secure relationship between the infant and the principal caregiver is instinctive in behaviour. He posits that human infants commence life with a number of highly structured responses, some of which are activated at birth and others that develop upon maturation. These instinctive behaviours such as clinging and following facilitate the child-caregiver tie (Bowlby, 1958). Belongingness has also been considered biological in foundation, in that people are biologically adapted for life in small groups that facilitate the successful completion of survival activities such as defending against predators, providing group protection, locating, capturing, and securing food and shelter, finding mates, and raising offspring (Lakin & Chartrand, 2005). Once excluded from the collective, the resources to complete the above activities necessary for survival are unavailable and if not reconnected with the group, early death and termination of genetic lineage is inevitable.

### **The Need to Belong Theory**

Many theorists and researchers acknowledge that being subjected to the adverse experience and subsequent outcomes of social exclusion, rejection, and ostracism, can threaten one of the most basic and powerful human motivations, the need to belong (Baumeister & Leary, 1995; Sommer, Williams, Ciarocco, & Baumeister, 2001; van Beest

& Williams, 2006; Williams, 1997, 2001; Zadro, Boland, & Richardson, 2005). In a more recent examination of belonging and its role in human interpersonal behaviour, Baumeister and Leary (1995) reviewed an abundance of evidence to investigate the belonging hypothesis, that human beings have a pervasive drive to establish and maintain a minimum quantity of positive and well-formed relationships with others. The criteria Baumeister and Leary specified as necessary in order to satisfy an persons need to belong included frequent positive interactions with at least a few people, and also that these interactions be stable and enduring in nature and characterised by affective concern for each other's well-being. Frequent contact with people who are indifferent and unsupportive does not serve to fulfil this need to belong, nor do relationships that are defined by intimacy and commitment but lack regular and frequent meetings and interactions. Baumeister & Leary theorized that the need to belong is more than the desire for affiliation and attachment to another, but rather a need for regular social contact with people or groups to whom one may feel connected. For belonging to be classified as a fundamental motivation, it was necessary for the need to belong to operate in a wide array of settings, significantly influence emotional and cognitive responses, produce adverse consequences when interrupted or when insufficient, drive behaviours that aim to satisfy the need, apply to all people, impact a wide array of behaviour, and impact future psychological functioning. A revision of over 300 individual citations by Baumeister and Leary revealed that the need to belong met the criteria required in order for belongingness to be considered a fundamental human motivation. The findings from this extensive review support the need to belong theory described above and confirm the hypothesis that the need to belong is a fundamental, powerful, and pervasive human motivation (Baumeister & Leary, 1995).

It was suggested by Baumeister and Leary (1995) that when the desire to form and maintain strong and stable social relationships is thwarted and when belongingness needs

remain unfulfilled, a host of negative consequences emerge. These consequences of decreased belongingness include negative affect such as anxiety (Barden, Garber, Leiman, Ford, & Masters, 1985; Baumeister & Tice, 1990), depression (Leary, 1990), grief (Lofland, 1982; Weiss, 1979), and jealousy (Pines & Aronson, 1983; Reiss, 1986), impaired cognition (Baumeister, Twenge, & Nuss, 2002), behavioural changes (Baumeister, 1990a; Bloom, White, & Asher, 1979), physical health problems (Cacioppo et al., 2002; Case, Moss, Case, McDermott, & Eberly, 1992; Uchino, Cacioppo, & Kiecolt-Glaser, 1996), and mental health problems (Baumeister & Tice, 1990; Leary, 1990). Based upon this wide range of detrimental consequences resulting from a lack of positive and well formed relationships with others, it can be seen that belongingness is crucial to people's well being. If subjected to a continuous and long-standing insufficient level of belonging, coping resources may become depleted and a person will experience despair, alienation, helplessness, and worthlessness (Williams & Zadro, 2005). Furthermore, thwarting of the need to belong is so distasteful that it may ignite a perpetuating cycle in which previously socially excluded people become more vulnerable, susceptible, and suspicious to future attacks on belongingness (Baumeister & DeWall, 2005).

#### **Four Fundamental Needs**

As mentioned above, some research on rejection and ostracism has suggested that being excluded results in a host of psychologically negative consequences for the person undergoing the exclusion (e.g. Leary, 1990; Williams & Zadro, 2005). According to the need to belong theory, these adverse reactions occur due to the severing of the most basic primal need of belongingness and as a result, the reaction is one of distress, pain, and hurt (Baumeister & Leary, 1995). Williams (2001) developed a model of ostracism in which the core theory is that ostracism (ignoring and excluding others) has the ability to threaten and undermine what are described and empirically supported as four fundamental human



needs. Williams proposes that these four needs are immediately activated by even short-term exposure to ostracism. These needs are: the need to belong, the need for self-esteem, the need for control, and the need for meaningful existence (Williams, 2001). The need to belong, as described by Baumeister and Leary (1995), is an innate need. Williams supports the notion that being ignored, excluded, or subject to the 'silent treatment', results in the target person experiencing fear and receiving the explicit message that they may lose their attachment to the people ensuing in the depletion of belongingness levels (Williams, 2001). The need for self-esteem is argued by theorists to be a strong fundamental need and there is consensus that self-esteem is highly desirable and vital for all people (Baumeister, 1994; Greenberg et al., 1992; Maslow, 1968). Williams suggests that when people experience ostracism it conveys a message that there is something is bad, unwanted, and undesirable about them and highlights their shortcomings. This in turn threatens their sense of self-esteem. Williams proposes that ostracism also undermines a person's perceived control in interactions with others who are threatening ostracism, as it is one-sided in nature and does not provide opportunities for debate and input. The need for control may also be diminished to a greater degree when the motive behind the ostracism is unknown and unclear. The final need, the need for meaningful existence, is thwarted when ostracised, as attention and recognition of a person is withdrawn and the fragility and temporary existence of the person is made salient. Williams suggests that ostracism symbolizes death, offering the person a glimpse of what it would be like if they did not exist (Williams, 2001).

Williams, Cheung, and Choi (2000) investigated the relationship between ostracism, the four fundamental needs, and emotional distress by studying the effects of ostracism by unknown and unseen perpetrators over the Internet. Utilising an experimental method known as Cyberball, they termed this form of ostracism as cyberostracism. A large and

diverse sample of participants were involved in a virtual ball-toss game (Cyberball) in which they were led to believe the purpose was to investigate mental visualisation. The participants were required to virtually throw and catch a disc with two other players whom they had no prior relationship or contact with. These 'other players', however, were computer generated and programmed to exclude the participant to varying degrees. In the first study involving 1486 participants, it was found that despite the non-existent prior relationship and lack of face-to-face contact and risk of public ridicule, targets of cyberostracism reported lower levels of belongingness and also reported an increase in levels of psychological discomfort as exposure to and the intensity of ostracism increased (Williams et al., 2000). In the second study, involving a smaller sample of 213 participants it was hypothesised that if participants who experienced cyberostracism were provided with the opportunity to conform to others they would do so in order to re-establish their sense of belonging. Conformity was assessed through measuring participant's responses on a number of perceptual comparisons that were sensitive to conformity measures. It was found as hypothesised that despite participants being insulated from public embarrassment, cyberostracism deprived participants of their sense of belonging, which resulted in increased negative mood, feelings of exclusion, low group cohesion, and an increased likelihood to conform to unanimous incorrect judgments of a new group. These findings suggest that not only does ostracism negate peoples basic need for belongingness but also that the detrimental impacts of ostracism are swift and can be felt even in a minimal social environment (Williams et al., 2000).

In a similar study conducted by Zardo, Williams, and Richardson (2004), it was found that participants, who experienced ostracism during a manipulated game of Cyberball, reacted just as negatively when they were told they were being ostracized by the computer program rather than by other participants. This finding suggests that being

ostracized by the computer was just as unpleasant as being ostracized by other human beings (Zardo et al., 2004). Gonsalkorale and Williams (2007) also utilised the Cyberball method of ostracism in their research and found that participants were just as negatively affected regardless of whether they were ostracized by in-group members (people of the same political party), out-group members (people of a rival political party), or even by despised out-group members (the Ku Klux Klan). Smith and Williams (2004) explored the effects of ostracism through cell phone text messaging, hypothesising that those exposed to ostracism would report it as a negative experience as indicated by lower state levels of needs (the need to belong, the need for self-esteem, the need for control, and the need for meaningful existence) and also report a worsened mood. In this research 43 participants were systematically included or excluded from a triadic cell-phone text message conversation. Included participants after initial inclusion in a text message conversation continued to receive text messages, whereas excluded participants were initially included but then received no further messages from others (Smith & Williams, 2004). Participants did not know or expect any future contact with the confederates involved in the study, did not witness any nonverbal information suggesting ostracism, and had no evidence they were being deliberately ostracized and excluded from further interaction (Smith & Williams, 2004). It was found that ostracised participants reported lower need levels, worsened mood (measured by participants indicating if they were happy, sad, frustrated, angry and anxious), and also wrote more provoking text messages than their included counterparts. The results demonstrated that mild forms of ostracism, such as through text message interaction, is sufficiently adverse to lower levels of belonging, self-esteem, control, and meaningful existence, as well as increase negative affect (Smith & Williams, 2004).

Utilising a different approach, Eisenberger, Lieberman, and Williams (2003) investigated the neurological correlates of ostracism by conducting functional magnetic resonance imaging (fMRI) scans on participants engaged in Cyberball in an MRI chamber. Initially, participants simply watched the Cyberball game, as they were informed that they were unable to join in due to their computer not being linked to those of the other players. During this, participants reported lower levels of belonging, self-esteem, control, and meaningful existence as measured by a questionnaire assessing these four fundamental needs, and also displayed activation of the anterior cingulate cortex (ACC). Activation of the ACC also occurs when physical pain is experienced (Panksepp, 2003). The activation of the ACC decreased when participants were involved and included in the game, and once again showed higher activation when they were systematically excluded. This research indicates that even the slightest indication of ostracism sets off pain signals in the brain in order to prepare the person to deal immediately with the threat of exclusion. It also suggests that this sequence of events is so powerful that it appears to occur even at the smallest indication of exclusion, perhaps to serve as a mechanism that enhances the person's opportunity for inclusion and survival (Panksepp, 2003). This study and the studies described above utilising the Cyberball methodology and ostracism through text messages suggest that despite the physical and psychological distance between involved participants, ostracism has swift and powerful adverse consequences.

### **Social Exclusion and Emotion**

The above research exploring ostracism, which severs a person's connections and bonds with others, found that ostracism demonstrates to the victim that others do not value them but rather view their companionship as undesirable, it can remove a person's sense of control in their social interactions and in communication, and also negatively impacts the meaning a person attributes to their existence (van Beest & Williams, 2006). In addition to

this, some research, as described above, has suggested that the immediate response to ostracism, rejection, and social exclusion is one of significant emotional distress. It would not be surprising should emotional distress follow exclusion, rejection, and ostracism, given the importance of establishing and maintaining group membership. If an important relationship is threatened a person may feel anxious. If a bond with another person or group is severed, feelings of depression and grief may be expected to follow. If there is a lack of sufficient positive relationships a person may experience loneliness and worthlessness. Samolis and Williams (1994, cited in Williams & Zadro, 2001) investigated the effects of imagined ostracism. This research found that people who imagined the experience of being ostracized reported feeling a greater degree of sadness, rejection, passivity, disengagement, worthlessness, and loneliness compared to people who were instructed to imagine partaking in successful attempts at conversation. Similar results were found in another study conducted by Abraham (2003), who asked participants to think of close interpersonal bonds, prior to being subjected to exclusion. The results suggested that participants who were excluded experienced a strong negative impact on mood levels and need (belonging, self-esteem, control, and meaningful existence) levels (Abraham, 2003). Williams and Sommer (1997) also explored reactions to experiences of ostracism in which participants were systematically excluded from participation in a ball-tossing game. The body language of participants who were ostracised was evaluated and regardless of gender, ostracised participants ended up assuming slumped positions and appearing dejected by the time a five-minute interval had elapsed (Williams & Sommer, 1997).

In investigating reactions to acceptance versus rejection, Buckley, Winkel and Leary (2004) found in their first experiment that rejection reliably resulted in higher levels of negative emotion including anger, hurt, sadness, and lower happiness than did acceptance.

In addition to this finding, participants rated feeling better about themselves after experiencing acceptance compared to rejection. In the second experiment undergraduate psychology students were required to speak about themselves over a microphone for five minutes while being told another person was listening in an adjacent room. During this time, they received bogus feedback at one-minute intervals pertaining to the degree to which the person listening wished to get to know them. Participants received one of four possible patterns of feedback: constant acceptance, increasing rejection, constant rejection, or increasing acceptance (Buckley, Winkel, & Leary, 2004). Overall, rejection elicited more negative reactions than did acceptance. Participants who were subjected to increasing levels of rejection reported feeling worse than participants who experienced constant rejection. Furthermore, participants who were increasingly rejected reported greater anger, hurt, and sadness than accepted participants. Therefore the results suggested that emotional response was dependent upon the patterns of acceptance or rejection received by the participants (Buckley, Winkel, & Leary, 2004).

Van Beest and Williams (2006) investigated the impact of ostracism on people in order to determine whether or not the immediate manifestation of emotional distress following ostracism was due to inclusion being perceived as rewarding and ostracism being perceived as costly. The experimenters manipulated the experience of ostracism so that participants were financially punished for being included and financially rewarded for being excluded. This was specifically undertaken through a variant of the ostracism manipulation known as Cyberball, which was described earlier. In study one, participants were deducted money when they were included in the Cyberball game. In study two, participants were threatened with financial loss when they were included during Cyberball. Both studies investigated whether the experimental payoffs were enough to minimize or reverse the aversive effects of ostracism. It was considered plausible that by causing

inclusion to be costly and financially unrewarding and making exclusion financially beneficial, ostracized participants would feel less emotional distress following the exclusion, as it is associated with positive outcomes. Van Beest and Williams hypothesised, however, that due to the immediate and severe reaction of emotional distress to ostracism, regardless of financial incentives, ostracism would remain painful, undermine the fundamental needs (belonging, self-esteem, control, and meaningful existence), and increase sadness and anger. The results from both study one and two found that making inclusion costly and ostracism rewarding did not mitigate emotional distress following ostracism. Findings suggested that ostracism lowered need satisfaction levels and mood. Furthermore, mood decreased as a result of an appraisal of the four fundamental needs, not because a lowered mood thwarted the participant's needs (Van Beest & Williams, 2006).

The research reported above supports the connection between social exclusion and emotional distress. That is, the experience of exclusion, rejection, and ostracism can manifest strong negative emotional reactions given the importance of securing and maintaining group membership. Other research, however, has found that significant emotional distress has not followed the experience of social exclusion (Baumeister & DeWall, 2005). Although behavioural changes following exclusion have been assessed such as becoming more aggressive (Twenge, Baumeister, Tice, & Stucke, 2001), more self-defeating, self-destructive, likely to procrastinate (Twenge, Catanese, & Baumeister, 2003), less cooperative and helpful (Twenge et al., 2003) and less prone to effortful and meaningful thought (Twenge et al., 2003), these changes have not been mediated by emotion. In fact, contrary to the above research reported, some research has suggested that there exists little or no evidence of emotional distress among the rejected and excluded participants, and the failure of emotion to mediate the relationship between exclusion and behaviour is sufficiently documented (see Baumeister & DeWall, 2005; Baumeister,

DeWall, Ciarocco, and Twenge, 2005; Baumeister, Twenge, and Nuss, 2002; Leary, Kowalski, Smith, and Phillips, 2003; Twenge et al., 2001; Twenge et al., 2003). The findings from this research suggest it is possible that another factor or process may be interrupting the causal link between social exclusion, rejection, or ostracism and the subsequent emotional distress experienced by some people.

### **Exclusion Theory of Anxiety and Cognitive Deconstruction**

Social exclusion thwarts the basic human drive of belongingness, challenges one's self esteem by indicating that others do not value them, can undermine a person's sense of control in social situations and interactions, and also affects a person's sense of meaning in their life (Williams, 2001). When considering this, it is plausible that many people would experience emotional distress including anxiety in response to exclusion. This unfavourable experience of anxiety associated to the severing of social bonds has been addressed by many theories (see Berger & Luckman, 1966, Bowlby, 1969, 1973; Erikson, 1964; Harlow, 1958; Maslow, 1954; Rosenberg, 1979; Tjafel & Turner, 1979; Yalom, 1980). According to exclusion theory as put forth by Baumeister and Tice (1990) the anxiety elicited by perceived social exclusion operates to allow the person under threat of being excluded to engage in more productive activities and ultimately help prevent the transgression of exclusion occurring. As one of the self's primary roles is to promote contact and coexistence with other group members, it is not surprising that exclusion can cause anxiety particularly as exclusion often highlights an person's flaws and inadequacies and undermines a person's basic needs for belonging, self-esteem, control, and for a meaningful existence (Williams, 2001). Baumeister and Tice propose that a practical response to social exclusion, such as altering undesirable behaviour to promote inclusion with a person, group, or social network, may not be possible and the person's paramount concern becomes eliminating anxiety and the aversive experience of the exclusion. In turn,



it is plausible that some people unconsciously escape the harsh negative outcomes of exclusion rather than address the implications of the exclusion.

The proposal that people may unconsciously attempt to cease the aversive experience of anxiety is a well-known concept in psychoanalytic theory and was originally discussed by Freud (1895, cited in Masson, 1985). According to psychoanalytic theory, the ego can be described as the conscious sense of self that incorporates a person's attitudes, values, and concerns, and deals with the external world and its practical demands (VandenBos, 2007). Ego-defense occurs in response to anxiety occurring from threatening impulses, conflicts, and external threats through the use of what are commonly known as ego mechanisms of defense. Anna Freud (1936) was the first to outline and discuss many of the ego mechanisms of defense (Freud, 1936). Ego mechanisms of defense are described as habitual and unconscious reaction patterns employed to protect the ego, the conscious self, from anxiety (VandenBos, 2007). More specifically, according to Vaillant (1971) the functions of ego defense mechanisms are firstly to keep affects within tolerable limits when sudden alterations in ones emotional life occur, secondly to reinstate psychological homeostasis by postponing or deflecting sudden increases in biological drives, thirdly to obtain respite in order to manage and control changes in self-image that cannot be integrated immediately, and finally to deal with irresolvable conflict with important people who may be either alive or dead but who the person is unable to let go of (Vaillant, 1971). In more recent psychological theories, defense mechanisms are considered to be normal reactions to coping with everyday problems. They can be considered pathological, however, when there is an excessive use of a defense mechanism, or the use of an immature defense mechanism (a defense mechanism that severely distorts a person's perception of both their internal and external reality) that negates reality (VandenBos, 2007). Each of the ego-defensive operations described in psychoanalytic theory allow for

the exclusion of feelings from awareness (Vaillant, 1971). In the same way that ego defense mechanisms operate, Baumeister (1990a) proposes that people who experience exclusion and the thwarting of the need to belong, may escape to a defensive state that isolates unacceptable truth and emotion from their current awareness. This is consistent with psychoanalytic theory that suggests a defensive response can occur that assists to regulate affects following sudden changes in a person's emotional life and also allow for 'time-out' that is needed when events influence one's self-image in a way that cannot be integrated immediately (Vaillant, 1971). Such a response would occur for some people following the experience of social exclusion, rejection, or ostracism. Baumeister has suggested that people following the distasteful experience of exclusion may escape to a defensive mental state marked by numbness, lack of meaningful thought, and a narrow focus on concrete immediate stimuli (Baumeister, 1990a).

As stated above, escaping to a defensive mental state after experiencing exclusion and the thwarting of the need to belong is done in an effort to protect oneself against the negative affect and aversive self-awareness that may ensue (Baumeister, 1990a; Twenge, Catanese, & Baumeister, 2003). This unconscious defensive mental state described by Baumeister (1990a), has been called cognitive deconstruction. Cognitive deconstruction, by definition, is the 'attempted refusal of meaningful thought particularly with reference to integrative, interpretive mental acts' (Baumeister, 1990a, p. 272). It is important to note, however, that although the exclusion theory of anxiety proposed by Baumeister and Tice (1990) explains why anxiety is experienced in the face of exclusion given humans have a basic need to belong, not all people will experience the consequent state of cognitive deconstruction following the severing of social bonds. Other responses to exclusion, aside from entering the defensive deconstructed state, include emotional distress as described in the previous section (see Buckley, Winkel, & Leary, 2004; Van Beest & Williams, 2006;

Williams & Sommer, 1997) and other behavioural responses such as avoidance and increases in sensitivity to rejection (see Downey & Feldman, 1996).

The deconstructive response is a refusal of insight and a denial of implications, contexts and ultimately meaning. Meaning refers to the emotional and cognitive significance of words, a concept, a sign, or an act (VandenBos, 2007). Meaning, however, does not exist in fragmented and separate entities but rather in broader organised structures (Baumeister, 1990a). In using meaning, a person will associate their present experience across space and time to other experiences and link them to overarching and broad conceptual structures such as religious beliefs and existing knowledge bases (Baumeister, 1990a; VandenBos, 2007). When a person engages in meaningful interpretation, the immediate experience is integrated into the related overarching structures, including placing it in its appropriate context and relating it to existing schemas (see Piaget, 1959). A schema represents a person's knowledge about a concept, entity, or situation, which acts as a guide for perception, interpretation, and problem solving (see Bartlett, 1932). A similar concept presented by Piaget (1959) in his theory of cognitive development is a process termed assimilation, which describes the process of incorporating information into already existing cognitive structures. When a person rejects meaning, these conceptual links are severed and the ability to link immediate experiences to a broader conceptual framework that provides the person with meaning is forfeited (Baumeister, 1990a). In turn, the experience is left uninterrupted and unelaborated. Each person interprets the world through the use of collective meanings and interpretive processes as described, and if a person was without such construction abilities the world would be interpreted as chaotically fragmented (Baumeister, 1990a). Cognitive deconstruction entails limiting the degree of cognitive elaboration that is performed (avoiding integrative, complex, and sophisticated interpretations, analyses and evaluations) and experiencing the world in an

undemanding fashion, as a set of basic stimuli, simple associations, and immediate reactions and responses (Baumeister, 1990a). It is the attempted rejection of integrated, meaningful thought as a means of escaping awareness of the immediate present, possible negative evaluations of the self, and experiencing oneself as only a collective of short-term feelings, desires, and behaviours (Baumeister, 1990a; Twenge et al., 2003). The deconstructed state ultimately assists in warding off aversive self-awareness and emotional distress. Subsequently, as a result of employing fragmented and trivial cognitive operations, both the person's behaviour will be affected and his or her emotional response will be interrupted as they refuse to engage in interpreting the exclusionary event.

As the deconstructed state tends to reject meaningful thought as described above, an important variable that has been examined following social exclusion (an event theorised to precede the deconstructed state) is a person's subjective sense of meaning in life. As previously mentioned, meaninglessness following social exclusion has been investigated by Williams (2001), who detailed the four fundamental human needs (see p. 10 for further details). One of these needs is the need for a meaningful existence. Research indicates that this basic need for meaningful existence is significantly threatened by ostracism (Williams, 2001; Williams, Shore, & Grahe, 1998). Similarly, Twenge et al. (2003) in a series of studies exploring the consequences of exclusion investigated the effect exclusion had upon participant's subjective experience of meaninglessness (experiment 2). In this experiment 96 undergraduate psychology students undertook an experimental manipulation adapted from Leary, Tambor, Terdal, and Downs (1995) and were systematically either accepted or rejected by peers (for the purpose of this thesis, this experimental manipulation is referred to as the "peer exclusion from groups manipulation"). This experimental manipulation required participants, while wearing nametags, to learn each other's names and to talk for 15 minutes using a set of questions as a guide. Following this, each

participant was led away and asked to nominate two other participants they would like to interact and work with again. Participants, however, were randomly assigned to be either accepted or rejected by the group. Accepted participants were informed that all other participants had nominated them and rejected participants were told that no one had nominated them. All participants were informed that it was an unusual outcome and would subsequently work alone. It was found that included participants disagreed more strongly with the statement that life was meaningless than did those participants subjected to exclusion. This suggests that socially excluded participants found less meaning in life. This finding is consistent with the premise that social exclusion can shift the person into a defensive state of cognitive deconstruction that is incompatible with meaning (Twenge et al., 2003).

Another important area theorised by Baumeister (1990a) to be influenced by cognitive deconstruction is self-awareness. According to the theory, the need to escape self-awareness is pivotal as it allows the rejected person to ignore recent social failures, perceived mistakes, and socially undesirable traits that will arouse emotional distress (Baumeister, 1990a). In the same series of studies that explored the influence of exclusion of meaningfulness, Twenge et al. (2003) explored the impact social exclusion had on people's self-awareness. Participants undertook an experimental manipulation (labelled the "future alone exclusion manipulation" for the purposes of this thesis) in which they were given a personality inventory and then randomly provided with false feedback. Participants were allocated to either a future alone condition in which they were told their personality test revealed there was a high likelihood that they would end up alone later in life, a future belonging condition in which they were told their personality test revealed they were likely to be surrounded by people who care about them later in life, or to a misfortune control condition in which they were informed that later in life they would

become increasingly accident prone (Twenge et al., 2001). Participants were then led individually to another room that contained a full-length mirror and two chairs, one of which was facing toward the mirror and one which was facing away. As facing a mirror is a common technique for increasing self-awareness, the experimenters hypothesised that participants in the social exclusion condition would be more likely to choose to sit in the chair facing away from the mirror and hence avoid self-awareness. The hypothesis was supported with participants in the future alone/social exclusion condition found to be significantly more likely to face away from the mirror and avoid self-awareness compared to the other three conditions. Specifically, all but one participant in the future alone condition faced away from the mirror. The participants in the remaining three conditions were evenly divided in which chair they chose to sit in. It may be concluded from this study that people threatened with social exclusion will be more likely to avoid self-awareness (Twenge et al., 2003). Exclusion often suggests to the person that they possess qualities, traits or exhibit behaviours that are unwanted or are considered undesirable by others. These negative implications may be one of the primary motivations for the automatic and defensive shift into the deconstructed state as such a shift allows one to avoid negative thoughts concerning the self.

As described, cognitive deconstruction ultimately assists a person in escaping meaningful thought, emotional distress, as well as the aversively viewed self. Similarly, there exist a number of behaviours that can be understood as means of escaping the self. Alcohol consumption, masochism, or even excessive exercise, can all serve as vehicles for achieving and maintaining an immediate, fragmented, undemanding, and uninterrupted mental state (Baumeister, 1990a). Baumeister (1990b) applied specific attention to describing the mental state of pre-suicidal people as suicide was considered in this review as the most maladaptive and pathological form of escaping the self. From his extensive

review of the literature, Baumeister put forth that the deconstructive processes can be seen in the pre-suicidal state including concrete and rigid thinking, inflexible thought processes, curtailed emotion and attempts to escape aversive emotion, diminished problem solving abilities, short-term goal setting, impulsive behaviours, aversions to meaningful actions, and increased passivity (see Baumeister, 1990b). This demonstrated the importance of cognitive deconstruction in the causal link to suicide and provides evidence of cognitive deconstruction serving as an escape route from the self.

### **The Characteristics and Consequences of the Deconstructed State**

As discussed above, in the event that a person possesses a characteristic or exhibits a behaviour that suggests that he or she may experience exclusion from another person or group, it is likely that the person will feel anxiety. To escape from this undesirable state, the person threatened with exclusion needs to cease being aware of this problematical aspect of self. Successfully undertaking this task of controlling self-awareness is difficult, thus attempting to prevent meaningful thought in general may be the most effective and simple method. As is described in psychoanalytic theory discussed above, ego defense mechanisms operate in distorting both a person's internal and external reality. These defense mechanisms can best be described as processes rather than discrete entities. Such it is with cognitive deconstruction. When a person escapes to the deconstructed state, a number of observable secondary behaviours occur as a result of the defensive state being activated. In turn, as it is with ego defense mechanisms, cognitive deconstruction cannot be viewed directly. Rather it must be evaluated and measured according to its systematic distortion on visible events the defending person engages in (Vaillant, 1971). In other words, assessing the behavioural manifestations of cognitive deconstruction rather than the examination of cognitive deconstruction itself needs to be undertaken. The proposed consequences of cognitive deconstruction have been described by Baumeister (1990a) and

include eight characteristics, namely cognitive immediacy, procedure orientation, passivity and impulsivity, close-mindedness, inconsistencies, disinhibition, emotion, and cognitive vulnerability. These characteristics of cognitive deconstruction are discussed below, in conjunction with some corresponding empirical support later undertaken by Baumeister and colleagues that explores the consequences of social exclusion, an event predicted to precipitate cognitive deconstruction. It should be noted that not all characteristics defined by Baumeister have yet been evaluated. In such cases where no specific empirical evidence is available, simply describing the characteristic of cognitive deconstruction is undertaken. This highlights the need for all characteristics detailed in the theory to be explored further.

**Cognitive immediacy.** Cognitive immediacy refers to a limited focus on events that occur in the immediate present (Baumeister, 1990a). Events that occurred in the past and goals that are set in the future depart from the person's current awareness (Baumeister, 1990a). The subjective sense of the passage of time may change, such as time appearing to pass more slowly, as the person focuses on the short-term, immediate present (Baumeister, 1990a). Vallacher and Wegner (1985, 1987) discuss the relationship between time and meaningful thought, suggesting that meaningful thought takes into account long time spans including the past and future plans, whereas less meaningful thought focuses on short spans of time such as simply the immediate present.

In a series of studies, Twenge, Catanese, and Baumeister (2003) investigated the relationship between social exclusion and a number of variables including time perception. As stated above, a characteristic of cognitive deconstruction (cognitive immediacy) is a person's immersion in the present and demonstration of disordered time orientation (Baumeister, 1990a). To induce social exclusion and hence the deconstructed state, 54 undergraduate psychology students were either systematically excluded or accepted by the



group using the “peer exclusion from groups manipulation” (see p. 22 for further detail). Consistent with the theory of cognitive deconstruction, which posits that time appears to pass slowly for those exhibiting the deconstructive response, it was hypothesised that excluded participants would demonstrate a present rather than future time orientation and overestimate time intervals as the experience of the passing of time appears is slower for excluded people when compared to that of accepted participants (Twenge et al., 2003). This was hypothesised given that when an excluded person avoids meaningful thought, future awareness will recede and the immediate present will become increasingly prevalent. It was found that rejected participants were more present oriented and found it more difficult to think about the future compared to accepted participants, as measured by responses on a time orientation self-report scale adapted from Kuhlen and Monge (1968) and Gjemse (1979). It is possible that it would be difficult to think about the future following exclusion, as the victim of the exclusion may experience an increased sensitivity to rejection and to anticipating future exclusion (see Downey & Feldman, 1996). Imagining the future, which may contain such experiences of exclusion, rejection, and ostracism from others and contemplating being alone, may be distressing and anxiety provoking enough for some people to isolate defensively against future thought. It was also found that rejected participants significantly overestimated time intervals thus potentially felt as if time was passing more slowly, compared to accepted participants who were more accurate in their perception of time (Twenge et al., 2003). This is also consistent with the theory of cognitive deconstruction and the construct of cognitive immediacy described by Baumeister (1990a).

**Procedure orientation.** Procedure orientation has been described by Baumeister (1990a) to be another area impacted by experiencing cognitive deconstruction following exclusion. Procedure orientation has been suggested to change upon entering the

deconstructed state, where the person will focus primarily on means including techniques and procedures, rather than ends, such as moral evaluations and evaluations of performance standards (Baumeister, 1990a). The task at hand and executing simple functions that require no cognitive flexibility and elaboration will be unaffected, however, activities and tasks that require complex thought and consideration of future outcomes and evaluating the personal and wider implications of what has been undertaken will be interrupted.

Procedure orientation has not been directly empirically tested, however, the cognitive information processing of excluded people has been explored, which assists in supporting this characteristic of cognitive deconstruction. Baumeister, Twenge, and Nuss (2002) conducted a series of experiments to investigate the relationship between social belongingness and intelligent thought. The first experiment in this series of studies involved 40 undergraduate psychology students. Participants undertook the “future alone exclusion manipulation” described previously with one alteration, participants in the control condition did not receive any feedback at all (see p. 23 for further details). After experiencing this manipulation, participants completed a broad intelligence test known as the General Mental Abilities Test (Janda, 1996), which measures verbal reasoning, mathematical ability, and spatial ability. It was found that participants in the condition that mimicked social exclusion performed more poorly than their included and control counterparts. Furthermore, excluded participants poorer performance was not due to simply hearing bad news, as the misfortune control condition did not produce these results. Socially excluded participants also displayed a decline in speed, attempting significantly less problems on the intelligence measure. Bad mood did not play a mediating role in these effects (Baumeister et al., 2002).

In the second experiment, which involved 65 undergraduate psychology students with an average age of 19.2 years, participants undertook the same experimental manipulation as in experiment one (“future alone exclusion manipulation”) and subsequent measures of encoding and retrieval in order to investigate the effects of social exclusion on learning and memory (Baumeister, Twenge, & Nuss, 2002). Participants were randomly assigned to one of two sequences of events, either the recall affected condition or the encoding affected condition. The recall affected condition involved participants reading a simple and a difficult passage taken from the reading comprehension portion of the Graduate Record Examination (encoding), experiencing the “future alone exclusion manipulation”, answering a series of multiple choice questions for each passage read (recall), and finally being informed that the exclusion information was false (debriefing). The encoding affected condition involved participants experiencing the exclusion manipulation first, followed by reading the assigned passages (encoding), being informed that the exclusion feedback was false (debriefing), and then finally answering the multiple choice questions for each passage read. It was found that future thwarting of belongingness produced large impairments on a recall task that was difficult in content, but not on a recall task that was simple in content. Processing information into memory (encoding), however, appeared unaffected for participants who were under the influence of future social exclusion, despite their ability to retrieve information from memory and respond appropriately to challenging questions being impaired. Mood, as measured by the Positive and Negative Affect Scale, did not mediate the cognitive impairments (Baumeister et al., 2002). Experiment three in this series of studies, which involved 82 undergraduate psychology students attempted to clarify these findings further and found that social exclusion impaired logic and reasoning ability but not the ability to recall simple information (Baumeister et al., 2002).

This series of experiments suggests that being told you will be socially excluded in the future can produce significant cognitive impairments and reduce a person's capacity for intelligent thought. Specifically, people in the social exclusion condition had lower levels of performance on an intelligence test, attempted fewer problems, had a higher number of errors made on tasks that were attempted, and larger impairments in reasoning and thinking than people in the other conditions. The social exclusion manipulation however, did not affect participant's responses to simple questions or their ability to perform rote memory tasks (Baumeister et al., 2002). The tasks that were impaired for the socially excluded participants such as reasoning and logic, place a higher demand on executive function abilities, as they require greater effort and control. In contrast, performance by socially excluded participants remained unaffected in tasks that are regarded as automatic cognitive processes such as direct retrieval and simple recall (Baumeister et al., 2002). The findings from this study provide some support for the theoretical characteristic of procedure orientation as tasks in this research that required cognitive flexibility and elaboration were adversely impacted by the experience of exclusion, while simple cognitive tasks such as recalling arbitrary information remained unaffected.

Baumeister et al. (2002) suggest that these findings reflect participants attempt to suppress the emotional reaction created by the threatening social exclusion by utilising the self's resources, which in turn rendered them less able to control cognitive process. The finding that automatic cognitive processes operated in an unaffected manner, while tasks that required control suffered supports this notion (Baumeister et al., 2002). This is further supported by the lack of emotion reported by participants in hearing painful news, suggesting the suppression of emotional distress. It was concluded from these research findings that social exclusion is so aversive that people will attempt to avoid and suppress the emotional distress, which in turn results in a drain on their executive function abilities

such as logical systematic thought (Baumeister et al., 2002). As can be seen, such findings are consistent with Baumeister's (1990a) theory of cognitive deconstruction in that as meaningful thought is avoided in order to escape negative emotion and self-awareness, so will the excluded person's ability to perform complex cognitive operations be forfeited. This suggests that it would not be possible for an excluded person to avoid applying meaningful thought in regards to a recent social failure, whilst still remaining able to perform complex cognitive operations that demand the person engage in meaningful thought. It is likely that the avoidance of meaningful thought, as in the deconstructed state, has a global impact on a person's cognitive flexibility and intelligent thought and this defensive avoidance of meaning as previously stated drains a person's complex cognitive abilities.

**Passivity and impulsivity.** Baumeister (1990a) suggests that avoiding meaningful thought is inconsistent with playing an active role. He suggests that planning, accepting responsibility, evaluating possible outcomes, and other aspects that require action are all essentially matters which require the use of meaning (Baumeister, 1990a). A socially excluded person may avoid emotional distress and aversive self-awareness by avoiding meaning, however, intelligent and planned action is also forfeited (Twenge et al., 2003). Based upon this preface, cognitive deconstruction, which avoids meaningful thought, will be marked by passivity, in the sense that people's responses may be described as inactive and non-resistant to what occurs around them and what others do (Baumeister, 1990a). It should be possible to act only, however, if it does not require any evocation of meaning. These deconstructed actions would be impulsive in that they would be aimless, and automatic by nature, and fail to express commitment, specific intent, future orientation, and connection to the person's internal standards (values, morals, attitudes, and beliefs) (Baumeister, 1990a). The relationship between impulsivity and low-levels of thinking has

been established, with people behaving in an impulsive manner engaging in thought that fails to incorporate important cognitive elaboration and evaluation (see Vallacher & Wagner, 1985, 1987). In sum, the deconstructed person will avoid meaningful action, and thus increase passivity and impulsive action (Baumeister, 1990a).

Passivity and impulsivity following exclusion have not been directly examined. Research conducted by Twenge et al. (2003), however, investigated the effects of social exclusion on lethargy through the use of a writing task (experiment 3). Undergraduate psychology students completed a personality questionnaire and undertook the “future alone exclusion manipulation”. Based upon the findings from the writing task, which required participants to write definitions to common proverbs, participants in the future alone (social exclusion) condition generated significantly fewer words than the other two conditions. Twenge and colleagues suggested that this might indicate that exclusion can lead to lethargy. Alternatively, the excluded person may experience a decrease in motivation. Given that this among other explanations may be considered plausible, it will be important in future research to specifically explore whether social exclusion results in lethargy and cannot be attributed to other explanations. Furthermore, the control condition who also heard bad news that they would be accident prone later in life, did not display the lethargy witnessed in the future alone participants (Twenge et al., 2003). This is consistent with the theory of cognitive deconstruction and the secondary effect of passivity that was described above. If people evade meaningful thought it is likely they will be taking a passive role in their environment or a given situation, rather than taking an active role as described above. Undertaking tasks such as providing definitions to common proverbs as in this experiment requires participants to plan and undertake meaningful thought, which is consistent with assuming an active role. Excluded participants in this study produced

fewer proverbs than included participants, which suggests they have engaged in less meaningful thought than their included or control counterparts.

Twenge et al. (2003) further examined the relationship between social exclusion and lethargy in the same series as the study discussed above through the use of a computerized reaction time task (experiment 4). Participants were 100 undergraduate psychology students who undertook the “peer exclusion from group manipulation”. It was found, as predicted, that when the task was novel and unfamiliar, excluded participants exhibited slower reaction times. Once the task became familiar and routine, excluded and included participants did not differ in reaction time. The researchers suggested that exclusion increased lethargy in executive functioning, which slows down responses to an unfamiliar task, however, does not impact automatic processes (Twenge et al., 2003). It is possible that people who may be experiencing cognitive deconstruction can undertake automatic tasks, however, experience difficulty in acting if the situation demands action requiring meaningful thought.

**Close-mindedness.** Close-mindedness in cognitive deconstruction refers narrow, rigid, uncreative, linear, and stereotyped patterns of thinking due to the rejection of meaningful thought (Baumeister, 1990a). Meaning typically involves abstractions, so the deconstructed person would prefer tasks that required concrete and specific thinking. Baumeister (1990a) proposes that following rules and solving sequential and simple problems would be easier for the deconstructed person compared to learning, and solving problems that were ambiguous or open ended. The deconstructed person would avoid interpreting new ideas, encounter difficulty integrating new ideas into their belief system, and avoid tasks that require cognitive flexibility and seeking insight (Baumeister, 1990a). As with some of the other characteristics of cognitive deconstruction, this characteristic has not been explicitly investigated. To date, the only available research that provides

empirical evidence for the relationship between social exclusion and cognitive information processing and hence close-mindedness was reported previously when discussing the characteristic of procedure orientation (see pp. 28-31 for further details).

**Inconsistencies.** Awareness of one's own behaviour as inconsistent requires sophisticated cognitive operations that compare two aspects of behaviour or behaviour that occurs at different times, and deciphering whether they are incongruent (Baumeister, 1990a). Being aware of such inconsistency requires cognitive synthesis and elaboration. This is unavailable in the deconstructed state as meaningful elaboration of actions is unavailable and the person's focus is restricted to the immediate present. In turn, cognitive deconstruction will make people more likely to behave inconsistently due to the inability to detect and regulate inconsistencies in their behaviour (Baumeister, 1990a). To the researcher's knowledge, this theoretical characteristic of the deconstructed state and the influence social exclusion has upon a person's consistency in behaviour has yet to be empirically explored.

**Disinhibition.** Most people throughout their lifespan have internalized a considerable number of norms they conform to, rules they abide by, and moral principles and restrictions that guide their behaviour. Inhibitions, having the ability to exercise restraint on the expression of an instinct, are largely affected by meaningful, integrative thought as they rely on comparing possible behaviours against a number of internalized standards (Baumeister, 1990a). As cognitive deconstruction reduces meaningful awareness and thought, the comparison of behaviour to internal standards will decrease markedly. As a result, inhibitions may be discarded in the deconstructed state, as the person will be less likely to detect what behaviour violates normal inner standards (Baumeister, 1990a).



As is the case with some of the characteristics already described, there is no research that has been executed with the aim to explore the relationship between social exclusion and disinhibited behaviour as a characteristic of cognitive deconstruction. This also applies to the above characteristic of inconsistencies in behaviour. Some research has been undertaken, however, that provides an insight into the behaviour of people who experience exclusion, which does suggest inconsistencies and disinhibition can occur. Twenge, Catanese, and Baumeister (2002) explored the link between social exclusion and self-defeating behaviour, the seeking of short-term benefits and rewards at the expense of long-term goals and costs (see Baumeister, 1997), in university students. Participants undertook the “future alone exclusion manipulation”. After receiving this information, a number of self-defeating behaviours were explored and measured. It was found that participants who believed they would find themselves alone later in life were more likely to take unwise, self-defeating risks with lottery choices, were less likely to select health-enhancing behaviours such as engaging in the short-term pleasure of eating unhealthy food, and were also more likely to procrastinate. These detrimental behavioural effects were not significantly mediated by mood, which was measured throughout utilising a holistic scale ranging from one (*very negative*) to seven (*very positive*), the Positive and Negative Affect Scale (Watson, Clark, & Tellegen, 1998) and finally the mood valence subscale from the Brief Mood Introspection Scale (Mayer & Gaschke, 1988). It can be seen how these behavioural changes, that may occur following the experience of being excluded are particularly undesirable. These changes increase the likelihood of risky and foolish behaviour occurring that may also be inconsistent with a person’s prior behaviour and their internal standards. As the person escapes meaning, self-awareness and emotional distress decrease but the person’s ability to think with a future orientation, to behave in a non-impulsive manner, to compare behaviour to internal guides such as morals and standards,

and to match current behaviour with that which was undertaken in the past also becomes impaired. These findings are consistent with what would be expected of a person experiencing cognitive deconstruction and exhibiting the characteristics of inconsistencies in behaviour and disinhibition described by Baumeister (1990a).

**Emotion.** Emotion typically occurs following the meaningful evaluation and interpretation of circumstances (Baumeister, 1990a). The rejection of meaning in the deconstructed state must in turn substantially reduce the degree of emotional response. Not only is emotion absent due to the lack of meaning in deconstruction, escaping from emotion, particularly aversive emotion, may be one of the primary motivations behind resorting to cognitive deconstruction (Baumeister, 1990a). This allows the person to defensively isolate negative affect and keep the aversive experience out of awareness (Twenge, Catanese, & Baumeister, 2003). Twenge et al. (2003) investigated the role of emotion in the deconstructed state across six experiments. Experiment one found a small effect for a one-item mood measure, however, accepted and rejected participants did not differ significantly in positive or negative emotion measured on a detailed mood scale requiring the participant to rate his or her mood on 41 adjectives, eight of which were positive (e.g. happy) and 33 of which were negative (e.g. nervous) (Twenge et al., 2003). Experiments two and three also produced no differences in self-report mood measures, which were three mood items in which participants rated their mood on a Likert-type rating scale from one to nine with the anchors of bad to good, sad to happy, and tense to relaxed (see Williams, Cheung, & Choi, 2000) and also the Positive and Negative Affect Scale (Watson, Clark, & Tellegen, 1988). Although it is unsure whether some of the measures in experiments two and three possessed validity, these measures were considered to be explicit mood measures, asking the participant to rate their current mood. The following experiment investigated mood implicitly. Twenge and colleagues randomly assigned

undergraduate university students (10 men and 20 women with a mean age of 20 year) to one of two conditions in order to elicit the experience of social exclusion. Participants undertook the “future alone exclusion manipulation” (Twenge et al., 2003). Following this, participants were seated in front of a computer that was programmed to display a row of X’s and then flash. Participants were informed the computer would flash a word (when it actually flashed a blank screen) and were instructed to circle the suspected word from four choices, some of which were neutral and some of which were emotive. It was predicted that socially excluded participants in the future alone condition would choose fewer emotionally laden words than participants who did not receive any feedback. This is consistent with the cognitive deconstruction theory as it posits that deconstruction is a defence mechanism that serves to shut down a person’s emotions (Twenge et al., 2003). It was found that future alone (socially excluded) participants indicated fewer emotionally oriented words than participants who did not receive any feedback. This finding indicates that the absence of emotional distress following exclusion may not be a result of the use of self-report measures but rather perhaps some people react to social exclusion by shifting into a defensive state of deconstruction and shutting down their emotions (Twenge et al., 2003). Not only is emotional distress potentially suppressed, but also possibly a person’s perceptions regarding emotional reactions to future events and the ability to empathise with others. Twenge, Baumeister, DeWall, Ciarocco, and Bartels (2007), when exploring the relationship between belonging and people’s tendency to undertake prosocial behaviour, also explored the relationship between social exclusion and empathy. Twenge and colleagues undertook a series of experiments, which across the seven studies manipulated 259 undergraduate psychology students status of belonging. Participants, who were randomly assigned to be excluded across the series of experiments, were found to help significantly less than the three control groups, as demonstrated by volunteering to help out

in significantly fewer experiments than their included counterparts, being less likely to help out the experimenter when they experienced a mishap or accident, and behaving in a less cooperative manner towards fellow students (Twenge et al., 2007). Of current relevance, it was found that participants who experienced exclusion reported significantly reduced trust and empathy towards others, as well as experiencing fewer feelings of belongingness than participants in the other conditions (Twenge et al., 2007). Thus it could be suggested that the defensive numb state entered into by some people who have experienced social exclusion not only ceases emotional distress but it also may disable their empathic understanding. Empathy requires understanding of another's emotions and if a person is emotionally numb and unresponsive following social exclusion, this may become an impossible task. It must be noted that some rejection can cause distress in some cases (Baumeister & Tice, 1990). Such findings have been found in research and have been reported in a previous section of this chapter, social exclusion and emotion. Despite the ongoing debate of the role of emotion following exclusion (see Baumeister, DeWall, & Vohs, 2009) the above research clearly suggests that one pattern of emotional response to social exclusion is emotional numbness. For some people a global shut down of the emotional system occurs following the aversive experience of exclusion (Baumeister et al., 2009). It is this response that is consistent with the deconstructed state.

**Cognitive vulnerability.** The final characteristic of cognitive deconstruction has been termed by Baumeister (1990a) as cognitive vulnerability. As a person experiencing cognitive deconstruction aims to escape meaningful thought, irrational and imaginary thinking may become more prevalent as he or she avoids interpreting the exclusionary event. Due to the absence of meaning, deconstruction may leave the person more vulnerable to irrational thinking, fantasy prone thought, and flight of the imagination (Baumeister, 1990a). Irrational thought patterns experienced will tend not to be easily

recognized in the deconstructed state by the person, so ceasing them or refusing to engage in them becomes more unlikely. In addition to this, the deconstructed person may experience a heightened susceptibility to external influences from people or groups (e.g. religious cults) that offer a new appealing structure which differs from the previous world-view adopted by and taught to the deconstructed person (Baumeister, 1990a). Research conducted by Carter-Sowell, Chen, and Williams (2008) explored the impact ostracism had upon a person's susceptibility to an external influence. Utilising the Cyberball paradigm it was found that ostracised participants were more compliant and susceptible to requests to donate money following their experience of ostracism. Ostracised participants became more easily persuaded by another person compared to their included counterparts, even when compliance could be considered costly (Carter-Sowell et al., 2008). Such findings of ostracised participants being more susceptible to external influences support the cognitive deconstruction characteristic of cognitive vulnerability.

### **Rationale for Research**

Research has provided some support for the existence of the defensive state of cognitive deconstruction following experimentally induced experiences of social exclusion. This deconstructed state appears to be distinguished by a lack of meaningful thought, decreased self-awareness, impaired time-orientation, a decrease in intelligent thought, lethargy, a lack of emotion, and self-defeating behaviours. As can be seen from the research reviewed above, the investigation and measurement of some of the characteristics of cognitive deconstruction, however, have not yet been comprehensively explored. Furthermore, the investigation of all of the cognitive deconstruction characteristics simultaneously has not been undertaken despite being discussed together in theory. Some of the characteristics of cognitive deconstruction have acquired indirect support through the examination of the consequences of social exclusion; an event

theorised to induce the deconstructed state for some people. It is important to note, however, that not all people will respond to exclusion, rejection, and ostracism by defensively entering the deconstructed state. As aforementioned, alternate pathways for responding to exclusion have been well documented such as avoidance, and rejection sensitivity (see Buckley, Winkel, & Leary, 2004; Downey & Feldman, 1996; Van Beest & Williams, 2006; Williams & Sommer, 1997). Cognitive deconstruction is one possible response to social exclusion and the thwarting of the need to belong and has received some support through a collection of studies conducted by Baumeister and colleagues. Further exploration is necessary to purposefully investigate the defensive state of cognitive deconstruction in its entirety and to empirically evaluate whether the emotional, cognitive, and behavioural consequences of cognitive deconstruction as detailed in theory can be quantitatively measured via a self-report questionnaire in people who have experienced social exclusion. Such research has not yet been conducted as the measurement of cognitive deconstruction has previously occurred through evaluating behavioural tasks following the experience of social exclusion or through the completion of pre-existing questionnaires attempting to tap singular characteristics of deconstruction. Further development of the theory of cognitive deconstruction would be accomplished through constructing a questionnaire specifically designed to assess the characteristics of deconstructed state. As is the case with ego defence mechanisms, quantitative assessment would involve measurement of the secondary effects of the deconstructed state, which would require the attempted measurement of each characteristic defined by Baumeister to encompass cognitive deconstruction. Furthermore, it would be predicted that, as is the case with ego-defence mechanisms drawing too much attention to the defended cognitions, emotions, and behaviour produced from the deconstructed state might cause the person discomfort (Valliant, 1971). Hence it would be important for a scale to be relatively brief.

## **Thesis Aims**

The aim of the current thesis was to develop a reliable and valid self-report measure of cognitive deconstruction. The deconstructed state that has been documented to result in large and potentially detrimental changes in cognitions, emotions, and behaviours has not yet been assessed utilising a self-report measure that addresses all of the deconstructed state characteristics. Previous research has explored some of the characteristics of the deconstructed state, however, there has been no scale that has attempted to empirically evaluate multiple aspects of cognitive deconstruction simultaneously. This thesis attempted to evaluate all the aspects of cognitive deconstruction by developing a scale containing items that attempt to address each of the theoretical constructs proposed by Baumeister (1990a). It should be noted however, that one of the challenges of scale development is taking theoretically proposed constructs to form distinct empirical components. As such, discrepancies can occur between theoretical constructs and those empirically derived. Furthermore, when attempting to develop a scale that values brevity and reliability it is difficult to incorporate and evaluate multiple constructs in depth. As such, developing a scale that incorporates the measurement of a number of, if not all of, the theoretically described characteristics proposed by Baumeister upon which a total score of cognitive deconstruction can be obtained and interpreted will be of value.

As stated, the current thesis aimed to assess deconstruction utilising a reliable and valid self-report questionnaire. The available literature that has been reviewed in this chapter has focused on the consequences of social exclusion rather than specifically on the construct of cognitive deconstruction. As such, evidence found to support the deconstructed state has been drawn from studies implementing detailed experimental manipulations aimed to induce social exclusion. These methods for investigating cognitive deconstruction are effective and found to yield accurate findings, however, are not always

appropriate. The experimental procedures can be time consuming and are not as easily and quickly undertaken when compared to administering and scoring a single self-report questionnaire. Furthermore, exploring the deconstructed state in a setting outside the laboratory would require the administration of a number of psychological self-rating questionnaires (that may possess validity concerns in measuring the characteristics of cognitive deconstruction) in conjunction with close observation of the person who has either experienced exclusion or thwarting of their need to belong to provide some understanding as to whether they were deconstructed. A self-report measure that is reliable, valid, and easily administered, without the use of an experimental manipulation or the administration of numerous scales, is valuable in evaluating cognitive deconstruction in people who are subjected to exclusion and experience few close interpersonal bonds in their everyday life in a number of settings. This form of quantitative analysis on cognitive deconstruction will make important information readily available by providing meaningful cognitive deconstruction total scores for people identifying their possible problematic emotions, thoughts, and behaviours. Furthermore, a questionnaire assessing the defensive state of cognitive deconstruction will be theoretically meaningful and provide further empirical evidence for the characteristics of cognitive deconstruction detailed in theory by Baumeister (1990a).

A reliable questionnaire measuring cognitive deconstruction will provide valuable information regarding a person's escape from meaningful thought and specifically, their current experience of cognitive immediacy, procedure orientation, passivity and impulsivity, close-mindedness, inconsistencies, disinhibition, emotion, and cognitive vulnerability (Baumeister, 1990a). This information will not only assist in adding to findings regarding the outcomes of exclusion on a person, but also identify those who are at risk of future exclusion and vulnerable to the maladaptive cognitions, emotional



reactions, and behaviours that occur in the deconstructed state as the person avoids meaningful thought in the attempt to escape from aversive self-awareness and emotional distress. Identifying the presence of cognitive deconstruction through the use of a simple and time-efficient questionnaire will also aid in providing effective therapeutic intervention so as the excluded person can correct cognitions and behaviours that may be harmful and result in future exclusion and a perpetuating cycle of isolation.

The current thesis is divided into three studies that collectively have the overall goal of producing a reliable and valid questionnaire that effectively measures cognitive deconstruction. The first study began the process of designing and constructing a self-report scale that accurately measures the defensive state of cognitive deconstruction. It was endeavoured that the measurement instrument of cognitive deconstruction would possess appropriate construct validity and reliability, as well as produce a statistically sound exploratory factor structure. This study also aimed to refine the preliminary measure of cognitive deconstruction through investigating further the internal consistency and validity of the scale, and confirming the factor structure that would be previously produced. The second study investigated the efficacy of the proposed measure of cognitive deconstruction. This was accomplished through exploring the measure of cognitive deconstruction in an experimental setting replicated from previous research and utilised the newly developed measure to discriminate participants who experienced cognitive deconstruction as a result of being subjected to social exclusion. The final study in the thesis explored the relationship between the newly developed Cognitive Deconstruction Questionnaire and constructs theorized and found in empirical research to form the theoretical foundation of the deconstructed state, such as engaging in meaningful thought and self-awareness. Exploring the relationship between constructs that theoretically underpin cognitive deconstruction and the measure developed in the current thesis

provided statistical support for the accuracy of the Cognitive Deconstruction Questionnaire and allowed for the theory of cognitive deconstruction proposed by Baumeister (1990a) to be operationalised.

## **Chapter Two: Development of a Measure of Cognitive Deconstruction**

### **Item Development and Content Validity**

The first step in successful scale development as suggested by DeVellis (2003) is to determine clearly what it is that the questionnaire is intended to measure. Although only the initial step, being well grounded in the relevant theory related to the latent variable it is of primary importance in scale development. The ability to observe the true variance of the variable of interest is completely dependent upon how the latent variable is initially operationalised (Hinkin, 1995). Hence, it is critical that an unobservable construct be operationalised in a fashion that is scientific, enhancing its ability to be considered a reliable and valid representation of the variable when interpreted. Knowledge regarding the theory or theories, which potentially help to explain the phenomena of interest aid this desired clarity. At minimum, a tentative theoretical model should be employed to guide scale development. As such, the theoretical model of cognitive deconstruction will be utilised to guide the development of the current scale.

Cognitive deconstruction was originally defined by Baumeister (1990a) as the “attempted refusal of meaningful thought, particularly with reference to integrative, interpretive mental acts” (Baumeister, 1990a, p. 272). Cognitive deconstruction has also been further defined as “a mental state characterized by lack of emotion, the absence of any sense of future, concentration on the here-and-now, and focus on concrete sensation rather than abstract thought. People may cultivate this state to escape from emotional distress or troublesome thoughts” (VandenBos, 2007, p. 188). Given that these are the only two broad conceptual definitions available that capture the overall manifestations of cognitive deconstruction, they were both continually considered in the development of the scale.

As discussed in chapter one and as demonstrated in the above definitions, cognitive deconstruction is a multidimensional construct. When measuring the content of a complex variable such as cognitive deconstruction, developing and utilising a scale that contains multiple subscales can assist in adequately covering and assessing the variable (Spector, 1992). Baumeister theorised that the characteristics of cognitive deconstruction are cognitive immediacy, procedure orientation, passivity and impulsivity, close-mindedness, inconsistencies in behaviour, disinhibition, emotion, and cognitive vulnerability. Each of these consequences are proposed to be associated to the deconstructed state and result from disengaging from meaningful thought and activities that stimulate meaning. Baumeister put forth that such defensive isolation of meaning allows the person to: 1) escape negative self-awareness that is raised as personal inadequacies are highlighted; 2) minimise anxiety that may occur from entertaining thoughts concerning a future alone; and 3) disengage from unpleasant emotions that accompany the meaningful consideration of the self and social failure. Each characteristic is explained briefly in table 2.1.

In addition to carefully examining theory, all available studies that have provided indirect support for the theory of cognitive deconstruction or investigated consequences of social exclusion that are consistent with the deconstructed state, were examined in order to create a thorough and comprehensive operationalisation of each of the characteristics. The studies reviewed further are detailed in length in chapter one, however, it is important to note that not all characteristics of cognitive deconstruction have received empirical attention and hence support.

Table 2.1

*Descriptions of Characteristics of Cognitive Deconstruction as Defined by Baumeister (1990a)*

<b>Characteristic</b>	<b>Description</b>
Cognitive Immediacy	A limited focus on events that occur in the immediate present.
Procedure Orientation	A focus primarily on means, including techniques and procedures, rather than ends, such as moral evaluations and evaluations of performance standards.
Passivity and Impulsivity	As meaningful thought is avoided, a decrease in assuming an active role occurs, resulting in passivity. Actions are impulsive, aimless, and fail to express commitment, specific intent, future orientation, and connection to a person's internal standards.
Close- Mindedness	Narrow, rigid, uncreative, linear, and stereotyped patterns of thinking due to the rejection of meaningful thought.
Inconsistencies	An inability to detect and regulate inconsistencies in behaviour, as meaningful elaboration of action is unavailable and focus is restricted to the immediate present.
Disinhibition	A decrease in the comparison of behaviour to internal standards will occur, resulting in inhibitions being discarded.
Emotion	A substantially reduced degree of emotional response, which allows the defensive isolation of negative affect.
Cognitive Vulnerability	An increase in vulnerability to irrational thinking, fantasy, flight of the imagination, and to external influences.

Through the combination of available literature related to the phenomena, a series of statements were developed to describe each characteristic of cognitive deconstruction (see Appendix A). Throughout this process the overarching definitions were utilised as a reference point. Although the definitions of cognitive deconstruction that are available are more general and global in description, clear explanations of each of the constructs to be examined have provided more specific descriptions from which to produce the scale and allow for clarity of what it is the scale intends to measure.

Another area of consideration at this stage of scale development includes the specificity of the measure. Scale specificity should be reviewed and established as this also aids clarity. This refers to the degree of specificity or generality at which the construct is measured (DeVellis, 2003). This current scale is intended to measure specific characteristics that aim to be distinct from other constructs external to the measure.

### **Generating an Item Pool**

The second step in developing a measure of cognitive deconstruction was to generate item pools to represent each characteristic that could then be evaluated and revised in order to arrive at a psychometrically sound measure (DeVellis, 2003). The primary concern in generating an item pool is to ensure appropriate content validity. Content validity as previously discussed, refers to the degree to which the scale assesses the representative sample in terms of the subject matter that is associated to the domain of interest, without containing any extraneous content (VandenBos, 2007). It is considered the minimum psychometric requirement for measurement adequacy and is of importance as it represents how well the scale items embody the latent variable (Schriesheim, Powers, Scandura, Gardiner, & Lankau, 1993). Content validity is created through comprehensive and deliberate construction of the scale items and it is imperative that it be built into the scale

from the commencement of item development (Hinkin, 1995). Overall, the properties of a scale are determined by the items that make it up (DeVellis, 2003).

A logical starting point towards item construction is to utilise the previously well-defined characteristics of cognitive deconstruction as a guide, as all items that form a homogenous scale must reflect the latent variable underlying them. Items derived in this deductive method will generate a pool of items that capture the overt manifestations of the common latent variable (Hinkin, 1995). A large pool of items should be developed whilst creatively considering the latent variable, as multiple items constitute a more reliable test, ensure against poor internal consistency, are able to reveal the construct in a number of differing ways, and exhaust the possibilities of the underlying phenomena within the bounds of the theoretical definitions (DeVellis, 2003). Although items that are designed to capture the latent variable in a variety of ways may present as repetitive and appear to be redundant, the content between the items that is considered common will summate across the items, while irrelevant idiosyncratic content will cancel out (DeVellis, 2003). Even though only three or four items per construct are necessary in the final scale, redundancy in the item pool is desirable. Internal consistency reliability is directly a function of how many items are included in the final scale as well as how items included in the scale correlate with one another, and in turn the latent variable (Spector, 1992). DeVellis (2003) states that it is advantageous to have as large item pool as possible and that an item pool three to four times the size of the scale length is desirable.

In turn, following these recommendations, an item pool was generated that was over six times larger than the desired final length of the scale, which was anticipated to be approximately 24 items in length with three items loading on each of the eight constructs. One hundred and sixty items were written to capture and reflect the basic content of both the overall conceptual definitions of cognitive deconstruction as well as each characteristic

in which it is manifested and observable. Each item was written from a phenomenological perspective in order for the item to capture the subjective experience of the respondent.

These items are recorded in a table in Appendix B.

To ensure simplicity, each item was made short and clear without sacrificing the meaning of the item. Exceptionally lengthy items were avoided as these increase complexity for the respondent and have the tendency to diminish clarity (DeVellis, 2003). In addition to considering brevity, items were carefully constructed to be suitable in reading level difficulty. DeVellis (2003) states that a reading level that is within the range of fifth-grade to seventh-grade reading level is appropriate for an instrument that is to be utilised in the general population. According to Fry's (1977) quantification of reading level difficulty, all items developed were written at or under a sixth-grade reading level, which suggests no more than sixteen words per sentence, and that the sentence contain less than twenty syllables in total. Semantic and syntactic factors were also considered. Other characteristics of items that were considered during scale development included avoiding items that contained double negatives, were double-barrelled, expressed more than one idea, and contained colloquialisms, expressions, or jargon (Spector, 1992). Both positively worded items, that indicate the presence of the phenomena of interest (e.g. 'My focus of attention is on the immediate present'), and negatively worded items that suggest low levels or the absence of the phenomena (e.g. I don't limit my focus to the immediate present'), were included in the item pool (DeVellis, 2003). Reverse-scored items have commonly been employed in measures in order to attenuate response bias patterns (Idaszak & Drasgow, 1987). Specifically, an acquiescent response bias can be reduced by including both positively and negatively worded items in the item pool (Crowne & Marlowe, 1960; Furnham & Henderson, 1982).



## Measurement Format

The format of measurement that best suited the purpose and contributed to the ease of development, administration, scoring, and interpretation of the current measure was determined to be a Likert-type rating scale. Since Likert's (1932) initial introduction of the summative method, Likert-type rating scales have been commonly applied to questionnaires designed for use in the social sciences. This form of rating scale involves items that are presented in the form of a declarative sentence, otherwise known as the stem, which are then followed by a number of responses that indicate equally varying degrees of the respondent's agreement (DeVellis, 2003). Degrees of agreement range from total agreement to total disagreement. This method of scaling items allows for sufficient variance among respondents for subsequent statistical analysis (Hinkin, 1995). If the scale is unable to discriminate differences in the underlying attribute then its utility will be limited. A Likert-type rating scale provides this desired variability.

The number of scale response options in the measure was selected with consideration as to the degree to which the amount of options can impact the internal consistency of a scale. According to Lissitz and Green (1975), coefficient alpha reliabilities have been shown to increase with up to five response points on a Likert-type scale, which then proceeds to plateau when employing additional scale points. Other sources suggest that utilising between five and nine points is considered optimal (Ebel, 1969; Nunnally, 1978). Weng (2004) investigated the differences in reliabilities between scales that offered a varying number of response options. In this research it was found that the number of response options on investigated scales impacted coefficient alpha and test-retest reliability. However, when utilising anchor labels (specifying each response option in words, in comparison to only displaying end points) the number of response options had no impact on coefficient alpha or test-retest reliability (Weng, 2004). This finding is

consistent with Kronsnick (1999) who reviewed survey research and suggested that in order to improve the reliability of a measure, each point on the scale should be labelled with words as this assists in clarifying the meaning of each scale option.

Consequently, items were placed on six-point Likert-type rating scale, with each response point displaying an anchor label to represent each differing scale option. A six-point scale was chosen as research suggests coefficient alpha reliabilities increase with up to five response points then plateau (Lissitz & Green, 1975) and also that between five and nine points is considered optimal (Ebel, 1969; Nunnally, 1978). Six response options were within this range without approaching cumbersomeness. Six response options were selected as opposed to five or seven as six is an even number and an even number of points avoids a clear mid-point that otherwise arises when an odd number of response options are provided allowing for equivocation (neither agree nor disagree). A middle neutral point was omitted to create a forced choice scenario in which the respondent makes a weak commitment towards one extreme or the other (Guy & Norvell, 1977). A variety of response choices have been employed, with the three most common being agreement, evaluation, or frequency (Spector, 1992). Agreement response choices were selected, as they are the most common method employed in summated scales and are also versatile in nature (Spector, 1992). Agreement response anchors require the respondent to indicate to what degree they agree with the item, as well as their magnitude of agreement. The six response options included are *strongly disagree*, *moderately disagree*, *mildly disagree*, *mildly agree*, *moderately agree*, and *strongly agree*. The scale was unipolar in nature in which the respondent could select response options that numerically corresponded to numbers ranging from one to six (Spector, 1992). The scale was designed to produce total scale scores that ranged from zero to a high positive number, with high scores of the

current scale reflecting high levels of cognitive deconstruction and low scores on the scale revealing low levels of cognitive deconstruction.

### **Determining Scale Instructions**

The final step to be undertaken prior to administering the generated and reviewed items to a development sample involved the careful construction of instructions.

Instructions were designed firstly to provide respondents with information specific to the construct being measured, and secondly to provide directions regarding the use of the scale (Spector, 1992). The following instructions were developed:

On the following pages are statements that describe peoples' perception of time, how tasks are undertaken, how personal standards impact behaviour, and how people think, feel, and act in general. These questions ask about your personal beliefs and experience so there are no right or wrong answers. Regardless of how you answer each question, you can be sure that many other people will answer in the same way.

For each statement, please indicate your level of agreement or disagreement. To do this, circle one and only one box on the right hand side of the statement that best represents your opinion. The response options you are able to choose from include strongly disagree, moderately disagree, mildly disagree, mildly agree, moderately agree, and strongly agree. Please read and answer every statement carefully. There is no time limit.

### **Initial Item Screening**

In addition to generating items from a theoretical foundation, it is important that items be subject to pre-testing prior to incorporation into the questionnaire as this assists in maximising content validity (Hinkin, 1995). According to Schriesheim and colleagues (1993) content adequacy should be evaluated following the initial generation of items so

that the researcher has the opportunity to modify the items on the scale prior to the time consuming and costly process of the generation and administration of the measure.

Consistent with guidelines specified by DeVellis (2003) items were pre-tested, prior to incorporation into the measure, by a panel of psychologists. This method of maximising content validity has also been suggested by Hinkin (1995) as best practice and a necessary pre-requisite in the establishment of new measures.

Each panel member participating in the evaluation of the items was a psychologist. The panel included a professor of psychology, two senior lecturers in psychology, and a psychology doctoral student with range of 5-30 years of research experience. The average years of experience within the panel of psychologists was approximately 15 years. Firstly, examiners were asked to allocate each item into one of eight categories that corresponded to the eight differing characteristics of cognitive deconstruction. For each characteristic of cognitive deconstruction, the panel reviewed twenty items. They were provided with clear instructions regarding what was required of them, the theoretical definitions of each of the eight characteristics, and a list of the randomly ordered items to sort (see Appendix C1, C2, and C3).

Following completion of the above content relevance task, each member of the panel was provided with a second task in which they were required to assign a rating of fit to each item based upon how relevant they believed each item to be for the characteristic it was intended to measure. The panel was again provided with an explanation of each of the characteristics of cognitive deconstruction (see Appendix C2), as well as instructions and a list of the corresponding items (see Appendix D).

The panel's comments were carefully reviewed to further ensure acceptability and understanding for the initial version of the questionnaire and minor changes were made accordingly. Items that were assigned to the a priori category more than 75 percent of the

time were retained for use in the development stage of the questionnaire. Further consideration of the retention of items was to be determined by the panel's subjective judgement regarding the degree of fit (low, moderate, or high) of the item to its corresponding theoretical characteristic. It was found, however, that items such as those generated to represent the characteristic of procedure orientation were not accurately assigned to their corresponding theoretical category more than 75% of the time. Due to this, items that displayed the greatest degree of fit to their theoretical domain as indicated by the panel were retained because of the overall conceptual importance of including all the characteristics of cognitive deconstruction in the early scale development stages. Fifteen of the twenty items generated for each characteristic of cognitive deconstruction that were accurately assigned to their characteristic and reported to have the greatest relevance according to the panel were retained for administration to a development sample and subsequent statistical analysis.

### **Chapter Three: The Evaluation of a Preliminary Measure of Cognitive Deconstruction in a Development Sample (Study One)**

Following fulfilment of each of the steps outlined in the preceding chapter, a set of 120 items was retained within the exploratory item pool. This preliminary version of the scale is referred to as the 120 Item Cognitive Deconstruction Questionnaire (CDQ-120). The next step undertaken in the scale construction process of the CDQ-120 was taking each of the 120 items into statistical consideration. This stage required the CDQ-120 to be administered to a development sample, which allowed for the necessary data to be collected so that the scale items to be evaluated and modified according to specified statistical criteria. This process was conducted in order to produce a tentative version of the questionnaire, which could then be subjected to further statistical analysis and modified accordingly. This next stage of scale development specifically encompassed an exploration of the factor structure of the scale, the internal consistency of the scale, the relationship of the scale to background variables such as gender, and the relationship between the current scale and another previously developed measure of social isolation. Following these statistical examinations which are discussed briefly below, refinements could be made to the scale and unhelpful and redundant items could be eliminated in order to improve scale brevity.

Exploratory factor analysis can be utilised to uncover the underlying structure of a large set of variables. Specifically, EFA explores how many factors exist among a set of variables and the degree to which the variables are related to the factors (Field, 2005). When items load on the same factor it is indicative that each of the items are measuring the same underlying dimension. This is an important process to undertake in the development of a measure of cognitive deconstruction as it reveals whether the items reflect each underlying characteristic of the deconstructed state. In addition to this, EFA is an effective

method for identifying and removing items that load poorly on their intended factor. This allows for redundant items to be removed from the CDQ-120 and a brief scale containing the best fitting items for each factor to be formed.

Another important aspect of scale construction is to assess the internal consistency of the scale. Adequate reliability is necessary in order to demonstrate that the multidimensional scale reflects the underlying construct, namely cognitive deconstruction, that it has been designed to measure (Field, 2005). Assessing the internal consistency as well as item reliability of the scale has been undertaken several times throughout this research, as achieving a level of internal consistency in different samples allows for the scale to be generalised to differing subject groups (Spector, 1992). Validity is also an important statistical requirement in scale construction. Factor analysis as mentioned above, examines whether the scale of interest has factorial validity. Factorial validity refers to whether the factor structure of the scale of interest makes intuitive sense (Field, 2005). In addition to factorial validity, however, it is also important to examine whether the measure demonstrates other forms of validity such as known-groups validity. Known-groups validity involves comparing the particular groups of respondents that score either higher or lower of the scale of interest (Spector, 1992). This is explored through comparing means on a scale between particular groupings of respondents in order to determine whether the scale differentiates between the respondents as anticipated. The ability of a scale to differentiate between people as would be expected suggests that the scale demonstrates discrimination. Discrimination in scale development means that people with different scores on a measure should differ on the construct of interest, which is in this case cognitive deconstruction (Field, 2005). Examining the validity of a scale such as known-groups validity, factorial validity, and construct validity, which was explored

during the item development process, is an important aspect of constructing a scale that is to be considered psychometrically sound.

### **Study One Aims and Research Questions**

The aim of this study was to commence the process of refining the CDQ-120 and evaluating the scales preliminary psychometric properties. It was first considered important to explore how the scale items developed to compose the CDQ-120 reflected each underlying characteristic of cognitive deconstruction. This was undertaken through EFA. The reliability of the scale was then explored in order to determine whether it demonstrated adequate internal consistency, which is an important psychometric requirement for measurement adequacy. The final area explored was whether the scale was able to discriminate between participants who reported greater levels of social isolation compared to participants who reported lower levels of social isolation. Exploring the ability of the scale to statistically discriminate between participants who experience social isolation compared to participants who report social connectedness, provides evidence for the known-groups validity of the scale. This differentiation was expected to occur, as cognitive deconstruction is suggested to be more evident in participants who experienced social isolation as they attempt to avoid meaningful thought and escape aversive self-awareness and emotional distress.

## **Method**

### **Participants**

The sample contained 238 participants in total. An additional 93 participants were involved in the research but were excluded from any analyses as each failed to complete the required questionnaires, resulting in excessive amounts of missing data. Many of these participants who were removed from analyses completed the questionnaire online and



chose to opt out of the research early. This was presumably due to respondent fatigue and the simplicity of removing oneself from an online study. Many other participants submitting electronic questionnaires ceased participation after entering their demographic details. As above, this may have occurred due to questionnaire completion being viewed as inconsequential and the removal of oneself from the study due to a change of mind as simple. Despite the removal of these participants, a sample of 238 participants was considered acceptable in size as research suggests that 150 respondents are satisfactory in order to obtain an accurate EFA solution in which the internal consistency is reasonably strong (Guadagnoli & Velicer, 1988; Hair, Anderson, Tatham, & Black, 1995). Fifty (21%) of the total number of respondents were male ( $M = 27.42$  years,  $SD = 8.28$  years) and 188 (79%) respondents were female ( $M = 25.73$  years,  $SD = 7.95$  years). The overall age range of both male and female participants was from 18 years of age to 65 years of age. The majority of participants were living in Australia (99.6%), with only one participant currently residing in Asia (0.4%). This participant remained in the sample as it was anticipated that culture would not be a confounding factor in this exploratory study. Of the sample, 64% of the participants were single, 28% identified themselves as having a partner, and 8% were married.

It is suggested by Cohen and Swerdlik (2002) that the scale under development should be administered to a sample that is similar to that which the test is originally developed for. It was anticipated that the sample chosen in the current study and each of the studies in this thesis would be representative of one of the populations for whom the scale is intended and for whom the results will be generalised, as the salience of loneliness and social exclusion within a non-clinical adult population is well documented and widely accepted prevalence rates are high ranging from 3 – 25% (Hawthorne, 2006).

Furthermore, the negative effects of social exclusion and the possible shift into cognitive

deconstruction have been empirically explored and supported in similar populations to the current research (see Baumeister, DeWall, Ciarocco, & Twenge, 2005; Baumeister, Twenge, & Nuss, 2002; Twenge, Catanese, & Baumeister, 2003).

## **Materials**

Participants received a questionnaire (either a hard copy or electronic version) titled Investigating the Effects of Social Exclusion. The questionnaire firstly requested participants' demographic information, including the participant's age, gender, and marital status in order to account for and control if necessary the influence each of these variables may have on the participant's level of social isolation and experience of cognitive deconstruction (see Appendix E.1). Following the demographic information the questionnaire next contained the CDQ-120 and the Friendship Scale (Hawthorne, 2006), which are contained in Appendix E.2 and E.3 respectively.

**The Cognitive Deconstruction Questionnaire - 120.** The CDQ-120 attempted to measure respondent's unconscious avoidance of undertaking or engaging in thinking or action that is considered meaningful or facilitates meaningful cognitive elaboration (see chapter two). The CDQ-120 contained 120 self-report items in which responses were made using a six-point Likert-type rating scale ranging from one (*strongly disagree*) to six (*strongly agree*) (see Appendix E.2). High scores on the CDQ-120 were indicative of high levels of cognitive deconstruction and low scores were indicative of low scores of cognitive deconstruction. The CDQ-120 was designed to distinguish an eight-factor structure. Factor 1 involves items referring to cognitive immediacy (e.g. "My focus of attention is on the immediate present"). Factor 2 incorporates items reflecting procedure orientation (e.g. "I do not think about the long term implications of my behaviour"). Factor 3 items assess passivity and impulsivity (e.g. "I find it difficult to get going"). Factor 4 incorporates items referring to close-mindedness (e.g. "I embrace interpreting new

ideas and concepts”). Factor 5 items assess inconsistencies in behaviour (e.g. “The way I act is always changing”). Factor 6 items assess disinhibition (e.g. “My behaviour doesn’t match with my moral principals”). Factor 7 includes items evaluating emotion (e.g. “I am not in tune with my feelings”). Finally, Factor 8 items measure a person's cognitive vulnerability (e.g. “I catch myself thinking irrationally”).

**The Friendship Scale.** Hawthorne (2006) developed the Friendship Scale (FS), which is a short unidimensional scale measuring perceived social isolation. Social isolation has been defined by Hawthorne as living without social contact, social support, companionship, suffering loneliness, and feeling isolated and separate from others. The FS was developed as a parsimonious measure of social isolation intended to be utilised in a range of differing populations, however, was originally validated in a large sample of older adults aged over 60 years old. The older adults, that the scale was originally developed and validated upon, were from four distinct cohorts including those living in supported accommodation, those who were hospital outpatients, older veterans, and finally a healthy community sample. According to Hawthorne, this initial validation of the FS suggested that the scale possesses excellent internal structures, with a Cronbach’s  $\alpha$  coefficient of .83. Since the initial validation, a qualitative variant of the FS has been explored in a sample of bereaved young adults aged 18 to 30 years old (McNess, 2005). The current utilisation of the FS in a non-clinical adult population will assist in further validating the FS in an adult non-clinical population. The FS consists of six self-report items in which responses are made using a Guttman-type response scale, ranging from one (almost always) to five (not at all). Scores on the FS range from zero to 24, with high scores on the FS representing social connectedness and low scores on the FS as indicative of social isolation (Hawthorne). Scores are calculated through the summation of participant’s responses, following the reverse scoring of items one, three, and four. Respondents who

are very socially isolated produce scores ranging from 0-11, those with low levels of social support produce scores ranging from 12-15, scores ranging from 16-18 demonstrate respondents with some social support, social connected respondents typically score between 19-21, and scores ranging 22-24 are indicative of people who are very socially connected (Hawthorne, 2006). These categories of social isolation were established based upon the number of items endorsed at each Guttman-type rating level. For example, those participants classified as very socially isolated (scoring between 0 and 11) obtained scores in this range as they endorsed at least one isolating condition to be ‘most of the time’ or ‘almost always’ (Hawthorne, 2006). The Cronbach’s  $\alpha$  coefficient of the FS in the current study was .89, suggesting good internal consistency. An example of an item is “During the past four weeks: When with other people, I felt separate from them” (see Appendix E.3 for the complete version of this scale).

### **Procedure**

This study was approved by and carried out in accordance with the guidelines of the Australian Catholic University National Human Research Ethics Committee (see Appendix F). Participants were recruited through a number of varying methods. Forty-seven undergraduate university students were recruited from a metropolitan university in Melbourne and were awarded partial course credit for their participation. One hundred and ninety-one participants were recruited through an advertisement of the current research on an online social network facility, namely ‘Facebook’. Recruitment via these sampling methods requested the participation of any person over the age of 18 years who had experienced loneliness and desired to participate in a study investigating the effects of social exclusion. Participants recruited through the social network facility, were provided with a link to the online questionnaire via PsychData (an online service for psychological research surveys) and anonymously and ethically submitted their data in electronic format.

Online sampling of participants was employed, as this was the most efficient method for sampling a wide range of people who expressed familiarity with loneliness and social exclusion.

All participants were provided with participant information in either hardcopy or electronic form (see Appendix G). Signed consent forms were not obtained, rather consent was considered implied if the participant was over 18 years of age and voluntarily completed the questionnaire. All participation was anonymous. All participants received the same instructions to fill out the questionnaires as accurately and honestly as possible. Depending upon the method of recruitment the participant was involved in, obtainment and completion of the questionnaire differed. Undergraduate university students sampled from a Metropolitan university in Melbourne Australia, collected the questionnaire booklet containing the above measures from either their undergraduate psychology tutorials or from the university psychology clinic. All questionnaires completed by these participants were returned to a locked box and partial course credit was awarded accordingly. Participant's who were recruited through the online social network facility were provided with an Internet link to an online version of the questionnaire booklet described above. Participants completed and submitted the questionnaire online.

## **Results**

### **Data Screening and Cleaning**

Data were collated electronically and analysed using the Statistical Package for Social Sciences (SPSS), version 17.0. Prior to commencement of planned analyses for both samples, preliminary analyses that allowed for careful examination of the data were undertaken. This involved data screening and relevant assumption testing, which assisted in ensuring an honest data set (Tabachnick & Fidell, 2007).

**Data screening.** Data was initially screened to ensure accuracy in entry.

Examination of the data ranges, measures of central tendency, and the variability of each item on the CDQ-120 and the Friendship Scale (FS) demonstrated data resided within valid parameters for sample one (Tabachnick & Fidell, 2007). All discrete variables across samples were screened for suitability.

**Missing data.** Missing data and the patterns of missing data were reviewed and amended accordingly. In addition to the 238 participants in sample one who completed the required questionnaires, a further 93 participants were involved in the research but were eliminated from analyses as each contained an excessive amount of missing data points (greater than 5%) resulting from inadequate questionnaire completion (Tabachnick & Fidell, 2007). The remaining missing data, of which there was minimal, was judged to be missing completely at random as these data points were randomly distributed throughout the data matrix and no items contained missing values in excess of the suggested criterion of 5%. Subsequently, the conservative process as suggested by Tabachnick and Fidell (2007) of substituting the item mean for missing values was employed.

### **Descriptive Statistics**

**Outliers.** Item scores for both the CDQ-120 and the FS were transformed into standardised  $z$ -scores in order to identify potential univariate outliers. Standardised scores were assessed in accordance with statistical recommendations and criteria suggested by Hair, Anderson, Tatham, and Black (1995), who state that values outside the range of  $\pm 3.0$  to  $4.0$  in samples that contain greater than 80 observations are considered potential outliers and in turn have an undue influence on the distribution of the data. As all values fell within this range recommended for large samples (only four items from the CDQ-120 fell between  $\pm 3.0$  and  $4.0$ ), no potential outliers were identified and all items were retained for further analyses. Multivariate outliers were also evaluated for each case

through the calculation of Mahalanobis distance values. No significant multivariate outliers were detected utilising a significance criterion of  $p < .001$  (Tabachnick & Fidell, 2007).

**Normality and linearity.** According to Tabachnick and Fidell (2007), when factor analysis is utilised to describe and summarise the relationship between a large set of variables as in the current analysis, assumptions that relate to the distribution of variables are not imposed. As factor analysis is robust to assumptions of normality, departures from normality are relevant only to the extent that they diminish the observed correlations (Hair, Anderson, Tatham, & Black, 1995). If the variables are normally distributed, however, this increases the augmentation of the solution produced (Tabachnick & Fidell, 2007). In turn, to assess the degree the distribution may impact the factor solution, normality was reviewed through examination of skewness and kurtosis statistics. These statistics when divided by their corresponding standard error did not exceed the recommended criterion of 3.29 ( $p < .001$ ) for large samples (Field, 2005). As these values were below the specified cut-off and the visual examinations of scatter-plots were found to be appropriate, assumptions of normality were considered satisfied.

**FS scale means and frequencies.** Participants scored a mean total of 20 ( $SD = 6$ ) on the FS (Hawthorne, 2006) with all actual scores falling within the potential range of zero to 24. The corresponding qualitative category for a score of 20 on the FS describes participants as socially connected. Thirty-four percent of participants ( $n = 81$ ) scored in the very socially isolated range, 18.9% of participants ( $n = 45$ ) scores fell within the low social support range, 16.4% of participants ( $n = 39$ ) scored in the range identifying them as having some social support, 20.6% of participants ( $n = 49$ ) scored in the socially connected range, and finally 10.1% of participants ( $n = 24$ ) scores fell in the very socially connected range.

## **Exploratory Factor Analysis**

**The factor analytic model.** EFA was employed in the current research in comparison CFA due to the limited empirical data that are available in the area of cognitive deconstruction. Cognitive deconstruction has previously been assessed utilising experimental designs and no prior operationalisations of the construct have been prepared and reviewed in a quantitative format. In turn, EFA will allow for the statistical investigation of the presence of each dimension of cognitive deconstruction in the sample, as well as provide an opportunity to select and retain the most appropriate items that assess each dimension (Netemeyer, Bearden, & Sharma, 2003). Subsequently, an R-type factor analysis was employed as the aim of analysis was to reveal the underlying relationships and groupings between the variables and to distinguish representative items from a larger pool of items for inclusion in future analyses (Hair, Anderson, Tatham, & Black, 1995).

**Factorability of  $\mathbf{R}$ .** Several sizeable correlations should be included in a matrix that is considered factorable (Tabachnick & Fidell, 2007). High bivariate correlations, however, do not provide absolute confirmation that the correlation matrix contains factors (Tabachnick & Fidell). Subsequently, several statistical assessments were employed to assess the appropriateness of factor analysis, including Bartlett's (1954) test of sphericity, examination of the anti-image correlation matrix, and a summary measure devised by Kaiser (1970) known as the measure of sampling adequacy (MSA). Bartlett's test of sphericity is a statistical test that examines the presence of correlations among the variables (Hair, Anderson, Tatham, & Black, 1995). Although it has been considered insufficiently discriminating in some cases, it was undertaken in the current analysis as there are less than five cases per variable and was found to be significant, which suggests factor suitability (Tabachnick & Fidell, 2007). Visual inspection of the anti-image correlation matrix is a more robust assessment of the factorability of  $\mathbf{R}$  and revealed small off-



diagonal values in the matrix as is desired in indicating significant common covariance in the factor analysis (Tabachnick & Fidell, 2007). The Kaiser-Meyer-Olkin Measure of Sampling Adequacy also provides an indication of the proportion of common variance in the items that may be attributed to the latent variable (Kaiser, 1970). The current analysis revealed an MSA value of .86, which is considered meritorious according to Kaiser and is indicative that it is appropriate to proceed with factor analysis (Kaiser, 1970; Tabachnick & Fidell, 2007). Research conducted by Dzuiban and Shirkey (1974) compared the Bartlett test, examination of the anti-image correlation matrix, and Kaiser's MSA statistic and found that the MSA statistic is the best method for assessing the appropriateness of a correlation matrix for factor analysis. Subsequently the factorability of **R** was considered suitable and it was deemed appropriate to proceed with further analysis.

**Factor extraction.** In order to extract a sufficient number of factors so as to avoid problems in factor identification, two factor extraction criteria were employed, specifically, selecting factors corresponding to eigenvalues greater than one (see Guttman, 1954) and inspecting the size of eigenvalues graphically represented in the 'scree test' (Cattell, 1966). A total of 26 factors were identified that corresponded to eigenvalues greater than one as displayed in Table 3.1. The 26 factors identified accounted for 74.1% of the total variance explained in the original set of items, in which the first factor identified by the analysis explained the most covariation (24.6%), whilst each successive factor explained progressively less of the total variance than did their immediate predecessors (DeVellis, 2003). Extracting such a large number of significant factors is not uncommon when utilising this extraction criterion (see Zwick & Velicer, 1986), particularly in the current analysis as it contains greater than 50 items (Hair, Anderson, Tatham, & Black, 1995).

Table 3.1

*Factors Corresponding to Eigenvalues Greater than One*

Factor	Eigenvalues		
	Total	% of Variance	Cumulative Variance
1	29.53	24.61	24.61
2	7.71	6.43	31.04
3	6.02	5.02	36.05
4	4.50	3.75	39.81
5	3.92	3.27	43.08
6	3.87	3.23	46.30
7	3.10	2.59	48.89
8	2.58	2.15	51.04
9	2.41	2.01	53.04
10	2.31	1.93	54.97
11	2.17	1.81	56.78
12	2.06	1.72	58.49
13	1.86	1.55	60.04
14	1.70	1.42	61.46
15	1.59	1.32	62.78
16	1.55	1.29	64.07
17	1.44	1.20	65.28
18	1.37	1.14	66.42
19	1.29	1.08	67.49
20	1.28	1.06	68.56
21	1.25	1.04	69.60
22	1.20	1.00	70.60
23	1.11	.93	71.53
24	1.08	.90	72.43
25	1.04	.87	73.29
26	1.02	.85	74.14

*Note.* N = 238.

Subsequently, Cattell's (1966) scree test was employed in order to allow a simpler factor structure to emerge that explains a substantial proportion of the total variation in the original items with as few factors as possible. Furthermore, Cattell & Vogelman (1977) have demonstrated that this method of extraction outperforms the eigenvalues greater than one criterion. Visual inspection of the scree test displayed below in Figure 3.1 identified six factors to be optimum. In turn, despite the examination of several factor solutions that explored the difference between the numbers of factors retained, six factors that accounted for 46.3% of the total explained variance prior to item elimination was elected to be the most representative and parsimonious factor structure for the current research.

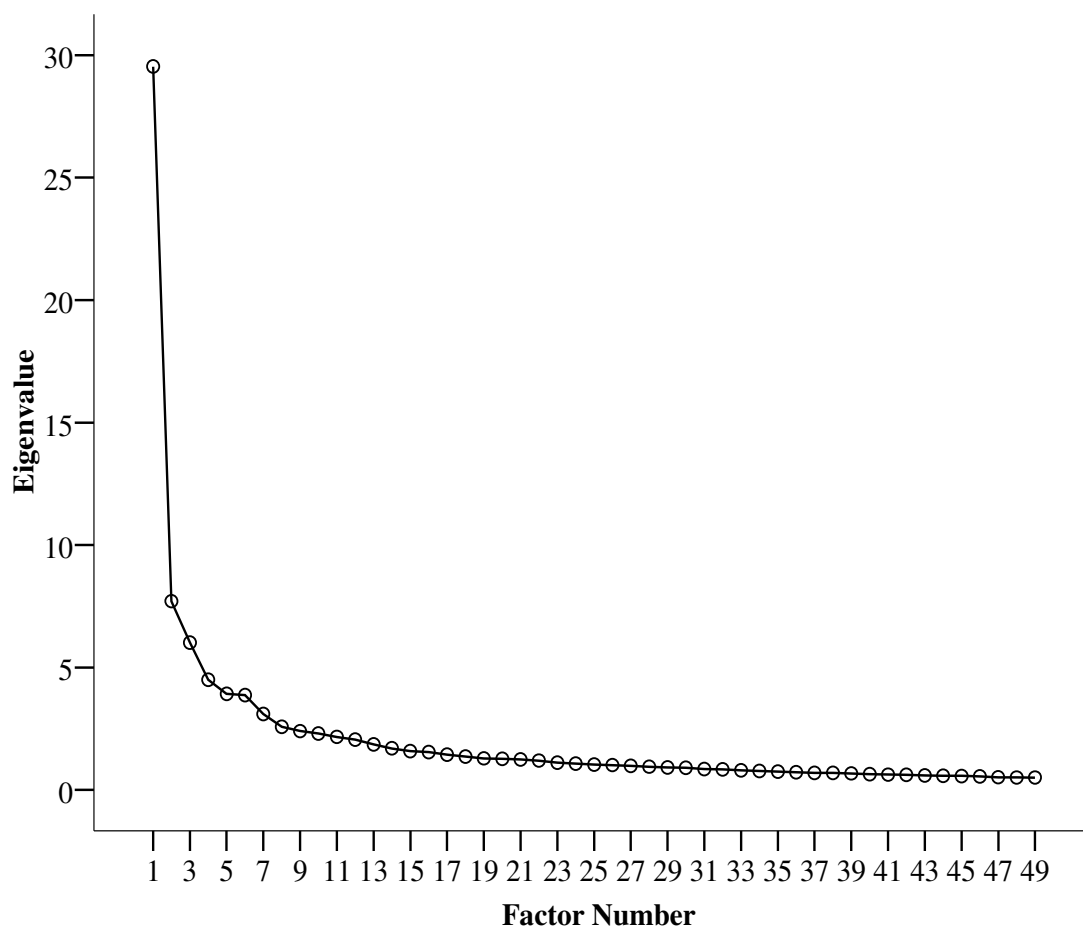


Figure 3.1. Scree test suggesting extraction of six factors.

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Note.  $N = 238$ .

Eigenvalues extend past 49.

**Method of factor analysis and factor rotation.** The method of factor analysis employed in the current research was common factor analysis (CFA), so as the common covariation among the items is modelled. Snook and Gorsuch (1989) demonstrated that when analysing in excess of 40 items as in the current analysis, there should exist little or no difference in utilising CFA or principal components analysis (PCA). Differences in solutions that employ differing methods are minimal in data sets that incorporate large sample sizes and numerous variables (Tabachnick & Fidell, 2007). Furthermore, CFA was chosen as Windaman (1993) suggested that PCA should rarely be used to analyse empirical data in which the aim is to observe and interpret the patterns of the observable correlation among variables as resulting from latent variables.

Maximum likelihood factor extraction (Lawley & Maxwell, 1963) was selected from the options of CFA as it has been described as theoretically the most desirable and has been found to be more likely to produce 'true' factor loadings (Olsson, Troye, & Howell, 1999). Direct oblimin rotation (Jennrich & Sampson, 1966) with a delta of zero was utilised in order to improve the interpretability and scientific utility of the factor solution. Direct oblimin factor transformation produces theoretically meaningful factors (Hair, Anderson, Tatham, & Black, 1995), and also allows the factors to be correlated (Tabachnick & Fidell, 2007). According to Hair, Anderson, Tatham, and Black (1995) an oblique solution such as direct oblimin is appropriate when the overarching goal of the factor analysis is to establish several theoretical meaningful factors as in the current analyses.

**Factor interpretation.** A factor matrix was produced after 15 iterations and factor loading significance was subsequently explored. Factor loadings were considered meaningful based upon criteria suggested by Tabachnick and Fidell (2007). Firstly, for

reasons relating to practical significance, all factor loadings that did not meet the minimum level of .3 were deleted, as they were considered inconsequential in interpreting the factor matrix. In addition to this, any items that contained dual factor loadings were also excluded from further analyses. The factor analysis was repeated six times in order to reveal and remove all items that violated the specified inclusion criteria. As item reduction was a primary goal of the current research, further item refinement was required. In turn, in order to attain parsimony only three items were retained to assess each factor. As items that are greater in magnitude and contain higher factor loadings are considered to have greater influence on the factor, those that displayed the highest factor loadings whilst allowing for the inclusion of both positively and negatively worded items, and sufficient differentiation in content and wording so as to embody the factor optimally (if possible), were selected to represent each corresponding factor. In total, as scale brevity was desired, 18 items encompassed the final six factor solution as displayed in table 3.2, along with corresponding communalities and explained variance for each factor. The 18 items derived from the current factor analyses and their corresponding questions are contained in table 3.3. As the CDQ-120 was modified from containing 120 items to only 18 items, the CDQ-120 was also relabelled to the CDQ-18. For the remainder of analyses in this study, which only involve the final 18 items from the above factor analysis, the questionnaire is referred to as the CDQ-18.

Table 3.2

*Pattern Matrix of the Structure of Six CDQ-18 Factors*

CDQ Item	CDQ Factors						h <sup>2</sup>
	CV (1)	TP (2)	E (3)	CM (4)	IM (5)	CH (6)	
CD40	.96						.76
CD24	.83						.66
CD48r	.81						.66
CD73		.89					.66
CD89		.84					.64
CD97r		.82					.63
CD31r			.91				.58
CD23			.80				.59
CD111			.54				.33
CD68				.80			.46
CD28r				.80			.53
CD92r				.56			.33
CD25					.78		.47
CD17					.76		.49
CD1					.65		.35
CD93r						.83	.50
CD53r						.75	.46
CD38						.51	.39
% of Accounted Variance	25.84	12.78	10.72	9.81	8.34	7.22	
Cumulative % of Accounted Variance	25.84	36.63	49.35	59.16	67.49	74.71	

*Note.*  $N = 238$ .  $h^2$  = item communalities.  $r$  = reverse scored item.  
6 factors extracted, 5 iterations required.

Table 3.3

*The Final Set of Items and Corresponding Questions on the Six-Factor CDQ-18*

Factor	Item	Question
CV	CD40	I escape to fantasy.
	CD24	My thoughts are filled with fantasy.
	CD48r	I do not use fantasy as an escape.
TP	CD73	Time appears to pass slowly.
	CD89	Each day seems to last a long time.
	CD97r	Each day seems to pass quickly.
E	CD31r	I currently am experiencing emotion.
	CD23	I currently do not feel emotion.
	CD111	I feel less emotion than usual.
CM	CD68	I avoid playing with new ideas.
	CD28r	I embrace interpreting new ideas and concepts.
	CD92r	I enjoy thinking up alternative solutions to a problem.
IM	CD25	I place my attention on what occurs right now.
	CD17	I center my awareness in the here and now.
	CD1	My focus of attention is on the immediate present.
CH	CD93r	I have no trouble behaving consistently across time.
	CD53r	I act in the same way across time.
	CD38	I find myself behaving in a way that does not align with my values and beliefs.

*Note.* N = 238. CV = Cognitive Vulnerability; TP = Time Perception; E = Emotion; CM = Close-Mindedness; IM = Immediacy; CH = Changeability.

Finally, a fit statistic that accompanies maximum likelihood factor extraction, namely the likelihood ratio chi-square, was found to be non-significant ( $\chi^2(60, N = 238) = 64.86, p > .05$ ) as desired. This also suggests that the data fits the correlations reconstructed from the factors well.

The next stage in factor interpretation required the assignment of meaning to each factor. Labels that appropriately represented each factor were derived as accurately as possible in order to represent the meaningful relationship of the group of items loading upon each factor (Hair, Anderson, Tatham, & Black, 1995). Factor 1, labelled Cognitive Vulnerability, was named such as it was dominated by items that referred to the cognitive vulnerability of the person (e.g. "I escape to fantasy"). Factor 2, Time Perception contained items that captured a person's perception of time (e.g. "Time appears to pass slowly"). Items loading on Factor 3, Emotion, referred to the presence or absence of emotion (e.g. "I currently am experiencing emotion"). Factor 4, Close-Mindedness contained items representative of a person's subjective experience of not being open to new things (e.g. "I embrace interpreting new ideas and concepts"). Factor 5, Immediacy, contained items that upon close inspection referred to a person's subjective experience of immediacy (e.g. "I center my awareness in the here and now"). The final factor in the solution, Factor 6, Changeability, contained items which reflect a person's inability to behave reliably either across time (e.g. "I have no trouble behaving consistently across time") or in terms of their principles (e.g. "I find myself behaving in a way that does not align with my values and beliefs").

### **Reliability Analysis**

**Item reliability and internal consistency.** Analysis of reliability was conducted on the final set of 18 items incorporated into the six factors of the CDQ-18. Overall, the scale demonstrated a respectable internal consistency, with a Cronbach's alpha coefficient of .72 (DeVellis, 2003). Table 3.4 contains a correlation matrix for each of the 18 items, provides the Pearson correlation coefficient for each item to its corresponding factor (corrected item-factor correlation), the item mean, the item variance, and also details the alpha coefficient for the scale if the item were deleted. As can be seen in this correlation



table, all items correlate significantly at or above .41 ( $p < .05$ ) with their corresponding factor, which demonstrates that each item is representative of and measuring aspects of the same factor and are all suitable to be retained in further confirmatory analyses (Field, 2005). Furthermore, item means are close to the centre of the possible range (one to six) of scores as required, and variances are acceptable suggesting each item discriminates sufficiently between people (DeVellis, 2003). In addition to this, the alphas specified for each item if it were removed from the analysis, are all within the minimally acceptable to respectable range with values found to be between .69 to .74 (DeVellis, 2003). As can be seen when viewing the modified alpha coefficient for the scale overall if each individual item is deleted, the removal of items on the immediacy (IM) factor would result in a higher inter-item consistency for the CDQ-18. This was taken into consideration in later confirmatory testing of the model. Table 3.5 contains an additional correlation matrix, which details the relationships between each of the six factors of the CDQ-18, the mean inter-item correlation of each factor, and the Cronbach's alpha coefficient associated to each individual factor. It can be seen the immediacy factor correlates negatively with the remaining factors on the scale. This further warrants careful screening and review during future confirmatory analyses. The alpha reliabilities for each factor are all within the acceptable to very good range, spanning from .76 to .91 (DeVellis, 2003).

Table 3.4

*Pearson's Correlation Coefficients, Corrected Item-Scale Correlations, Item means, Item variances, and Alpha Reliabilities if Item Deleted for the CDQ-18*

Factor	Items	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
<b>CV</b>	(1) CD40	1	<b>.791</b>	<b>.787</b>	.176	.210	.147	.018	.181	.072	.077	.173	.137	-.221	-.287	-.220	.286	.291	.197
	(2) CD24		1	<b>.704</b>	.133	.140	.113	<b>.011</b>	.143	.103	-.002	.117	.075	-.212	-.251	-.269	.286	.268	.189
	(3) CD48r			1	.110	.140	.100	.102	.205	.168	.025	.150	.079	-.286	-.298	-.248	.272	.292	.172
<b>TP</b>	(4) CD73				1	<b>.749</b>	<b>.728</b>	.173	.193	.214	.108	.155	.114	-.174	-.094	-.084	.137	.146	.111
	(5) CD89					1	<b>.693</b>	.124	.173	.171	.178	.210	.108	-.211	-.123	-.076	.130	.138	.102
	(6) CD97r						1	.112	.162	.145	.084	.158	.216	-.155	-.136	-.177	.142	.173	.205
<b>E</b>	(7) CD31r							1	<b>.718</b>	<b>.485</b>	.187	.167	.031	-.126	-.235	-.022	.077	.115	.169
	(8) CD23								1	<b>.488</b>	.156	.185	.068	-.192	-.249	-.073	.212	.221	.286
	(9) CD111									1	.121	.178	.101	-.180	-.146	-.043	.107	.205	.170
<b>CM</b>	(10) CD68										1	<b>.636</b>	<b>.411</b>	-.070	-.091	-.034	.108	.028	.281
	(11) CD28r											1	<b>.497</b>	-.190	-.187	-.130	.291	.186	.367
	(12) CD92r												1	-.058	-.096	-.80	.204	.106	.299
<b>IM</b>	(13) CD25													1	<b>.614</b>	<b>.487</b>	-.196	-.197	-.212
	(14) CD17														1	<b>.503</b>	-.212	-.205	-.187
	(15) CD1															1	-.141	-.156	-.076
<b>CH</b>	(16) CD93r																1	<b>.632</b>	<b>.496</b>
	(17) CD53r																	1	<b>.421</b>
	(18) CD38																		1
Item-Factor $r$		.86	.79	.79	.80	.78	.76	.70	.70	.53	.61	.67	.50	.64	.65	.55	.67	.61	.51
Item $M$		3.99	4.10	4.10	3.06	2.83	3.20	2.47	2.13	2.77	2.28	2.44	2.42	3.73	3.54	3.88	3.24	3.43	2.78
Item Variance		2.52	2.20	2.59	2.53	2.58	2.44	2.06	2.09	1.93	1.18	1.44	1.31	1.35	1.52	1.56	1.86	2.01	1.93
$\alpha$ if Item Deleted		.69	.70	.70	.69	.69	.70	.71	.70	.71	.71	.70	.71	.75	.75	.74	.70	.70	.70

*Note.* N = 238.  $r$  = Pearson's correlation coefficient;  $M$  = mean;  $\alpha$  = Cronbach's alpha. CV = cognitive vulnerability; TP = time perception; E = emotion; CM = close-mindedness; IM = immediacy; CH = changeability.

Table 3.5

*Correlations, Reliabilities, and Descriptive Statistics for the CDQ-18 Factors*

	CV	TP	E	CM	IM	IDI
CV	1	.17**	.15**	.13	-.34**	.33**
TP		1	.21**	.20**	-.17**	.19**
E			1	.19**	-.20**	.25**
CM				1	-.16**	.31**
IM					1	-.26**
IDI						1
Factor Mean	4.06	3.03	2.46	2.38	3.72	3.20
Factor <i>SD</i>	1.56	1.59	1.43	1.40	1.21	1.39
Mean Inter-Item <i>r</i>	.86	.83	.73	.68	.70	.71
Cronbach's $\alpha$	.91	.89	.80	.76	.77	.76

Note.  $N = 238$ ;  $r$  = Pearson's correlation coefficient. CV = Cognitive Vulnerability; TP = Time Perception; E = Emotion; CM = Close-Mindedness; IM = Immediacy CH = Changeability.

Each factor contained the number of items in line with the previously reported factor analysis.

\*  $p < .05$  (two-tailed); \*\* $p < .01$  (two-tailed);

As can be seen in this table, the correlations between each factor are small suggesting that the factors are not highly correlated. An oblique rotation was utilised in the current analyses as it was anticipated that the factors may be somewhat correlated. Following an examination of these correlations, a post hoc EFA with an orthogonal rotation, namely varimax, was undertaken, which revealed the same emerging items in the same factors. In turn, the findings resulting from the oblique rotation have been reported

as planned. Any issues relating to item to factor relationship were further addressed in the forthcoming CFA.

### **Exploration of Demographic Characteristics on the CDQ-18: Age, Marital Status, and Gender**

Pearson product-moment correlation coefficients were calculated between the CDQ and the demographic variables of age, marital status, and gender. A significant correlation was found only between the CDQ and gender ( $r = -.21, n = 238, p < .01$ ). Of the 238 participants in the current sample, 21% ( $n = 50$ ) were male and 79% ( $n = 188$ ) were female. Exploration into sex differences was undertaken as understanding the influence of gender on a newly developed questionnaire is important in scale construction. Given the variation in sample size between males and females a chi-square test of difference was undertaken and found to be significant ( $\chi^2 (2, N = 238) = 80.02, p < .05$ ). Due to the significant difference between sample sizes for males and females, results exploring sex differences should be interpreted with caution.

Out of a possible total score of 108 on the CDQ-18, males produced a mean total score of 60.80 ( $SD = 9.50$ ) and females scored a mean total of 55.21 ( $SD = 10.45$ ). In order to explore gender differences on each of the six CDQ-18 factors a between subjects multivariate analysis of variance (MANOVA) was undertaken, which revealed at a multivariate level that there was no significant interaction effect according to Wilks'  $\Lambda (.91), F(24, 779) = .88, p > .05, \text{partial } \eta^2 = .02$ . Similarly, there was no significant main effect at a multivariate level for gender as identified by Wilks'  $\Lambda (.95), F(6, 223) = 1.86, p > .05, \text{partial } \eta^2 = .05$ .

### **Known Group's Validity**

Cohen and Swerdlik (2002) suggest that a for assessing test validity is to demonstrate that scores on a particular measure of interest vary in a predictable way according to theory as a function of membership in some group. This is otherwise referred to as known group's validity. Subsequently, participants' total CDQ scores were compared to differing categories on the psychometrically established FS in the expectancy that CDQ scores would be higher indicating greater levels of cognitive deconstruction in participants who indicated they experienced a lack of social support and social isolation, as consistent with the theory of cognitive deconstruction and the need to belong (Baumeister & Leary, 1995). The correlation between the CDQ and the FS was  $-.55$  ( $p < .01$ ), thus the two scales share 30.25% of their variance and demonstrate a significant negative relationship.

Analysis of the six CDQ factors and the FS levels of social isolation was performed using a multivariate analysis of variance (MANOVA). The six factors of the CDQ, namely Cognitive Vulnerability, Time Perception, Close-Mindedness, Changeability, Emotion, and Immediacy, served as the dependent variables in the analysis. In forming participant levels of social isolation, participants were allocated membership to either the socially isolated group or the socially connected group based upon their score on the FS.

Participants were assigned to the low social support group or the high social support group based upon a median split of FS scores ( $Mdn = 21$ ). Participants who scored between 6 and 20 were categorised as being socially isolated ( $n = 126$ ) and participants who scored between 21 and 30 were grouped for the MANOVA as being socially connected ( $n = 112$ ). These two groups served as the independent variables in the analysis.

Levene's test, which provides an indication of the assumption of equality of variance matrices, was found to be significant. When the sample size is large as in the current study, however, group differences that are small can produce a significant result on

Levene's test even when the variances are not differing to a problematic degree (Field, 2005). Furthermore, as the current data was multivariate normal, statistical analysis for known-groups validity proceeded. An *a priori* significance level was again set at .05 and Wilks Lambda was selected as the criterion of choice according to recommendations by Tabachnick and Fidell (2007). Results from the MANOVA revealed a significant multivariate effect for the FS groups of social isolation when adjusting for differences in gender, according to Wilks'  $\Lambda$  (.68),  $F(6, 231) = 17.48$ ,  $p < .001$ , partial  $\eta^2 = .31$ . As MANOVA often reflects significant differences for some but not all the dependent variables in the analyses, univariate comparisons were subsequently explored for each of the dependent variables, the CDQ-18 factors. The correlations for the dependent variables across all 238 participants are presented in Table 3.6. The differing factors are not highly correlated, suggesting that the independent variable of social isolation is impacting dissimilar constructs. In turn, there is minimal ambiguity in the assignment of variance to each dependent variable and performing univariate ANOVA's for each of the dependent variables will provide relevant information regarding their importance (Tabachnick and Fidell, 2007).

Table 3.6

*Correlations between the Six CDQ-18 Factors*

Factor	CV	TP	E	CM	IM	CH
CV	1	.17*	.15*	.13	-.34**	.33**
TP		1	.21**	.20**	-.17**	.19**
E			1	.19**	-.20**	.25**
CM				1	-.16*	.31**
IM					1	-.26**
CH						1

*Note.*  $N = 238$ ;  $r$  = Pearson's correlation coefficient. CV = Cognitive Vulnerability; TP = Time Perception; E = Emotion; CM = Close-Mindedness; IM = Immediacy; CH = Changeability

\* = .05 (two-tailed); \*\* = .01 (two-tailed)

Field (2005) suggests that the preliminary MANOVA protects the univariate comparisons against inflated Type 1 error, however, only for those dependent variables for which group differences exist. In order to account for this, subsequent post hoc analyses were also explored (Harris, 1975). Table 3.7 contains the mean scores, standard errors, and analysis results for the univariate comparisons. As can be seen, scores on the Cognitive Vulnerability, Time Perception, Emotion, Close-Mindedness, Immediacy, and Changeability, factors were significantly different across the two groups of social isolation on the FS.

Table 3.7

*Mean, Standard Errors, and Univariate Analyses on CDQ-18 Factor Scores across the Friendship Scale Social Isolation Levels.*

Factor	Socially Isolated		Socially Connected		$F^a$	Partial $\zeta^2$
	$M$	$SE$	$M$	$SE$		
Cognitive Vulnerability	4.52	.12	3.55	.13	30.53**	.12
Time Perception	3.56	.12	2.43	.13	43.22**	.16
Emotion	2.75	.10	2.13	.11	16.59**	.07
Close Mindedness	2.57	.08	2.17	.09	10.97**	.04
Immediacy	3.40	.09	4.07	.09	28.96**	.11
Changeability	3.54	.10	2.71	.10	35.64**	.13

*Note.*  $N = 238$ .

<sup>a</sup>For each ANOVA,  $F(1, 236)$ .

\* = .05 (two-tailed); \*\* = .01 (two-tailed)

Figure 3.2 graphically represents the impact that differing levels of social isolation have upon the CDQ factors. Specifically, the pattern of means suggest that participants who were most socially isolated subjectively reported more cognitive vulnerability, increases in disturbed time perception, a lack of emotion, increased close-mindedness, and increased levels of inconsistent and disinhibited behaviour. It can be seen, consistent with previously reported correlations that the CDQ factor of immediacy does not perform as anticipated, failing to distinguish the social isolation levels as anticipated. Simple comparisons were undertaken, which compare one the group mean for socially isolated



participants and the group mean for socially connected participants whilst controlling for Type I error at the .01 level, also revealed that respondents in the socially isolated group scored significantly higher on the above CDQ factors than participants in the socially connected group.

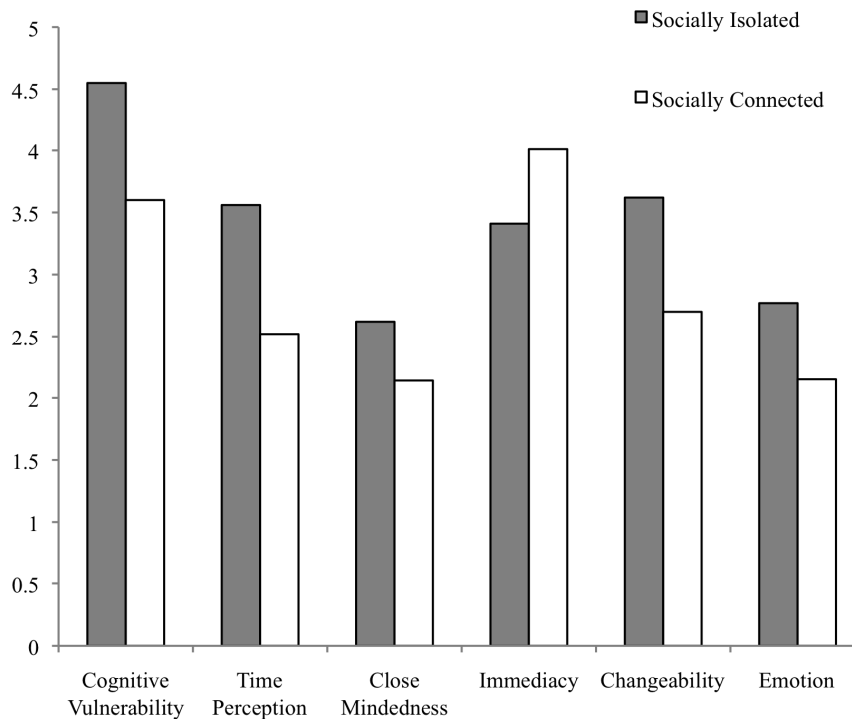


Figure 3.2. Means for socially isolated and connected participants on the CDQ-18 factors.

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Note.  $N = 238$ .

## Discussion

### The Factor Structure of the CDQ-18

The results revealed that the scale items constructed to compose the CDQ-18 reflected some but not all of the underlying dimensions in the theory of cognitive deconstruction. Employing EFA allowed for the statistical investigation of each on the dimensions of cognitive deconstruction and the retention of the most appropriate items in

the scale (Netemeyer, Bearden, & Sharma, 2003). This would in turn indicate that each constructed item was measuring the same underlying dimension as desired in the scale development process.

**Cognitive vulnerability.** It was found that of the eight factors developed from theory and represented in the EFA, six distinct factors emerged statistically. The factors on the CDQ-18 that emerged as consistent with the theory included the factors Cognitive Vulnerability, Close-Mindedness, and Emotion. The factor labelled as Cognitive Vulnerability contained all items designed to measure Baumeister's (1990a) description of cognitive vulnerability in the deconstructed state. This factor was designed to assess a person's vulnerability to irrational thinking, fantasy, flight of the imagination, and to external influences. All cognitive vulnerability items retained, following the rigorous and deliberate item reduction process, loaded as desired on this factor on the CDQ suggesting each item is assessing the same underlying construct.

**Close mindedness.** The second factor that emerged was labelled Close-Mindedness and contained items that were constructed to assess this dimension of cognitive deconstruction according to theory. Items contained on this factor were designed to provide a measure of the degree to which a person exhibits narrow, rigid, uncreative, linear, and stereotyped patterns of thinking due to the rejection of meaningful thought (Baumeister, 1990). Each item retained loaded successfully on one factor and one factor alone, suggesting that these items are assessing the same underlying construct as they are designed to.

**Emotion.** Similarly, the factor of Emotion also emerged. All items loading on this factor were designed to evaluate a person's level of emotional response, as it is anticipated according to theory that this diminishes in the deconstructed state as the person attempts to

defensively isolate negative affect. Consequently, items assessing emotion loaded on a single factor and hence, this factor was labelled Emotion.

**Inconsistencies and disinhibition.** The analysis further revealed a factor that contained items theoretically designed to assess two different dimensions, namely Inconsistencies and Disinhibition. Inconsistencies, according to the theory of cognitive deconstruction, refer to the inability of a person to detect and regulate their behaviour in accordance with past behaviour and action. This occurs because as a person avoids meaningful thought, the meaningful elaboration of one's actions is also rendered unavailable along with the ability to determine the congruency of behaviour (Baumeister, 1990a). An example item designed to assess inconsistencies was, "I have no trouble behaving consistently across time". The second theoretical dimension that loaded on the same factor as Inconsistencies was Disinhibition, which measures the degree to which a person is unable to monitor and modify their current behaviour proactively such that it is in line with their personal internal standards (Baumeister, 1990a). An example item developed to assess disinhibition was, "I find myself behaving in a way that does not align with my values and beliefs". Upon entering the deconstructed state, people avoid meaningful thought and subsequently the comparison of current behaviour to an internal guide is not undertaken, as this requires meaningful and sophisticated cognitive elaboration (Baumeister, 1990a). Although Baumeister put forth that inconsistencies and disinhibition were two separate consequences of cognitive deconstruction, this study found that the items composing these dimensions loaded on a single factor. This may be explained by the similarities between the two dimensions in the original theory as both involve behaviour that does not conform to personal standards, and/or moral prohibitions (Baumeister, 1990a). Subsequently one's behaviour can be equally described as both inconsistent and disinhibited. Behaviour is largely influenced by internal standards and guidelines when

one is not experiencing cognitive deconstruction. In turn, when one is experiencing the deconstructive response, one may not behave in accordance with these internal reference points, and thus behaviour across time will be incongruent and appear disinhibited.

Consequently, this factor was relabelled Changeability and contains items that assess whether a person's behaviour is not in agreement with their past behaviour or internal standards and values accounting for both inconsistency and disinhibition.

**Cognitive immediacy.** In addition to combining two former dimensions into one factor on the EFA, the reverse was also found, with one theoretical dimension, cognitive immediacy, appearing to be best measured as two distinct factors, namely Time Perception and Immediacy. Cognitive immediacy according to the theory of cognitive deconstruction refers to a person's limited focus to events that occur in the immediate present, in which past events and future goals may withdraw from current awareness and as such time may appear to pass more slowly as the person focuses on the short-term, immediate present (Baumeister, 1990a). It is easy to see how what was initially conceived to be one dimension conceptually, operationally involved two. The first of these factors was labelled time perception post hoc, as it contains items that requested information pertaining to a person's subjective perception of the passing of time. An example of such an item was, "Time appears to pass slowly". All items that loaded primarily on this factor reflected a person's perception and experience regarding the passing of time. A person's perception regarding the passing of time would be expected to alter upon entering the deconstructed state as the person becomes more immersed in their present environment and he or she attempts to evade meaningful thought that would otherwise encompass the past, present, and the future. The second factor contained items that assessed a person's focus on and immersion in the immediate present, and was hence labelled immediacy. An example of an item that loaded on this factor and this factor alone was, "I center my awareness in the

here and now". As can be seen, although highly related, each factor contained distinct items that suggested they were in fact measuring differing constructs, the first assessing how quickly one perceives time to pass and the other, and the second assessing a person's present orientated thinking. Both of these factors will be incorporated in future research and the factor structure in which they reside will be explored further through CFA. This will be necessary to examine the stability of both these factors given that were initially predicted to form a single dimension. Additionally, further exploration will be important in considering whether the incorporation of both the Time Perception Factor and the Immediacy Factor is necessary in a scale that values brevity, as one of these factors may be considered adequate in contributing to the evaluation a person's cognitive deconstruction.

**Procedure orientation.** The final two dimensions derived from the theory of cognitive deconstruction that were included in constructing this measure of cognitive deconstruction, were procedure orientation and impulsivity and passivity. Neither of these dimensions, however, emerged as distinct factors. According to the theory of cognitive deconstruction, procedure orientation refers to a person's altered focus in the deconstructed state, which is thought to be primarily upon means, including techniques and procedures, rather than ends such as moral evaluations (Baumeister, 1990a). This dimension of cognitive deconstruction may have failed to emerge as a distinct factor in the EFA due to the similarities procedure orientation exhibits with the other dimensions of cognitive deconstruction. Procedure orientation attempts to assess an individual's tendency to focus on the present situation, task, and action without considering the future moral implications of what is being undertaken. This overlaps with other factors of cognitive deconstruction such as the factor labelled Immediacy, which evaluates an individual's present orientated thinking, as well as the Changeability Factor, which focus upon the failure to compare behaviour to inner morality. As procedure orientation is very similar to other factors of the

CDQ-18, it may explain why items for procedure orientation did not form a discrete factor but rather loaded upon others in the EFA. Such findings in the EFA are not surprising, particularly when taking into account the evaluations of the items for this category made by the panel of psychologists when attempting to establish content validity. The items developed to assess procedure orientation did not receive adequate assignment to their corresponding theoretical category, but rather were allocated by the panel to a number of differing theoretical categories. This also reflects the similarities the dimension of procedure orientation has with other characteristics of cognitive deconstruction.

**Passivity and impulsivity.** The final theoretical dimension that failed to emerge as a factor on the CDQ-18 was impulsivity and passivity. The items designed to assess impulsivity and passivity did not significantly load on a distinct factor. According to the theory of cognitive deconstruction, forfeiting planned actions and sophisticated cognitive operations in the deconstructed state can cause a person to behave in a passive manner. Although intelligent thought and planned action are typically unavailable, the individual will remain able to act should actions and behaviours not require the activation of meaningful thought. Subsequently, behaviour and action may be impulsive. As was similarly described for the factor procedure orientation, the dimension of passivity and impulsivity described by Baumeister (1990a) may have failed to emerge in the EFA due to characteristics similar to other dimensions. The items used to assess passivity and impulsivity attempted to measure the degree to which an individual refuses to engage in complex cognitive operations as does close-mindedness, which focuses on participant's narrow and uncreative thoughts. Furthermore, the items assess the presence of behaviour that expresses little intent and consideration, whereas Changeability also measures whether a person has considered their behaviour particularly in relation to their past action and their internal guide. A final commonality can be found with the factor of Immediacy, as both

attempt to evaluate how the individual fails to consider present behaviour in reference to future goals and objectives. Upon reviewing the conceptual similarities between this factor and other factors of the CDQ-18 represented in the EFA, it can be seen why the items attempting to measure impulsivity and passivity loaded across several factors instead of loading on one.

**Factor structure conclusions.** Overall, six factors were statistically represented in the EFA, including Cognitive Vulnerability, Close-Mindedness, Emotion, Time Perception, Immediacy, and Changeability. Despite fewer factors than detailed in theory, it is considered that each dimension of cognitive deconstruction is adequately represented in the CDQ-18. Unnecessary redundancy may have occurred had items remained in the scale that assessed aspects that other factors were already accounting for and addressing. Furthermore, the specificity of each dimension and the degree to which items load on one factor and one factor alone would also have been considered inadequate had the overlapping factors and items been included.

### **Internal Consistency**

Following the EFA undertaken, the assessment of internal consistency and item reliability of the scale was examined. It was considered important not only for developing a psychometrically sound scale for which reliability would be considered a basic requirement, but also for examining the reliability of the scale before and after scale refinement so indications regarding scale improvement are highlighted. The CDQ-18 exhibited good preliminary internal consistency. The CDQ-18 demonstrated respectable reliability with a Cronbach's alpha coefficient of .72 (DeVellis, 2003). In addition, each factor on the CDQ-18 displayed alpha levels that are considered minimally acceptable to respectable ranging between .69 and .74 (DeVellis, 2003). It was found, however, in viewing the CDQ-18 reliability levels that if the items composing the Immediacy Factor

were removed from the CDQ-18, the overall reliability of the scale would improve from .72 to .74. This finding suggested that further exploration concerning the factor of Immediacy and its relationship to the remaining factors and the scale overall was necessary. In addition, the Immediacy Factor correlated negatively with the remaining factors on the CDQ-18. This suggests that the Immediacy Factor was not operating as would be predicted according to the theory of cognitive deconstruction. The negative correlation found suggested that the more focused one is on the task at hand and the more immersed they are in the present moment, the lesser the degree of cognitive deconstruction that is experienced by the person. It is possible that the negative relationship between the Immediacy Factor and the other factors on the scale is a result of the items on this factor failing to measure what has been specified in the underlying theory. In other words, the items composing this factor may have not been constructed in a way that accurately captures the concept of cognitive immediacy in the deconstructed state. It may be that the items incorporated in the Immediacy Factor are not necessarily evaluating participants' immersion in the present alone to the exclusion of any of consideration for the past and future, but rather only the participants' ability to concentrate on the here and now and apply himself or herself to the task that is at hand. People who have not experienced exclusion or isolation would be able to focus on the present in this way. Another possibility is that although theoretically explained by Baumeister (1990a), an immersion in the present does not actually identify the deconstructed state. This factor was explored further through correlation analysis, confirmatory factor analysis, and reliability analysis as described below.

Internal consistency is dependent on the number of items contained in a scale and also the degree to which items correlate with one another and in turn the latent variable (Spector, 1992). Correlations among the items in the first sample were all statistically



significant as desired and ranged from .41 to .79 with their corresponding factor. The mean inter-item correlation to each factor ranged from .70 for the factor of Immediacy to .86 for the factor Cognitive Vulnerability. In turn, all correlations were considered to be acceptably high. In addition to the adequate coefficient alpha levels and the significant correlations produced amongst the items on the scale, measures of central tendency such as item means and variances were also found to be acceptable. These findings suggest that although the factor of Immediacy requires further investigation, the preliminary version of the CDQ-18 demonstrates appropriate internal consistency.

### **Known Groups Validity**

Following the exploration of the factor structure and internal consistency of the CDQ-18, the known groups validity of the scale was evaluated. This was explored in the current study as it is theoretically expected that cognitive deconstruction would be more prevalent in people who experienced greater levels of social isolation when compared to their socially connected counterparts. According to theory, isolated people would be more likely to be experiencing cognitive deconstruction as they possess a greater unconscious motivation to avoid focusing upon undesirable aspects of the self and escape the emotional distress that may emerge upon greater interpretation of one's perceived isolation from others. Statistical comparisons were made between participants who reported social isolation and those who reported social connectedness on each of the six preliminary factors of the CDQ-18. It was found that participants who were experiencing social isolation, in comparison to those who had social connectedness, reported experiencing greater levels of cognitive vulnerability, an increase in disturbed time perception, an increase in close-mindedness, greater levels of changeability in their behaviour, and a greater absence of emotion. In other words, participants who identified themselves as more socially isolated also experienced greater levels of cognitive deconstruction as

measured by the CDQ-18, when compared to participants who identified themselves as more social connected. Of importance, however is the finding of that no significant difference between socially isolated and socially connected participant's scores on the CDQ factor of Immediacy was found. This is not surprising when taking into consideration the findings discussed previously. Further exploration was undertaken in the following study in order to investigate this factor further.

### **Conclusion**

A self-report measure designed to assess the deconstructed state is of importance, as no scale has previously been developed to assess this theoretically described defensive state. Furthermore, the current methods typically employed to assess cognitive deconstruction involve implementing detailed experimental manipulations that induce exclusion. Such methods are not easily transferred to everyday situations. The CDQ-18 developed in this study attempts to address these needs and serve as a self-report assessment tool of cognitive deconstruction. Upon further validation, the CDQ-18 will allow for the measurement of the deconstructive response in a multi-method form, complement findings that have previously been achieved through experimental manipulations, and allow for the efficient measurement of cognitive deconstruction in a variety of settings. It can be concluded from this study that the CDQ-18, although in the early stages of development, appears to be a promising instrument that upon further exploration regarding the scales psychometric properties may be formed into a robust measure of cognitive deconstruction.

#### **Chapter Four: Refining a Measure of Cognitive Deconstruction (Study Two)**

It is important when developing a questionnaire that it undergoes statistical testing and refinement in a number of differing samples (DeVellis, 2003). This assists in ensuring that the newly developed scale meets the basic psychometric properties required of all questionnaires. These basic requirements include ensuring the scale is reliable, that it accurately measures what it was intended to measure, and that it is successful at discriminating between respondents who differ on the construct the scale is measuring (Field, 2005). In turn, the current study sought to assess the reliability, validity, and discriminatory ability of the CDQ-18 in order to increase its robustness and utility.

In study one, the exploration of the factor structure and the removal of redundant and poorly fitting items from the CDQ-120 were undertaken. This produced an 18-item scale assessing cognitive deconstruction, which was subsequently labelled the CDQ-18. Following the recommendations of DeVellis (2003) the next step in the scale development process after the initial exploration of the factor structure was to confirm this structure in a subsequent sample of participants. CFA involves specifying a priori the groupings of items together as indicators of a shared latent variable (DeVellis, 2003). Results from EFA can be utilised to specify these item-factor relationships and explored in a CFA to determine whether the item groupings are consistent. If the item-factor relationships remain constant in confirmatory testing, it is indicative that the items relate to one another as intended and the number of latent variables underlying the items is accurate (DeVellis, 2003). Additionally, confirming the factor structure as well as exploring the relationship among the items through alternative methods such as through reviewing item-total correlations and the impact inclusion or exclusion of an item has upon coefficient alpha, allows for the identification and hence alteration of any problematic items (DeVellis, 2003).

While CFA is utilised to explore the dimensionality of the scale and Cronbach's alpha coefficient examines how well the individual items on the scale reflect the underlying construct being measured, other statistical analyses are necessary to ensure the scale possesses validity. Two forms of validity considered of importance in the early development stages of the current measure were convergent validity and known groups validity. Convergent validity indicates that differing measures assessing the same construct demonstrate a strong association (Spector, 1992). Exploring the relationship between the constructs on the current scale of interest and constructs on other published scales provides valuable information that the newly developed CDQ measures what it is intends to measure (Spector, 1992). In addition to this known groups validity was examined. Known-groups validity as described in the previous chapter, involves examining how certain groups of respondents score on the scale of interest in comparison to others (Spector, 1992). Exploring the ability of a measure to differentiate between particular groups of participants on the scale of interest can reveal whether the measure is valid and discriminates between people as would be anticipated. As aforementioned, discrimination is both an important and necessary condition of a questionnaire (Field, 2005). The continual exploration of a scales ability to discriminate amongst respondents is important to explore in multiple samples as well as when a scale has been refined or modified. As such, the known-groups validity was again explored in the current study.

### **Aim and Research Questions**

The aim of the second study was to assess the factor structure, reliability, and validity of the CDQ-18. This study firstly explored the item to factor relationships found in the EFA model from study one in a CFA. This was undertaken in order to explore whether the CDQ-18 was able to meet the statistical requirements necessary of an adequate model in a CFA. It was specifically explored whether the Immediacy Factor was an

appropriate fit in a CFA model or whether removing the factor improved model fit. As in study one the internal consistency of the scale was also explored, as this is an important requirement for measurement adequacy. The final area explored was scale validity. Specifically, convergent validity was assessed through exploring the relationship between the cognitive deconstruction factors and existing published psychological measures, namely the Positive and Negative Affect Scales (PANAS) (Watson, Clark, & Tellegen, 1988) and Saucier's (1994) Big Five Mini-Markers (BFMM), which are reported to assess similar domains. The final form of validity explored in this study was known-groups validity. As in the previous study it was explored whether the scale was able to discriminate between participants who reported greater levels of social isolation compared to participants who reported lower levels of social isolation. It was considered important to re-examine known groups validity in a subsequent sample of participants to determine whether scale modifications impacted the ability of the measure to discriminate between participants.

## **Method**

### **Participants**

A total of 307 participants were involved in this study. As was the case in study one, a number of participants withdrew prematurely from the study resulting in a number of incomplete data cases. In total, 74 participants were excluded from analyses as each failed to complete the questionnaires, leaving a sample of 307 participants. In regards to gender, 110 (36%) of the participants were male and 197 (64%) of the participants involved in the research were female. The mean age of male participants was 30.60 years ( $SD = 11.44$ ) and for female participants 30.07 years ( $SD = 9.90$ ). Overall, the mean age of participants was 30.26 years ( $SD = 10.46$  years) and the age range of both male and

female participants was from 18 years of age to 71 years of age. All participants indicated that they were currently residing in Australia. In regards to participants current marital status, 166 participants (54.1%) identified themselves as single, 76 (24.8%) reported that they currently had a partner but were not married, 47 (15.3%) stated they were married, and finally 18 (5.9%) of the participants reported their marital status as other.

## Materials

Participants received an electronic questionnaire titled investigating the effects of social exclusion. As in the previous study, the questionnaire initially requested participant's demographic information, including the participant's age, gender, and marital status in order to investigate the influence each of these variables may have on participant's scores on the subsequent questionnaires (see Appendix E.1). Following the demographic information the questionnaire contained the CDQ-18, the Friendship Scale (Hawthorne, 2006), the Positive and Negative Affect Schedule (Watson, Clark, & Tellegen, 1988), and finally Saucier's Big Five Mini-Markers (Saucier, 1994), all of which are discussed in detail below. Appendix H contains the questionnaire booklet, which includes the full version of each scale utilised in the current research.

**The CDQ-18.** The CDQ-18 attempted to measure respondent's defensive avoidance of meaningful thought due to unfulfilled belongingness. The CDQ-18 contains 18 self-report items in which responses are made using a six-point Likert-type rating scale ranging from one (*strongly disagree*) to six (*strongly agree*). Scores on the CDQ-18 are calculated by reverse scoring items three, five, ten, eleven, thirteen, fourteen, and fifteen, and summing all of the items to make a total score. The possible range of scores on the CDQ-18 is from 18 to 108. As consistent with the CDQ-120 explored in the former study, high scores on the CDQ-18 are indicative of high levels of cognitive deconstruction and low scores are indicative of low scores of cognitive deconstruction. The CDQ-18 has been

amended to distinguish a six-factor structure following the removal of inappropriate items and poorly emerging factors. Factor 1 contains items referring to cognitive vulnerability (e.g. “I escape to fantasy”). Factor 2 incorporates items reflecting time perception (e.g. “Time appears to pass slowly”). Factor 3 items assess lack of emotion (e.g. “I feel less emotion than usual”). Factor 4 incorporates items referring to close-mindedness (e.g. “I avoid playing with new ideas”). Factor 5 items assess immediacy (e.g. “I place my attention on what occurs right now”). Finally, Factor 6 items assess inconsistencies in behaviour (e.g. “I find myself behaving in a way that does not align with my values and beliefs”). The Cronbach’s  $\alpha$  coefficient for the CDQ-18 is reported in the following results section. Appendix H.1 provides a complete version of the scale.

**The Friendship Scale.** The Friendship Scale (FS) is a short unidimensional scale measuring perceived social isolation (Hawthorne, 2006) and is the same questionnaire utilised in the proceeding study. The FS is detailed in the method section of chapter three and recorded in Appendix E.3. In the current study the Cronbach’s  $\alpha$  coefficient for the FS was .88, suggesting very good internal consistency (DeVellis, 2003).

**The Positive and Negative Affect Scale.** The Positive and Negative Affect Schedule (PANAS) was developed by Watson, Clark, and Tellegen (1988) as a brief self-report measure designed to assess two distinct affective state dimensions, namely positive affect (PA) and negative affect (NA). According to Watson and colleagues, PA refers to the degree to which an individual feels enthusiastic, active, and alert (Watson et al., 1988). If an individual is exhibiting high levels of PA they will report high energy, full concentration, and enjoyable engagement (Watson et al., 1988). Low PA, however, is characterised by sadness and lethargy (Watson et al.). The remaining affective state that comprises the second factor in the two-factor model of the PANAS is NA, which contrasts with PA and is defined as a general dimension of subjective distress that encompasses a

variety of unpleasant mood states including anger, contempt, disgust, guilt, fear, and nervousness (Watson et al., 1988). As high levels of NA would indicate high levels of these aversive mood states, low levels of NA resemble a state of calmness and serenity (Watson, et al., 1988). As briefly mentioned, the PANAS produces a two-factor structure in which one factor contains items associated to PA and the other items associated to NA. In total, the PANAS contains ten descriptors of PA (interested, excited, strong, enthusiastic, proud, alert, inspired, determined, attentive, and active) and ten descriptors of NA (distressed, upset, guilty, scared, hostile, irritable, ashamed, nervous, jittery, and afraid) (Watson et al., 1988). Respondents are asked to indicate on a five-point Likert-type rating scale ranging from one (*very slightly or not at all*) to five (*extremely*) the extent to which they had experienced the mood state described during a specified time period. Descriptors on the PA scale are summated to form a total PA score as with the NA scale. The differing time periods that can be substituted include how the respondent feels in the present moment, today, during the past few days, during the past week, during the past few weeks, during the past year, and finally, how the respondent generally feels (Watson et al., 1988). The time frame utilised required respondents to rate the extent they feel this way right now, that is at the present moment. The original development and validation of the PANAS was conducted on undergraduate psychology students from an American university and has since been validated in a number of differing settings such as in psychiatric settings (Watson et al., 1988) medical settings (Ostir, Smith, Smith, & Ottenbacher, 2005), with general adult non-clinical populations (Crawford & Henry, 2004), and also in children (Crook, Beaver, & Bell, 1998). Furthermore, the PANAS and has also been validated in differing cultures such as with French-Canadian participants (Gaudreau, Sanchez, & Blondin, 2006), Dutch participants (Engelen, De Peuter, Victoir, Van Diest, & Van Den Bergh, 2006), Portuguese participants (Galinha & Pais-Ribeiro,



2005), Spanish participants (Robles & Paez, 2003), and German participants (Krohne, Egloff, Kohlmann, & Tausch, 1996). In the original research, the PANAS produced alpha reliabilities that were all acceptably high ranging from .86 to .90 (Watson et al., 1988). In the current research, Cronbach's  $\alpha$  coefficient for the PA scale and the NA scale was .91 and .89 respectively. Both these values suggest that the PANAS demonstrates very good internal consistency in this study (DeVellis, 2003). The full version of the PANAS utilised in the current study is attached in Appendix H.2.

**Saucier's Big Five Mini-Markers.** The final self-report scale included in the questionnaire was Saucier's Big Five Mini-Markers (BFMM) (Saucier, 1994). The BFMM is a shorter version of Goldberg's (1992) 100 Big Five markers that was designed to assess the Big Five factor structure of personality, specifically Extraversion, Agreeableness, Conscientiousness (or dependability), Emotional stability (vs. neuroticism), and lastly Intellect or Openness (see Goldberg, 1992). Saucier's (1994) BFMM were utilised in the current research in comparison to Goldberg's 100 Big Five markers as it has been shown to have appropriate psychometric properties comparable to Goldberg's adjective markers and promising internal properties as a measure of the Big Five factor structure of personality (Dwight, Cummings, & Glenar, 1998; Mooradian & Nezlek, 1996; Palmer & Loveland, 2004). Furthermore, Saucier's BFMM scale takes considerably less time to complete with participants finishing the questionnaire in approximately five minutes. The BFMM scale contains 40 adjectives in total that measure each of the big five personality domains (eight of which are both positively and negatively scored) including for Extraversion: talkative, extroverted, bold, energetic, shy, quiet, bashful, and withdrawn; for Agreeableness: sympathetic, warm, kind, cooperative, cold, unsympathetic, rude, and harsh; for Conscientiousness: organised, efficient, systematic, practical, disorganised, sloppy, inefficient, and careless; for Emotional Stability: unenvious, relaxed, moody,

jealous, temperamental, envious, touchy, and fretful; and finally for Intellect or Openness; creative, imaginative, philosophical, intellectual, complex, deep, uncreative, and unintellectual (Saucier, 1994). Respondents indicate on a Likert-type response scale ranging from one (*extremely inaccurate*) to nine (*extremely accurate*) their subjective opinion regarding the degree to which the adjective accurately describes them (Saucier, 1994). Eight items compose each factor described above, with four items being positively worded and four items being negatively worded. Following the reverse scoring of negatively worded items, the items on each factor are summed to produce a total factor score. The possible range of scores for each factor is from nine to 72. Respondents score higher on the personality domains they subjectively attribute to themselves and lower on the domains that they do not consider consistent with their personality. Saucier's BFMM were originally developed and validated on university students of varying sample sizes ( $N$  from 132 to 320; total  $N = 1,458$ ) and has been further validated on undergraduate samples (Chambliss, Austin, Brosh, Lannella, Outten, & Rowles, 2005; Palmer & Loveland, 2004; Dwight, Cummings, & Glenar, 1998). Saucier found that the BFMM scale produced the anticipated five-factor structure as well as produced appropriate internal consistency with reliability values ranging from .74 to .91 (Saucier, 1994). The Cronbach's  $\alpha$  coefficient in the current study was .82 for the factor of Extraversion, .81 for the factor assessing Agreeableness, .87 for Conscientiousness, .81 for the factor addressing Emotional Stability, and .83 for the final factor of Intellect or Openness. A complete version of this scale can be found in Appendix H.3.

### **Procedure**

This study was approved by and executed in accordance with the guidelines of the Australian Catholic University National Human Research Ethics Committee (see Appendix F). Similar to the previous study, participants in this study were all recruited through an

advertisement of the current research on an online social network facility, namely 'Facebook'. Participation of any person over the age of 18 years who had experienced loneliness and desired to participate in a study investigating the effects of social exclusion was encouraged. Participants selected a link to the online questionnaire via PsychData (an online service for psychological research surveys) if they desired to participate. Each participant was provided with the opportunity to read and print out the participant information form (see Appendix G) and consent was considered implied if the participant was over 18 years of age and voluntarily completed the questionnaire. All participants received the same instructions to fill out the questionnaires as accurately and honestly as possible and upon completion submitted the questionnaire anonymously in electronic format.

## **Results**

### **Data Cleaning and Screening**

**Data screening.** Data were collated electronically and analysed using the Statistical Package for Social Sciences (SPSS), version 17.0. Preliminary analyses, including data screening and relevant assumption testing, were initially undertaken to ensure an honest data set prior to the commencement of the planned analyses (Tabachnick & Fidell, 2007). Data was initially screened to ensure accuracy in entry had been achieved. This involved the examination of the data ranges, measures of central tendency, and the variability of each item on all measures, namely the CDQ-18, the Friendship Scale (FS), the Positive and Negative Affect Scale (PANAS), and the Big Five Mini-Markers (BFMM). Each scale demonstrated data points residing within valid parameters (Tabachnick & Fidell, 2007).

**Missing data.** Missing data and the patterns of missing data were evaluated and amended accordingly. A total of 74 cases were removed from further analyses as each contained an excessive amount of missing data points (greater than 5%) resulting from inadequate questionnaire completion (Tabachnick & Fidell, 2007). All other missing data (of which there were only two data points) were scattered randomly throughout the data set and no individual items contained missing values in excess of the suggested criterion of 5%. In turn, the two missing data points were judged to be missing completely at random and the conservative process as suggested by Tabachnick and Fidell (2007) of substituting the item mean for missing values was employed. As aforementioned, 307 participants were involved in this study. According to Tabachnick and Fidell (2007) a sample size of this magnitude is considered good in undertaking confirmatory factor analysis. Furthermore, a sample of this size and greater assists in maximising the potential benefits of establishing proper model convergence, increasing the accuracy of parameter estimates and associated standard errors, and also enhancing the statistical power of rejecting the null hypothesis regarding both the entire model or specific parameters within the model (Gagne & Hancock, 2006).

**Outliers.** Item scores for all measures to be analysed including the CDQ, the FS, the PANAS, and the MM were transformed into standardised  $z$ -scores in order to identify potential univariate outliers that may have the potential to distort statistics and minimize the degree to which results can be generalised. The standardised scores produced were evaluated in accordance with a statistical criterion suggested by Tabachnick and Fidell (2007) that states that values outside the range of +3.29 and -3.29 are considered potential outliers and may in turn have an undue influence on the distribution of the data. All items scores from the CDQ-18, the FS, and the PANAS fell within this specified criterion, suggesting the absence of univariate outliers. As for the BFMM, a total of seven

individual item scores fell outside this threshold. Only four of these items, however, were discarded as guidelines suggest that increasing the threshold value for standard scores to range from 3 to 4 is appropriate in samples containing greater than 80 observations (Hair, Anderson, Tatham, & Black, 1995). Four values fell outside this inflated range recommended for large samples and were subsequently deleted from further analyses as it was considered that in doing so there would be no loss to the generalisability of the results (Tabachnick & Fidell, 2007).

Multivariate outliers were also evaluated for each case through the calculation of Mahalanobis distance values. Employing a  $\chi^2$  of 27.87 ( $df = 9$ ) and a significance criterion of  $p < .001$  resulted in the identification of two multivariate outliers, which may have unduly influenced the results and were subsequently deleted (Tabachnick & Fidell, 2007). In total, six cases were deleted as they were considered outliers. In conjunction with the 74 cases deleted due to missing data, a total of 307 cases remained in the data set for further analyses.

### **Normality, Linearity, and Homoscedasticity**

Multivariate normality is the most critical of assumptions to be satisfied when constructing and evaluating a measurement model through structural equation modelling (Tabachnick & Fidell, 2007). This assists in ensuring that statistical inference remains robust, as violations of multivariate normality can degrade goodness-of-fit indexes related to the measurement model in confirmatory factor analysis (Curran, West, & Finch, 1996; Hu, Bentler, & Kano, 1992). According to Tabachnick and Fidell (2007), to test the assumption that the data are multivariate normal, screening the data for both univariate and multivariate outliers must be undertaken as well as the examination of skewness and kurtosis statistics. Examining the skewness and kurtosis statistics when divided by the corresponding standard error revealed values all resided within the appropriate criterion

(3.26,  $p < .01$ ) that is recommended for a large sample (Field, 2005). The examination of frequency histograms, expected normal probability plots, and detrended expected normality plots also suggested data approximated a normal distribution. This is consistent with the z-scores previously calculated for each measure to detect outliers, being within three standard deviations of the mean. Bi-variate scatter plots were reviewed in order to evaluate the linear relationships among pairs of measured variables. Visual inspection of these graphs revealed pairs of variables to be approximately linear in relationship. The assumption of homoscedasticity was also reviewed and found to not be violated, with bi-variate scatter plots revealing a spread of data points roughly the same width all over (Tabachnick & Fidell, 2007). Finally, the statistical test utilised to assess colinearity, namely the variance inflation factor, produced all values that did not exceed the criterion of 3.0 (Tabachnick & Fidell, 2007). This demonstrated that there is no cause for concern in regards to multicollinearity or singularity.

### **Descriptive Statistics**

**Scale means and frequencies.** Participants obtained a mean total score of 56.28 ( $SD = 10.53$ ) on the CDQ-18, with all scores ranging between 34 and 89 out of a possible range between 18 and 108. Further review of the average scores on each factor, which had a possible range of one to six, revealed participants scored a mean of 3.81 ( $SD = 1.46$ ) on Cognitive Vulnerability, a mean of 3.10 ( $SD = 1.37$ ) on Time Perception, a mean score of 2.49 ( $SD = 1.08$ ) on Close-Mindedness, a mean score of 2.58 ( $SD = 1.17$ ) on Emotion, a mean score of 3.23 ( $SD = 1.17$ ) on Changeability, and finally a mean score of 3.57 ( $SD = 1.09$ ) on Immediacy.

In regards to the FS, participants' obtained a mean total score of 18.88 ( $SD = 5.83$ ), with all scores ranging within the possible range of zero and 24. Of all participants 42.7% ( $n = 131$ ) scored in the very socially isolated range, 21.2% of participants ( $n = 65$ ) scores

fell within the low social support range, 15.3% of participants ( $n = 47$ ) scored in the range identifying them as having some social support, 14.3% of participants ( $n = 44$ ) scored in the socially connected range, and finally 6.5% of participants ( $n = 20$ ) scores fell in the very socially connected range.

### **Examining the Influence of Sample Characteristics: Age, Marital Status, and Gender**

Pearson correlation coefficients were reviewed in order to establish the presence of significant relationships between age, gender, marital status, and participants' scores on all scales analysed, which included total CDQ-18 scores, the FS total scores, the PA and NA subscales derived from the PANAS, and finally each subscale from Saucier's BFMM, namely Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Intellect or Openness (see Table 4.1). The age of participants ranged from 18 to 71 years ( $M = 30.26$  years;  $SD = 10.46$  years). As expected, age and marital status were significantly correlated. Furthermore, marital status was also significantly correlated with gender. Following the exclusion of participants who identified themselves as neither single nor partnered, frequencies established that 73 (70.87%) male participants were single with the remaining 30 (29.13%) male participants considering themselves partnered. On the contrary, 93 (50%) of the female participants in the sample indicated they were single and 93 (50%) of the remaining female participants reported they were partnered. This suggests that a higher percentage of females compared to males in this sample are partnered, which assists in explaining the significant relationship between gender and marital status.

Table 4.1

*Pearson Correlation Coefficients for Sample Characteristics and Participants Total Scale Scores*

Variable	Age	Gen	MS	CDQ-18	FS	PA	NA	E	A	C	ES	I/O
Age	1	-.03	.19**	-.01	-.08	-.05	.01	-.01	.14*	.05	.04	-.05
Gender (Gen)		1	.13*	-.20**	-.13*	-.02	-.01	.04	.11	.10	-.11	-.07
Marital Status (MS)			1	.01	.09	-.06	.00	.00	.17*	.05	.05	-.03
Cognitive Deconstruction (CDQ-18)				1	-.47**	-.48**	.30**	-.32**	-.45**	-.40**	-.24**	-.27**
Friendship Scale (FS)					1	.54**	-.52**	.59**	.29**	.35**	.44**	.14*
Positive Affect (PA)						1	-.29**	.52**	.34**	.33**	.35**	.44**
Negative Affect (NA)							1	-.32**	-.22**	-.34**	-.61**	-.08
Extraversion (E)								1	.26**	.27**	.37**	.21**
Agreeableness (A)									1	.34**	.28**	.32**
Conscientiousness (C)										1	.36**	.18**
Emotional Stability (ES)											1	.13*
Intellect/Openness (I/O)												1

*Note.*  $N = 307$ .  $r =$  Pearson's correlation coefficient. PANAS = positive affect scale and negative affect scale combined. BFMM Factors = extraversion, agreeableness, conscientiousness, emotional stability, intellect/openness.

\* = .05 (two-tailed); \*\* = .01 (two-tailed)



Of the 307 participants in the current sample, 110 (36%) were male and 197 (64%) were female. Table 4.2 contains the mean scores and standard deviations for both males and females on each scale utilized in this study. The difference in sample size between males and females was found to be significant,  $\chi^2(1, N = 307) = 24.66, p < .001$ . Subsequently, the following significance testing regarding gender differences must be interpreted with caution.

Table 4.2

*Scale Means and Standard Deviations for Males and Females*

Scale	Males		Females	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Cognitive Deconstruction Questionnaire	59.20	10.16	54.65	10.41
Friendship Scale	17.85	5.95	19.47	5.69
Positive Affect Scale	27.81	9.79	27.42	9.10
Negative Affect Scale	24.24	9.35	24.03	8.98
Extraversion	38.96	12.72	39.88	12.11
Agreeableness	50.93	10.31	53.16	9.94
Conscientiousness	45.29	12.19	47.70	11.91
Emotional Stability	39.75	12.19	37.07	11.80
Intellect or Openness	54.90	9.99	53.46	10.81

*Note.*  $N = 307$ . *M* = mean; *SD* = standard deviation.

According to Pearson correlation coefficients (displayed in Table 4.1) there exists a significant relationship between gender and CDQ-18 total scores. Further analyses were undertaken utilising a between subjects multivariate analysis of variance (MANOVA) in order to provide greater detail regarding the sex differences on the CDQ. The CDQ-18 factors (Cognitive Vulnerability, Time Perception, Close-Mindedness, Changeability, Emotion, and Immediacy) served as dependent variables in the analysis and gender (male or female) comprised the independent variable. Revision of the homogeneity of variance-covariance matrices and the normality assumptions that underlie MANOVA did not reveal any abnormalities that were cause for concern. An *a priori* significance level was set at .05. Results from the MANOVA undertaken revealed a statistically significant main effect for gender on CDQ-18 factors as identified by Wilks'  $\Lambda$  (.91),  $F(6, 300) = 4.82, p > .001$ , partial  $\eta^2 = .09$ . This suggests that gender has a small to moderate effect on the CDQ-18 factors (Cohen, 1992). Univariate comparisons were subsequently explored for each of the dependent variables in order to determine whether scores on each of the CDQ-18 factors were significantly different between genders (Field, 2005). Field (2005) suggests that for those dependent variables for which group differences exist, the preliminary MANOVA protects the univariate comparisons against inflated Type 1 error. Exploration of these sex differences at a univariate level was undertaken revealing significant differences for gender on the CDQ-18 factor of Emotion and Cognitive Vulnerability. Table 4.3 contains the mean scores, standard errors, and analysis results for these univariate comparisons. Post hoc analyses revealed that when controlling for type 1 error across six comparisons the only significant difference for gender remained on the Emotion Factor. The effect size was small, suggesting 6% of the variability in participants CDQ-18 scores can be explained by gender (Grice & Iwasaki, 2007; Cohen, 1992). As aforementioned, results comparing males and females must be interpreted

with caution due to the significant differences in sample size. In addition, as gender has only a relatively small effect on just one of the CDQ-18 factors and that the correlation between gender and participants total CDQ-18 score is small ( $r = -.20$ ), the data remained collapsed across sex during confirmatory model testing and additional analyses. Although not of primary importance in the current research, further exploration of sex differences in any new (especially non-student) samples may be of importance in the continual validation of the CDQ-18.

Table 4.3

*Mean, Standard Errors, and CDQ-18 Subscale Findings for Males and Females*

CDQ-18 Factors	Male		Female		$F^a$	$p^b$	Partial $\eta^2$
	$M$	$SE$	$M$	$SE$			
Cognitive Vulnerability	4.11	.14	3.65	.10	7.27	.01	.02
Time Perception	3.27	.10	2.99	.10	3.02	.08	.01
Close Mindedness	2.50	.10	2.47	.08	.06	.80	.00
Changeability	3.24	.11	3.22	.08	.01	.64	.00
Emotion	2.96	.11	2.37	.08	18.83	.00	.06
Immediacy	3.65	.10	3.52	.08	1.06	.30	.00

*Note.*  $N = 307$ .  $M$  = mean;  $SD$  = standard deviation.

<sup>a</sup>For each ANOVA,  $F(1, 305)$ . <sup>b</sup> $p$  = (two-tailed).

As also identified by Pearson correlation coefficients (displayed in Table 4.1) there was a significant relationship between gender and participants FS total scores. As displayed in Table 4.2, males produced a lower mean total score compared with the female participants suggesting that females in this sample reported a greater degree of social connectedness. This difference in mean total scores on the FS was found to be significant,  $t(305) = -2.36, p = .02$ , two-tailed. The magnitude of effect of gender on FS scores according to Cohen (1992), however, was considered small ( $r = .13, p < .05$ ). Therefore, due to the small effect of gender on the FS, gender was not used as a covariate in further analyses.

The remaining significant relationships identified according to Pearson correlation coefficients were between age and the factor of Agreeableness contained in Saucier's MM scale, and finally marital status and Agreeableness (see Table 4.1). In regards to age and agreeableness, it was found that age correlated significantly with four items on this subscale. Following the identification of these items, a one-way MANOVA was undertaken to explore whether the impact of age on these items was significant. The significantly correlated agreeableness items (kind, rude, sympathetic, and unsympathetic) served as dependent variables in the analysis and age (young or old) comprised the independent variable. Participants were allocated membership to either the young age group or the old age group based upon a median split of age ( $Mdn = 27$ ) in which participants who were 27 years of age or younger were categorised as young ( $n = 163$ ) and participants over 27 years of age were categorised as old ( $n = 144$ ). The assumption regarding multivariate normality was satisfied, as was the assumption of equality of variance matrices identified by Levene's test. Furthermore, Box's test revealed that the assumption regarding the equality of variance-covariance matrices was met. An *a priori* significance level was again set at .05. Results

from the MANOVA undertaken found that there was no significant main effect for age on the agreeableness items according to Wilks'  $\Lambda$  (.98),  $F(4, 302) = 1.71, p = .15$ , partial  $\eta^2 = .02$ .

The final significant relationship identified as mentioned previously was between marital status and Agreeableness. A one-way MANOVA was again performed with the agreeableness items (Cold, Cooperative, Harsh, Kind, Rude, Sympathetic, Unsympathetic, and Warm) serving as dependent variables in the analysis and marital status (single or partnered) serving as the independent variable. Participants who did not specify their marital status as either single or partnered and indicated 'other' as response ( $n = 18$ ) were excluded from this analysis. It was found that whilst the assumption of multivariate normality was satisfied and the assumption of equality of covariances was met according to Levene's test, Box's M test was significant. This suggests that the assumption of equality of variance-covariance matrices was violated. As sample sizes are close to equal, however, Box's test can be disregarded due to its renowned instability (Field, 2005). The MANOVA revealed no significant multivariate effects according to Wilks'  $\Lambda$  (.05),  $F(8, 280) = 1.91, p = .06$ , partial  $\eta^2 = .05$ .

### **Confirmatory Factor Analysis**

**The model.** Confirmatory factor analysis (CFA) belongs to a class of methodology known as structural equation modelling (SEM) and was undertaken in the current study utilising Analysis of Moment Structures (AMOS) 7.0 (Arbuckle, 2007). CFA, otherwise known as a measurement model in AMOS as it focuses solely on the link between latent variables and their corresponding relationship to observable variables, was undertaken in order to examine the hypothesized relationship between cognitive deconstruction, the dimensions that represent it, and the items developed to assess each of the dimensions. Given that the Cognitive Deconstruction Questionnaire (CDQ) has been theoretically developed and that

there exists an a priori knowledge of the factor structure, CFA was deemed an appropriate method by which to explore scores on the proposed measurement instrument and the underlying constructs it is designed to measure (Byrne, 2001). CFA was not only utilised to confirm the exploratory model found in the previous study and to test the aforementioned hypotheses, but also to develop a better fitting model if necessary.

**A priori goodness-of-fit criterion.** Goodness-of-fit criteria for the hypothesized model were specified a priori as has been recommended when undertaking model testing (Byrne, 2001; Byrne, 2005; Jackson, Gillaspy, & Purc-Stephenson, 2009). The Tucker Lewis Index (TLI) and the Comparative Fit Index (CFI) are known as incremental fit indexes and evaluate the relative fit of the hypothesized model to a baseline model without structure (Byrne, 2001). In regards to the TLI, values greater than .90 were considered acceptable (Bentler, 1992), values approaching .95 were indicative of a good fitting model (Hu & Bentler, 1999), and values greater than .95 were considered excellent (Tucker & Lewis, 1973). Similarly, values for the CFI greater than .90 were decided to be demonstrative of a model that fits the data to an acceptable degree and values greater than .95 for when the model fits the data well (Bentler, 1990; Bentler & Bonett, 1980; Hu & Bentler, 1999). The Goodness-of-fit Index (GFI) (Joreskog & Sorbom, 1986) can be considered an absolute index of fit as it compares the hypothesized model with no model at all. GFI values that exceeded .90 were considered as representative of an adequate fit of the model to the data, with model fit continuing to improve as values approached 1.0 (Byrne, 2001; Dickey, 1996; Stevens, 1996). Finally, the Root Mean Square Error of Approximation (RMSEA) introduced by Steiger and Lind (1980) was reviewed to assess model fit as it is considered one of the most informative criteria available in covariance structure modelling (Byrne, 2001). RMSEA values lower than .08 were accepted and considered to be representing an acceptable error of approximation in

the population and values lower than .05 were suggestive of an excellent fit of the model to the population (Brown & Cudeck, 1993). Sugawara and MacCaallum (1993) have suggested that the RMSEA statistic be reported in CFA models utilising Maximum Likelihood (ML) estimation as in the current model, as within this estimation procedure the RMSEA statistic has been found to produce consistent results.

**Graphical specification of the model.** The postulated CFA model in the current analysis is schematically portrayed as a path diagram, which is displayed in Figure 4.1. The following geometric symbols represent distinct parts of the model; an ellipse represents an unobserved latent factor, a rectangle represents an observed variable, a single-headed arrow graphically represents the impact of one variable on another, and finally a double-headed arrow represents the covariance between two variables. As can be seen in the diagrammatic representation of the model, Cognitive Vulnerability, Time Perception, Close-Mindedness, Emotion, Changeability, and Immediacy, as well as their corresponding observed variables represent the first-order (also referred to as the lower-order) CFA structure. Included in this first-order structure are also measurement error terms (“e”), which represent the proportion of the observed variable that has not been explained by the factor. The latent variable of cognitive deconstruction that is included in the model along with its relationship to the first-order factors is termed as the second-order (also referred to as a higher-order) CFA structure.

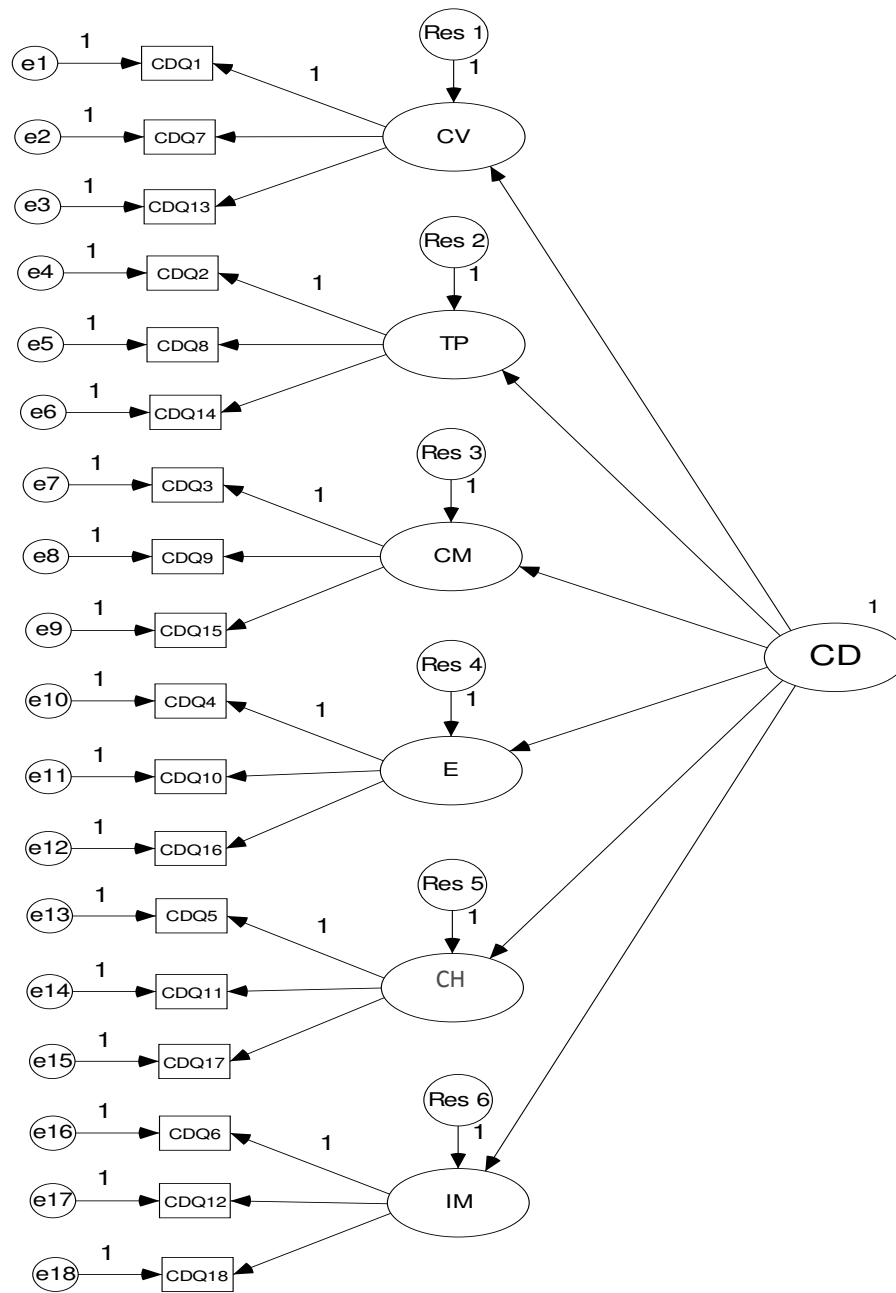


Figure 4.1. Hypothesised six-factor, second-order confirmatory factor analysis model of the CDQ-18.

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*Note.*  $N = 307$ . 1 = fixed parameter. CD = Cognitive Deconstruction; CV = Cognitive Vulnerability; TP = Time Perception; CM = Close-Mindedness; E = Emotion; CH = Changeability; IM = Immediacy; CDQ1 to CDQ18 = CDQ items; Res1 to Res6 = residual error of latent variables; e = measurement error.



The observed variables displayed as rectangles within the first-order structure of the CFA model can be considered as dependent variables. The first-order factors displayed as ellipses also operate as dependent variables in the model given their relationship with the second-order factor (cognitive deconstruction), which serves as the independent variable in this model. The second-order factor of cognitive deconstruction is hypothesized to predict the lower order factors of Cognitive Vulnerability, Time Perception, Close-Mindedness, Emotion, Changeability, and Immediacy, along with a degree of error. This error is captured by the residual error terms and results from their prediction by the second-order factor. Proposing a second-order factor in the current model is viable as there are a number of small correlations between the first-order factors of Cognitive Vulnerability, Time Perception, Close-Mindedness, Emotion, Changeability, and Immediacy as displayed in Table 4.4. Although these correlations are small and some statistically insignificant, a second-order factor was deemed appropriate as the model has sufficient theoretical justification to support cognitive deconstruction as a higher-order construct that causes the six lower-order dimensions of cognitive deconstruction. Including a second-order structure to the CFA model is also desirable given that a second-order model is more parsimonious than its first-order counterpart (Rindskopf & Rose, 1988), the second-order model allows for the testing of the extent to which it accounts for the pattern of correlations among the first-order factors (Byrne, 2005), and finally a second-order model has the ability to take into account the unique variance of each first-order factor that is not shared in common with each of the other first-order factors and separate this unique variance from the estimation of measurement error variance (Byrne, 2005).

Table 4.4

*Correlations between the Six CDQ-18 Factors*

<b>Factor</b>	CV	TP	CM	E	I	IM
Cognitive Vulnerability (CV)	1	.09	.05	.08	.17**	-.27**
Time Perception (TP)		1	.29**	.17**	.27**	-.06
Close-Mindedness (CM)			1	.17**	.31**	-.15**
Emotion (E)				1	.14*	.09
Changeability (CH)					1	-.25**
Immediacy (IM)						1

Note. N = 307;  $r$  = Pearson's correlation coefficient.

\* = .05 (two-tailed); \*\*=.01 (two-tailed);

Based upon these geometric configurations noted previously, decomposition of this CFA model in Figure 4.1 argues that (a) responses to the CDQ are explained by six first-order factors, namely Cognitive Vulnerability, Time Perception, Close-Mindedness, Emotion, Changeability, and Immediacy, and one second-order factor, cognitive deconstruction, (b) each item has a non-zero loading on the first-order factor it was designed to measure and zero loadings on the five other first-order factors, (c) covariation among the six first-order factors is fully explained by their regression on the second-order factor, cognitive deconstruction, and (d) error terms associated with each item are uncorrelated.

**Model identification and latent factor scaling.** Model identification refers to whether or not there exist a unique set of parameters consistent with the data (Byrne, 2001). If a unique transposition of the variance-covariance matrix of observed variables into the structural parameters of the hypothesized model can be found, the model is considered identified and therefore testable (Byrne, 2001). In conducting SEM, it is desired that the

hypothesized model meet the criteria for over-identification as this results in positive degrees of freedom and allows for the rejection of the model and renders it scientifically useful (Byrne, 2001). The current model was considered over-identified as the number of estimable parameters (42) was less than the number of data points (171) and produced positive degrees of freedom ( $df = 129$ ).

Linked to model identification is the requirement within the model that every latent variable have its scale determined so as the unobserved variable can be appropriately mapped onto its corresponding observable variables (Byrne, 2001). This requirement of latent factor scaling is satisfied through constraining one factor loading parameter amongst each set of loadings modelled to measure the same factor to a non-zero loading (Byrne, 2001).

Subsequently, this requirement was met by constraining one loading on each latent variable to 1.0 as displayed in Figure 4.1. It can be seen, however, that the latent variable of cognitive deconstruction does not have an associated factor variance constrained to 1.0. Rather, the variance of cognitive deconstruction has been constrained and is no longer freely estimated. This is due to that in latent factor scaling in CFA models, either the factor loading or its related factor variance can be estimated, but not both (Byrne, 2005). As is common in second-order factor models, the factor variances are of primary interest and subsequently in order to address model identification and factor scaling, the variance of the second-order factor was constrained to 1.0, thereby leaving the factor variances to be freely estimated (Byrne, 2005).

**Model estimation.** The estimation of parameters in the current CFA model was based upon maximum likelihood (ML) estimation and the input matrix selected was the variance-covariance matrix as opposed to the correlation matrix. ML estimation was appropriate to use given the sample size was large, multivariate normality had been established, and the scale of the observed variables were considered continuous (Albright & Hun, 2009). According to

Green, Akey, Fleming, Hershberger, and Marquis (1997) model adequacy is influenced most by variables with only two response categories and that as the numbers of response categories increases the variables can be used in continuous methods without adverse consequences for overall model fit. In turn, as the response categories on the CDQ numbers six, the items were considered continuous in nature and ML estimation was appropriate.

**Model evaluation.** Model evaluation was twofold. Firstly the goodness-of-fit of the model as a whole was explored, and secondly, the goodness-of-fit of the individual parameter estimates within the model were reviewed. In regards to evaluating the global estimation of fit of the model, a number of fit indexes that were specified a priori and discussed previously were reviewed. One of the first measures of fit that was developed for evaluating a model as a whole was the chi-square statistic, which decreases as model fit improves. The chi-square statistic in the current analysis yielded a statistically significant result,  $\chi^2(129, N = 307) = 288.28, p < .001$ . This significant result is undesirable, however, the chi-square statistic is widely recognized to be impractical and an unreliable indicator of fit given its extreme sensitivity to sample size (Byrne, 2001; Dickey, 1996; Joreskog, 1969; Stevens, 1996). Due to the inadequacies of the chi-square statistic, many alternative and more practical fit indexes have been made available and were subsequently reviewed in determining the fit of the current model (Bentler, 1990; Albright & Hun, 2009). The subsequent indexes examined to assess model fit included the Tucker Lewis Index (TLI), the Comparative Fit Index (CFI), the Goodness-of-fit Index (GFI), and finally the Root Mean Square Error of Approximation (RMSEA) and the RMSEA 90% confidence intervals. The values of each of these indexes are displayed in Table 4.5 along with their corresponding qualitative fit description.

Table 4.5

*Goodness-of-Fit Statistics and Corresponding Model Fit Descriptions for the Hypothesised Six-Factor, Second-Order Confirmatory Factor Analysis Model of the CDQ-18*

Goodness-of-Fit Index	Goodness-of-Fit Value	Model Fit Description
TLI	.91	Adequate
CFI	.92	Adequate
GFI	.91	Adequate
RMSEA (90% C.I.)	.06 (.05 - .07)	Adequate

*Note.* TLI = Tucker Lewis Index; CFI = Comparative Fit Index; GFI = Goodness-of-fit Index; RMSEA = Root Mean Square Error of Approximation.

Following the evaluation of global fit indexes, the next step undertaken in determining the appropriateness of the hypothesised model to the data was reviewing the goodness-of-fit of the individual parameters (Byrne, 2001). In order for individual parameters to be considered appropriate they must display no negative variances, correlations must be less than one, and each estimate must be statistically significant (Byrne, 2001). The statistical significance of an individual estimate is achieved when the estimate is divided by the standard error and is greater than the critical ratio of 1.96 (Byrne, 2001). The critical ratio statistic is also referred to as the t-statistic and the Wald statistic and if this value is below 1.96 it is considered that the estimate is not significantly different from zero and therefore a parameter that should not be estimated (Stevens, 1996). For each parameter to remain appropriate and specified in the model the above criteria must be satisfied (Byrne, 2005).

Figure 4.2 contains the diagrammatic representation of the model, along with the parameters corresponding standardized estimate (factor loading) and the variance accounted for by each parameter (see Appendix I for a path diagram containing unstandardised

estimates). Given estimates are provided in a standardised format, the relative importance of each item in the inventory as per its factor loading can be determined. Subsequently, those observed variables (CDQ items) with the highest factor loadings account for greater variance on the corresponding factor. Similarly, those factors included in the second-order of the model with the highest factor loadings account for greater variance on the corresponding latent variable, cognitive deconstruction. In addition, Table 4.6 contains information critical in evaluating the feasibility of each parameter including the unstandardised estimates, the corresponding standard errors and critical ratio statistic, and the associated significance level of each estimate. As can be seen in both Figure 4.2 and as specified in Table 4.6, not all parameters for the hypothesised model were found to be appropriate. Specifically, the second-order parameter estimate of immediacy was found to be negative, which is in violation of the goodness-of-fit criteria specified and suggests that the factor of immediacy is not viable in the current model. Furthermore, this negative weight is also contrary to the underlying theory of cognitive deconstruction. In order to further explore the misfit of immediacy in the hypothesised model, the standardised residuals were reviewed. The standardised residuals in Table 4.7 are representative of the number of standard deviations the observed residuals are from the zero residuals that would be present if the current model were perfect (Byrne, 2001). Any values in this table that exceed 2.58 according to Byrne (2001) can be considered large and subsequently produce statistically significant discrepancies with a model that fits the data ideally. Consistent with the violation to the model detected earlier, covariance of items associated with the Immediacy Factor reveal statistically significant discrepancies. Although other items display covariances that exceed the critical cut-off of 2.58, to avoid over-fitting the model, the immediacy items were first addressed in regards to misfit as they are the most problematic.

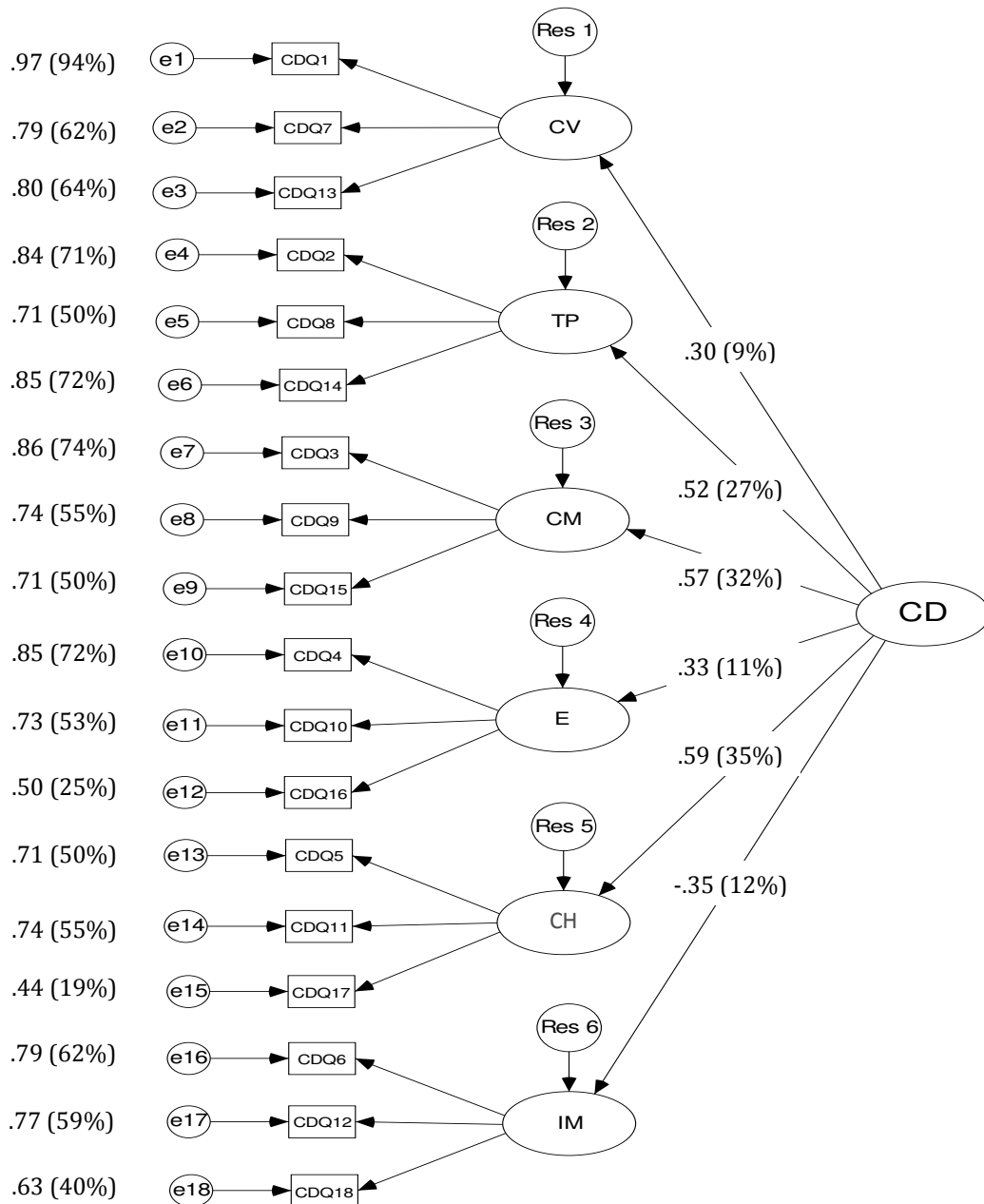


Figure 4.2. Standardised parameter estimates and percentage of variance accounted for related to the hypothesised six-factor, second-order confirmatory factor analysis model of the CDQ-18.

Note. CD = Cognitive Deconstruction; CV = Cognitive Vulnerability; TP = Time Perception; CM = Close-Mindedness; E = Emotion; CH = Changeability; IM = Immediacy; CDQ1 to CDQ18 = CDQ items; Res1 to Res6 = residual error of latent variables; e = measurement error.

Numbers enclosed in brackets represent percentage of variance accounted for.

Table 4.6

*Feasibility Statistics of Freely Estimated Individual Parameters in the Six-Factor, Second Order Confirmatory Factor Analysis Model of the CDQ-18*

Parameter			Unstandardised Estimate	Standard Error	Critical Ratio
CV	→	CD	.47	.12	3.90**
TP	→	CD	.70	.12	6.10**
CM	→	CD	.63	.10	6.53**
E	→	CD	.43	.11	3.83**
CH	→	CD	.61	.11	5.78**
IM	→	CD	-.36	.09	-3.98**
CDQ7	→	CV	.76	.05	16.95**
CDQ13	→	CV	.87	.05	17.35**
CDQ8	→	TP	.84	.07	12.71**
CDQ14	→	TP	.95	.07	14.26**
CDQ9	→	CM	.85	.07	11.89**
CDQ15	→	CM	.81	.07	11.57**
CDQ10	→	E	.80	.10	8.35**
CDQ16	→	E	.51	.07	7.15**
CDQ11	→	CH	1.04	.15	7.19**
CDQ17	→	CH	.66	.11	6.00**
CDQ12	→	IM	.94	.09	9.91**
CDQ18	→	IM	.83	.09	9.32**

*Note.*  $N = 307$ . S.E. = Standard Error; C.R. = Critical Ratio. CD = Cognitive Deconstruction; CV = Cognitive Vulnerability; TP = Time Perception; CM = Close-Mindedness; E = Emotion; CH = Changeability; IM = Immediacy; CDQ1 to CDQ18 = CDQ items. CDQ1, CDQ2, CDQ3, CDQ4, CDQ5 & CDQ6 = 1.0 (fixed parameters). \*\* = .01 (two-tailed).



Table 4.7

*Standardised Residuals of the Hypothesised Six-Factor, Second-Order Confirmatory Factor Analysis Model of CDQ-18*

Items	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
(1) CDQ1-CV	.000	-.007	-.004	-.108	-.636	-.748	-1.19	-.167	-.104	.438	-.896	-.611	-.078	.000	.963	<b>-2.61</b>	<b>-3.72</b>	-.811
(2) CDQ7-CV		.000	.082	-.118	-.414	-1.51	<b>-2.63</b>	-1.47	-1.56	.410	.022	.402	.852	.269	1.25	<b>-3.13</b>	<b>-3.10</b>	-.822
(3) CDQ13-CV			.000	-1.04	-.375	-1.39	-2.24	-1.62	-.612	.345	.323	-.984	-.406	-.042	-.324	<b>-3.37</b>	<b>-3.26</b>	-1.18
(4) CDQ2-TP				.000	-.028	-.065	.518	-.800	.289	2.57	-.497	-.367	-.821	-.171	1.11	2.10	.367	1.44
(5) CDQ8-TP					.000	-.106	1.03	-.634	1.78	1.79	-.296	-.662	1.78	.660	2.16	1.37	-.243	-1.01
(6) CDQ14-TP						.000	.947	.717	1.45	1.59	-.610	-.407	.011	-.839	1.53	2.53	1.27	2.18
(7) CDQ3-CM							.000	-.408	.002	2.05	.456	.882	-.680	-1.40	<b>4.22</b>	1.37	-.500	-.338
(8) CDQ9-CM								.000	.116	.503	-.677	1.36	.515	-1.35	<b>4.39</b>	1.47	-.779	1.06
(9) CDQ15-CM									.000	-.448	-1.02	-1.02	-2.57	-1.69	<b>3.51</b>	-.296	-.836	-.537
(10) CDQ4-E										.000	-.023	-.284	-.920	-.155	2.48	<b>2.86</b>	1.81	1.49
(11) CDQ10-E											.000	.669	-1.42	-.898	-.367	<b>2.80</b>	1.79	2.04
(12) CDQ16-E												.000	-1.02	-1.44	2.52	<b>2.70</b>	1.42	1.76
(13) CDQ5-CH													.000	.424	-1.07	-1.75	-2.07	.796
(14) CDQ11-CH														.000	-.264	-1.90	-1.06	-.825
(15) CDQ17-CH															.000	.086	-1.23	-1.90
(16) CDQ6-IM																.000	-.037	.243
(17) CDQ12-IM																	.000	-.197
(18) CDQ18-IM																		.000

*Note.* N = 307. CDQ1 to CDQ18 = CDQ items/observed variables; CV = cognitive vulnerability; TP = time perception; CM = close-mindedness; E = emotion; CH = changeability; IM = immediacy.

Items in bold font exceed the critical cut-off of 2.58 (Byrne, 2001).

**Respecification of the hypothesised five-factor CFA model.** In order to address this goodness-of-fit violation and to allow further investigation of the fit of the model to the data, a change was undertaken to the hypothesised model in which the second-order factor of immediacy was removed. Analyses following an alteration of the originally hypothesised CFA model must proceed in an exploratory fashion. This occurred in testing the current model following the removal of the misspecified factor of Immediacy. Removal of this negative parameter of immediacy, results in respecification of the current model. Figure 4.3 contains the geometric configurations of the respecified CFA five factor model of the CDQ, in which the decomposition of this argues that (a) responses to the CDQ are explained by five first-order factors, namely Cognitive Vulnerability, Time Perception, Close-Mindedness, Emotion, and Changeability, and one second-order factor, Cognitive Deconstruction, (b) each item has a non-zero loading on the first-order factor it was designed to measure and zero loadings on the five other first-order factors, (c) covariation among the five first-order factors is fully explained by their regression on the second-order factor, cognitive deconstruction, and (d) error terms associated with each item are uncorrelated. As the originally hypothesised model has been respecified, model identification must be again undertaken. It was established that the hypothesized five-factor model also met the criteria for over-identification resulting in it being classified as scientifically useful. The number of estimable parameters (35) was less than the number of data points (120) and produced positive degrees of freedom ( $df = 85$ ) (Byrne, 2001). In addition to this it was ensured that the requirements of latent factor scaling were met (see Figure 4.3) and as in the previously tested model, maximum likelihood (ML) estimation with the variance-covariance input matrix was utilised. As the measure was modified and no longer contains 18 items but only 15 items, it was relabelled as the CDQ-15.

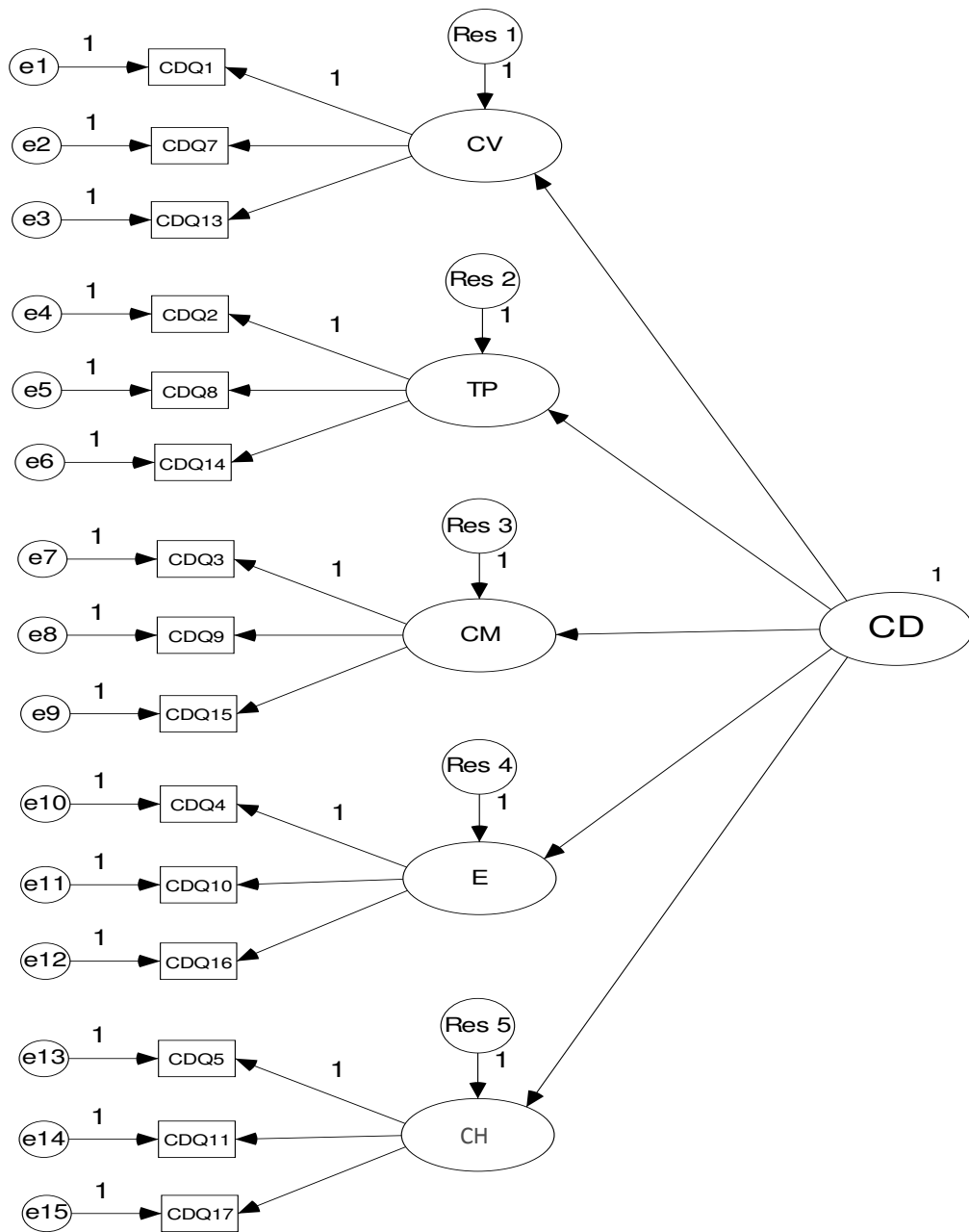


Figure 4.3. Hypothesised five-factor, second-order confirmatory factor analysis model of the CDQ-15.

*Note.* N = 307. CD = Cognitive Deconstruction; CV = Cognitive Vulnerability; TP = Time Perception; CM = Close-Mindedness; E = Emotion; CH = Changeability; CDQ1 to CDQ17 = CDQ-18 items; Res1 to Res5 = residual error of latent variables; e = measurement error; 1 = fixed parameter.

**Evaluation of the five-factor, second-order CFA model of the CDQ-15.** Evaluation of the global fit of the respecified model produced values approaching a greater degree of model fit. The first measure of fit was the chi-square statistic. This statistic decreased in value in comparison to the chi-square statistic from the first model evaluated, suggesting that improvement of model fit has occurred with the respecification of the model. The chi-square statistic, however, did again produce a statistically significant result,  $\chi^2 (85, N = 307) = 183.85, p < .001$ . The additional global fit indexes reviewed in order to determine the fit of the current again included the TLI, the CFI, the GFI, and the RMSEA with the 90% confidence intervals. The values of each of these indexes are displayed in Table 4.8, as are the equivalent qualitative descriptions of fit. Given that these indexes suggest that goodness-of-fit is adequate, the model suggests the relationships among the variables in the model are plausible (Byrne, 2005).

Table 4.8

*Goodness-of-Fit Statistics and Corresponding Model Fit Descriptions for the Hypothesised Five-Factor, Second-Order Confirmatory Factor Analysis Model of the CDQ-15*

Goodness-of-Fit Index	Goodness-of-Fit Value	Model Fit Description
TLI	.93	Adequate
CFI	.94	Adequate
GFI	.91	Adequate
RMSEA (90% C.I.)	.06 (.05 - .07)	Adequate

*Note.* TLI = Tucker Lewis Index; CFI = Comparative Fit Index; GFI = Goodness-of-fit Index; RMSEA = Root Mean Square Error of Approximation; C.I. = Confidence intervals.

Revision of the goodness-of-fit of the individual parameters was undertaken again revealing the model contained no parameters that displayed negative variances, no correlations that exceeded one, and each estimate was found to be statistically significant (Byrne, 2001). This information is specified in Table 4.9 and as no violations to goodness-of-fit criteria were identified, suggests that the model is an adequate fit to the data. In addition to this information, Table 4.10 contains the standardised residuals for each parameter in the model revealing that only one item (CDQ17-CH) produced values that exceed the cut-off of 2.58 (Byrne, 2001). Revision of the modification indices was hence undertaken with the aim of attempting to address the misspecification of this parameter. Further manipulation of this parameter, however, was not undertaken given that the parameter makes strong substantive sense (Joreskog & Sorbom, 1993). It was therefore included in the model and will be investigated further in future analyses.

Figure 4.4 contains the final second-order five-factor CFA model of the CDQ-15 produced in AMOS, along with the standardized estimate (factor loading) for each parameter, and the variance accounted for by each parameter (see Appendix J for the diagrammatic representation of the model containing corresponding unstandardised estimates). In a standardized solution, values associated to these fixed parameters should be less than 1.00 as has been found in the current model (Kline, 1998). Given that both global fit of the model is adequate and that each individual parameter in the path diagram appears to be statistically appropriate, the model argues for the plausibility of the postulated relationships among the variables in the model.

Table 4.9

*Feasibility Statistics of Freely Estimated Individual Parameters in the Five-Factor, Second Order Confirmatory Factor Analysis Model of the CDQ-15*

Parameter	Unstandardised Estimate	Standard Error	Critical Ratio
CV → CD	.35	.12	2.85**
TP → CD	.81	.12	6.56**
CM → CD	.65	.10	6.50**
E → CD	.56	.12	2.85**
CH → CD	.53	.11	5.02**
CDQ7 → CV	.76	.05	16.88**
CDQ13 → CV	.87	.05	17.26**
CDQ8 → TP	.84	.07	12.71**
CDQ14 → TP	.95	.07	14.37**
CDQ9 → CM	.84	.07	11.86**
CDQ15 → CM	.80	.07	11.53**
CDQ10 → E	.76	.09	8.43**
CDQ16 → E	.49	.07	7.02**
CDQ11 → CH	.95	.14	6.76**
CDQ17 → CH	.61	.11	5.72**

*Note.* S.E. = Standard Error; C.R. = Critical Ratio; CD = Cognitive Deconstruction; CV = Cognitive Vulnerability; TP = Time Perception; CM = Close-Mindedness; E = Emotion; CH = Changeability; CDQ1 to CDQ17 = CDQ items.

CDQ1, CDQ2, CDQ3, CDQ4 & CDQ5 (fixed parameters).

\*\* = .01 (two-tailed).

Table 4.10

*Standardised Residuals of the Hypothesised Five-Factor, Second-Order Confirmatory Factor Analysis Model of the CDQ-15*

Items	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(1) CDQ1-CV	.000	-.007	-.005	.223	-.352	-.460	-.597	.366	.409	.497	-.783	-.538	.864	.769	1.51
(2) CDQ7-CV		.000	.089	.152	-.182	-.125	-2.15	-1.04	-1.14	.459	.115	.462	.973	1.54	1.69
(3) CDQ13-CV			.000	-.769	-.140	-1.12	-1.75	-1.18	-1.88	.394	.417	-.923	.756	1.11	.121
(4) CDQ2-TP				.000	.010	.048	-2.01	-.648	-.258	1.50	-1.27	-.901	-1.59	-.674	1.24
(5) CDQ8-TP					.000	-.107	.412	-1.11	.033	.880	-.952	-1.12	.769	1.91	2.28
(6) CDQ14-TP						.000	.198	.122	.876	.497	-1.40	-.955	-.731	.147	1.66
(7) CDQ3-CM							.000	-.067	-.011	1.21	-.114	.485	-.894	-.158	<b>4.60</b>
(8) CDQ9-CM								.000	.205	-.169	-1.13	1.04	-.886	1.00	<b>4.74</b>
(9) CDQ15-CM									.000	-1.09	-1.46	-1.32	-1.24	-2.12	<b>3.84</b>
(10) CDQ4-E										.000	-.025	-.314	-.332	-1.07	2.42
(11) CDQ10-E											.000	.964	-.948	-1.45	-.358
(12) CDQ16-E												.000	-1.48	-.578	2.52
(13) CDQ5-CH													.000	.335	-.188
(14) CDQ11-CH														.000	-.950
(15) CDQ17-CH															.000

*Note.* N = 307. CDQ1 to CDQ17 = CDQ items/observed variables; CV = Cognitive Vulnerability; TP = Time Perception; CM = Close-Mindedness; E = Emotion; CH = Changeability.

Items in bold font exceed the critical cut-off of 2.58 (Byrne, 2001).

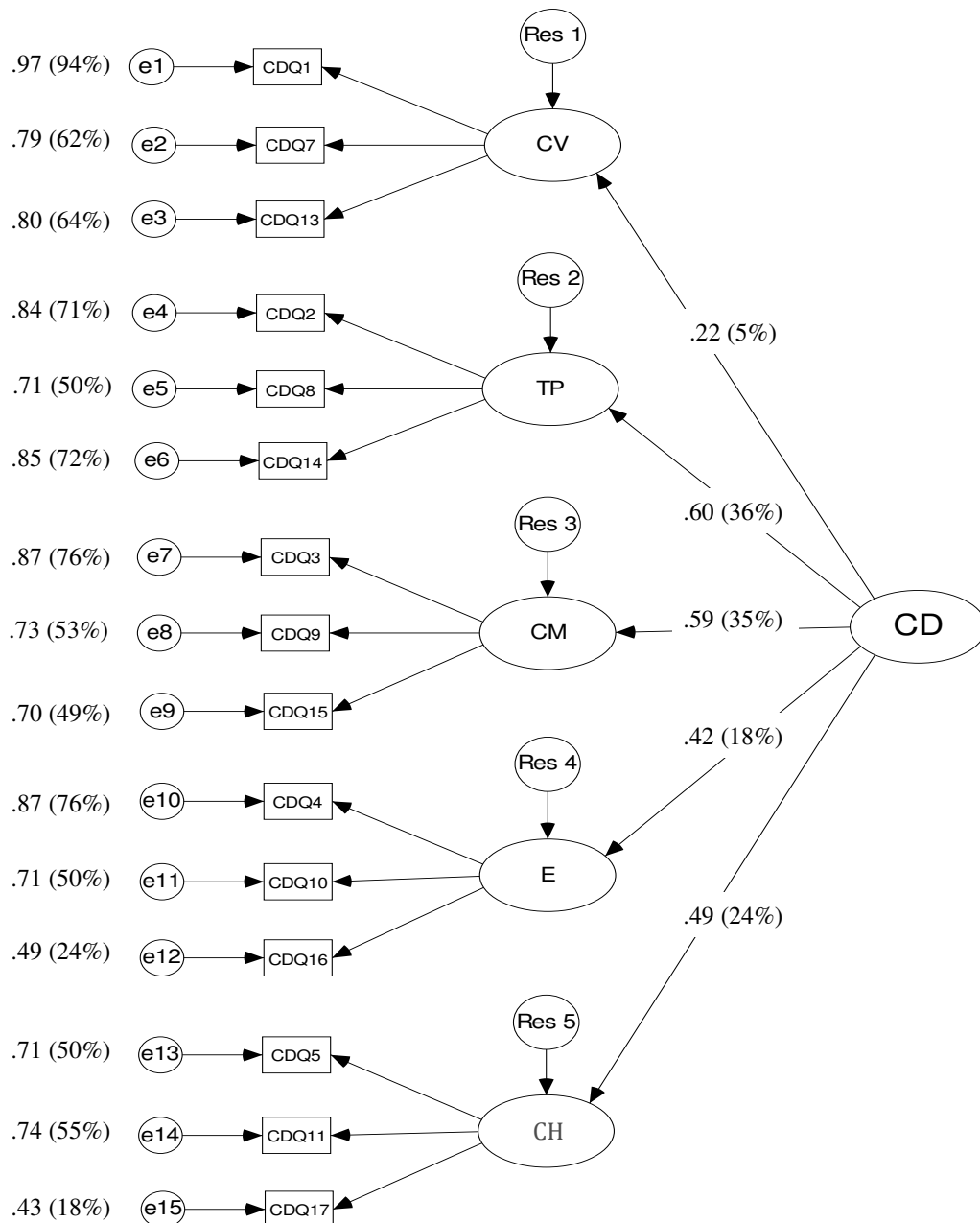


Figure 4.4. Standardised parameter estimates and percentage of variance accounted for related to the hypothesised five-factor, second-order confirmatory factor analysis model of the Cognitive Deconstruction Questionnaire.

Note. N = 307. CD = Cognitive Deconstruction; CV = Cognitive Vulnerability; TP = Time Perception; CM = Close-Mindedness; E = Emotion; CH = Changeability; CDQ1 to CDQ17 = CDQ items; Res1 to Res5 = residual error of latent variables; e = measurement error. Numbers enclosed in brackets represent percentage of variance accounted for.



### **Item Reliability and Internal Consistency**

Analysis of inter-item consistency was conducted on the final CDQ-15 model, which included a set of 15 items loading on five distinct factors. Overall, the scale demonstrated a respectable internal consistency, with a Cronbach's alpha coefficient of .77 ( DeVellis, 2003). Table 4.11 displays a correlation matrix for the final CDQ-15 items, provides the Pearson correlation coefficient for each item to its factor, and also contains the mean for each item, the variance for each item, and finally, the alpha coefficient for the scale if the item were deleted. As the correlation table specifies, all items correlate significantly with their associated factor. These significant correlations between items designed to measure the same dimension of cognitive deconstruction, as well as the item to factor correlations, demonstrate that each item appropriately represents and measures parts of the same factor (Field, 2005). The item means displayed in this table are all close to the centre of the possible range (one to six) of scores as desired, and variances are also suitably high (DeVellis, 2003). This suggests that each item adequately discriminates between individuals (DeVellis, 2003). The alpha reliabilities for each item if deleted from the scale are all within the respectable bound, ranging from .75 to .77 (DeVellis, 2003; Field, 2005).

Table 4.11

*Pearson's Correlation Coefficients, Corrected Item-Factor Correlations, Item means, Item variances, and Alpha Reliabilities if Item Deleted for the CDQ-15*

Items	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(1) CDQ1-CV	1	<b>.76**</b>	<b>.77**</b>	.12*	.08	.07	.08	.11*	.11*	.11	.02	.01	.12*	.13*	.13*
(2) CDQ7-CV		1	<b>.63**</b>	.10	.02	.07	-.03	.02	.01	.09	.06	.06	.15	.12*	.13*
(3) CDQ13-CV			1	.05	.03	.07	-.01	.01	.06	.09	.08	-.02	.13*	.12	.04
(4) CDQ2-TP				1	<b>.71**</b>	<b>.60**</b>	.25**	.18**	.19**	.27**	.08	.05	.14*	.09	.18**
(5) CDQ8-TP					1	<b>.60**</b>	.27**	.23**	.26**	.21**	.07	.05	.19**	.14*	.20**
(6) CDQ14-TP						1	.24**	.12**	.18**	.21**	.07	.02	.26**	.20**	.22**
(7) CDQ3-CM							1	<b>.63**</b>	<b>.61**</b>	.23*	.15*	.13*	.17**	.13*	.37**
(8) CDQ9-CM								1	<b>.53**</b>	.15*	.06	.15*	.21**	.11	.36**
(9) CDQ15-CM									1	.09	.04	.01	.02	.08	.31**
(10) CDQ4-E										1	<b>.62**</b>	<b>.41**</b>	.06	.11*	.21**
(11) CDQ10-E											1	<b>.41**</b>	.02	.05	.04
(12) CDQ16-E												1	.04	-.01	.19**
(13) CDQ5-CH													1	<b>.55**</b>	<b>.25**</b>
(14) CDQ11-CH														1	<b>.31**</b>
(15) CDQ17-CH															1
Item-Factor $r$	.718	.582	.600	.732	.645	.734	.711	.647	.630	.616	.621	.451	.487	.537	.313
Item $M$	3.72	3.87	3.85	2.97	3.36	2.94	2.47	2.46	2.53	2.37	2.62	2.74	3.47	3.46	2.76
Item Variance	2.61	2.30	2.93	2.62	2.53	2.31	1.63	1.62	1.60	2.42	2.10	1.82	2.08	2.12	2.43
Scale $\alpha$ if Item Deleted	.75	.76	.76	.75	.75	.75	.75	.75	.75	.75	.76	.77	.76	.76	.75

*Note.*  $N = 307$ .  $r$  = Pearson's correlation coefficient;  $M$  = mean;  $\alpha$  = Cronbach's alpha. CDQ1 to CDQ17 = CDQ items/observed variables; CV = Cognitive Vulnerability; TP = Time Perception; CM = Close-Mindedness; E = Emotion; CH = Changeability.

\* = .05 (two-tailed); \*\* = .01 (two-tailed)

Table 4.12 contains the mean of each factor in the CDQ-15, the inter-item correlation of each factor, and finally the Cronbach's alpha coefficient associated to each individual factor. The mean inter-item correlation for each factor produces satisfactory correlations and the alpha reliabilities for each factor are also all acceptably high, ranging from .63 to .89 (Kline, 1999; Tabachnick & Fidell, 2007). Test-retest reliability was not undertaken given the anticipated state based and hence potentially fluctuating nature of cognitive deconstruction.

Table 4.12

*Reliabilities and Descriptive Statistics for the Five CDQ-15 Factors*

CDQ Factor	Factor <i>M</i>	Factor <i>SD</i>	<i>M</i> Inter-Item <i>r</i>	Cronbach's $\alpha$
Cognitive Vulnerability	3.81	1.62	.80	.89
Time Perception	3.10	1.58	.77	.84
Close Mindedness	2.49	1.27	.75	.81
Emotion	2.58	1.45	.68	.74
Changeability	3.23	1.48	.62	.63

*Note.*  $N = 307$ ;  $M$  = Mean,  $SD$  = Standard Deviation,  $r$  = Pearson's correlation coefficient,  $\alpha$  = alpha.

**Validity Testing**

**Convergent validity.** Assessment of the convergent validity of the CDQ-15 involved comparing scores on the factors of the CDQ-15 with alternative measures of the same constructs (Spector, 1992). Pearson product correlation coefficients were utilised to measure the relationship between CDQ-15 factor scores and scores on the measures

employed to assess potential convergent validity, namely the Positive Affect Scale and the Negative Affect Scale from the PANAS and Saucier's (1994) BFMM factors: Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Intellect or Openness. Table 4.13 includes the correlations among these measures. In examining the convergent validity for the CDQ factor of Emotion with the Positive Affect Scale a modest negative correlation was produced ( $r = -.27, p < .001$ ). In evaluating the convergent validity between Emotion and the Negative Affect Scale, a non-significant association was not found ( $r = -.10, p = .07$ ). The remaining CDQ factors were assessed for convergent validity against Saucier's BFMM. The CDQ factor of Cognitive Vulnerability was found to correlate at  $r = -.34$  ( $p < .001$ ) with Conscientiousness. This negative relationship to the BFMM factor Conscientiousness was also found for the CDQ factor of Close-Mindedness ( $r = -.36, p < .001$ ) as would be expected. Furthermore, Close-Mindedness displayed a significant negative relationship ( $r = -.59, p < .001$ ) with the BFMM factor of Intellect or Openness that assess innovative, intellectual, complex, and creative thought as expected. Changeability displayed a correlation of  $r = -.37$  ( $p < .001$ ) with the BFMM factor of Conscientiousness and a correlation of  $r = -.34$  ( $p < .001$ ) with the BFMM factor of Agreeableness.

Table 4.13

*Pearson Correlation Coefficients between the CDQ-15 Factors, the Positive and Negative Affect Scales, and the Mini-Markers Factors*

Items	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) Cognitive Vulnerability	1.00	.09	.05	.08	.17**	-.12*	.22**	-.13*	-.20**	-.34**	-.19**	-.17**
(2) Time Perception		1.00	.29**	.18**	.27**	-.32**	.27**	-.30**	-.22**	-.13*	-.20**	-.11*
(3) Close-Mindedness			1.00	.17**	.31**	-.51**	.35**	-.33**	-.35**	-.36**	-.34**	-.59**
(4) Emotion				1.00	.14*	-.27**	-.10	-.16**	-.34**	-.11	.14*	-.21**
(5) Changeability					1.00	-.32**	.34**	-.16**	-.34**	-.37**	-.33**	-.18**
(6) Positive Affect Scale						1.00	-.29**	.52**	.34**	.33**	.35**	.44**
(7) Negative Affect Scale							1.00	-.32**	-.22**	-.34**	-.61**	-.08
(8) Extraversion								1.00	.26**	.27**	.37**	.21**
(9) Agreeableness									1.00	.34**	.28**	.32**
(10) Conscientiousness										1.00	.36**	.18**
(11) Emotional Stability											1.00	.13*
(12) Intellect/Openness												1.00

N = 307.  $r$  = Pearson's correlation coefficient. PANAS = positive affect scale and negative affect scale combined. BFMM Factors = extraversion, agreeableness, conscientiousness, emotional stability, intellect/openness.

\* = .05 (two-tailed); \*\* = .01 (two-tailed)

**Known groups' validity.** As in the sample one, known-group's validity was explored to examine whether the scores on the CDQ-15 vary in a way that is consistent with the theory of cognitive deconstruction (Baumeister, 1990a). The CDQ-15 factors (Cognitive Vulnerability, Time Perception, Close-Mindedness, Emotion, and Changeability) served as dependent variables in the analysis and degree of social support (socially isolated or socially connected) was the independent variable. Participants were allocated membership to either the socially isolated group or the socially connected group based upon their score on the FS. A median split assigned participants who scored between 1 and 16 to the socially isolated group ( $N = 167$ ) and participants scoring between 17 and 24 to the socially connected group ( $N = 140$ ). Homogeneity of variance-covariance matrices and the normality assumptions that underlie MANOVA revealed abnormalities. However, as the groups were similar in size and there were greater than 20 degrees of freedom for error in the univariate case, the test can be considered robust (Tabachnick & Fidell, 2007). An *a priori* significance level was set at .05. Results from the MANOVA revealed a statistically significant main effect for level of social isolation on the CDQ factors as identified by Wilks'  $\Lambda$  (.78),  $F(5, 301) = 16.22, p > .001$ , partial  $\eta^2 = .21$ . This suggests social isolation has a medium to large effect on the CDQ-15 factors overall (Cohen, 1992). Univariate comparisons were undertaken to explore the significant differences for social isolation on the CDQ-15 factors individually. Table 4.14 contains the mean scores, standard errors, and analysis results for these univariate comparisons. Simple comparisons revealed that when controlling for type 1 error across five comparisons ( $\alpha = .01$ ) that the difference between the levels of social isolation on each CDQ factor remained significant. Figure 4.5 also graphically portrays the differing levels of social isolation and the influence these levels have on scores on each of the CDQ factors. Observation of these pattern of means suggests that participants who experience

and report greater levels of social isolation also reported an increase in their experience of cognitive vulnerability, increases in disturbed time perception, increased close-mindedness, a lack of emotion, and finally increased changeability in behaviour.

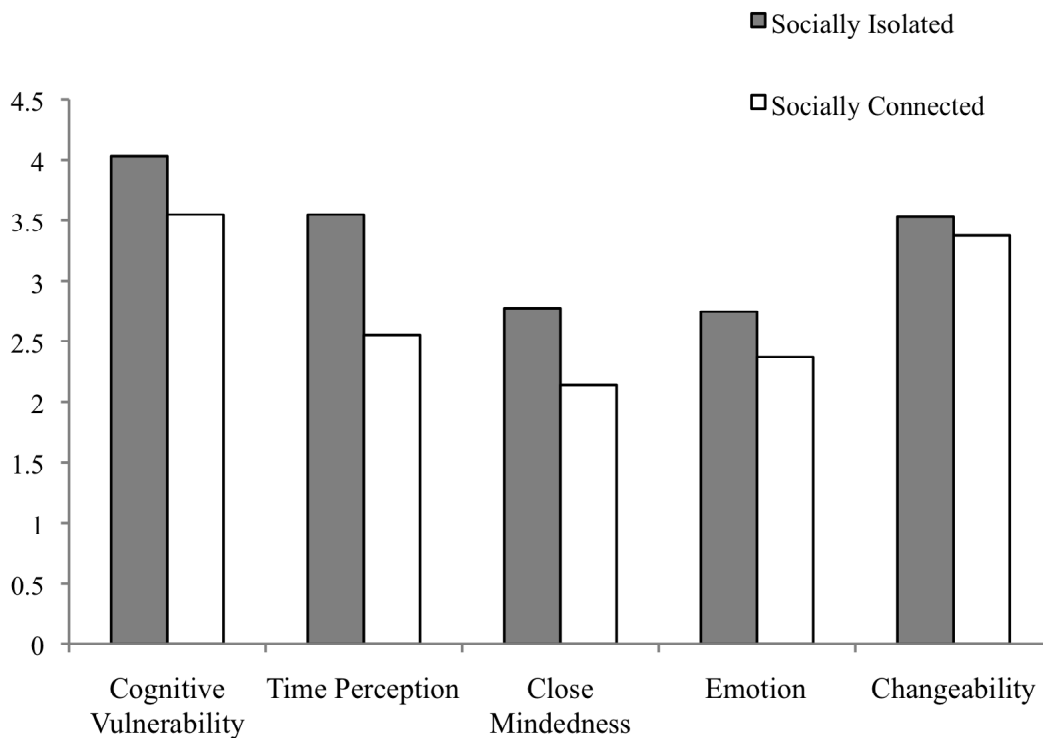
Table 4.14

*Mean, Standard Errors, and Univariate Analyses on Cognitive Deconstruction*

*Questionnaire Factors Scores across the Friendship Scale Social Isolation Levels*

CDQ Factors	Socially Isolated		Socially Connected		$F^a$	$p^b$	Partial $\eta^2$
	Mean	SE	Mean	SE			
Cognitive Vulnerability	4.03	.11	3.55	.12	8.70	.003	.03
Time Perception	3.55	.10	2.55	.11	46.92	.001	.13
Close Mindedness	2.78	.08	2.14	.09	29.30	.001	.09
Emotion	2.75	.09	2.37	.10	8.13	.005	.03
Changeability	3.53	.08	2.87	.09	27.92	.001	.08

Note.  $N = 307$ . <sup>a</sup>For each ANOVA,  $F(1, 305)$ . <sup>b</sup> $p =$  (two-tailed).



*Figure 4.5.* Means for socially isolated and socially connected participants on each of the Cognitive Deconstruction Questionnaire factors.

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*Note.*  $N = 307$ .

Overall, the findings of the MANOVA suggest that the CDQ-15 discriminates as expected in regards to differentiating between participants who are currently reporting differing levels social isolation. Specifically, as expected, participants' CDQ-15 scores were higher indicating greater levels of cognitive deconstruction for those who reported greater levels of social isolation. As the CDQ-15 varies in a predictable way consistent with theory as a function of social isolation group membership, support is provided for the CDQ-15 known group's validity (Spector, 1992).



## Study Two Discussion

### Factor Structure of the CDQ-15

This study aimed to assess the factor structure, the reliability, and the validity of the CDQ-18 in order to develop a measure that was accurate, brief, and met the basic requirements of measurement adequacy. The first area of exploration undertaken in this study was the factorial validity of the CDQ-18. Specifically, this study firstly explored the item to factor relationships found in the EFA model from study one in a CFA. This was undertaken in order to explore whether the CDQ-18 was able to meet the statistical requirements necessary of an adequate model in a CFA. It was specifically explored whether the Immediacy Factor was an appropriate fit in a CFA model or whether removing the factor improved model fit. Exploring the factor analytic strategy was important firstly to determine whether the exploratory latent structure found in study one was consistent across studies and samples, and secondly to corroborate and subsequently refine each of the constructs that were initially developed a priori from available theory (Byrne, 2001; Hoyle & Panter, 1993). Such explorations of the CDQ-18 assist in developing a better fitting model of the measure if necessary. The EFA in study one revealed that the items on the CDQ-18 conformed to six unique factors. Each factor contained three items that were among the highest loading items on the factor, that all loaded on a singular factor, that demonstrated variability in content within the constructs domain, and possessed satisfactory inter-item and item-scale reliability. It was found in the current study, however, that one of the six factors, namely the Immediacy Factor, was not an adequate fit in the confirmatory model. This factor was in violation of the goodness-of-fit criteria specified a priori for the CFA model and suggests that the Immediacy Factor was operating contrary to the underlying theory of cognitive deconstruction. Specifically, the negative estimate suggests that the more attention the participant focused upon the immediate

present, the lesser the degree of cognitive deconstruction was experienced and subsequently the lower the participants factor score on the CDQ-18. This finding is consistent with those from the EFA undertaken earlier in this study with sample one participants, which found that the Immediacy Factor correlated negatively to the remaining factors in the CDQ, suggesting that the more present focused an individual the lower the levels of cognitive deconstruction experienced. As previously described, the items composing this factor may fail to adequately capture the theoretical dimension of cognitive immediacy originally proposed by Baumeister (1990a). Another possibility, as noted above, is that following exclusion, individuals do not narrow their focus of attention only on the immediate present but rather despite experiencing social isolation spend time contemplating the future as well as past events. Given the factor of Immediacy produced a negative parameter estimate, and that findings from the previous sample suggested that scale reliability increases upon removal of the Immediacy Factor, it was concluded that this first-order factor was not viable in the current model and was subsequently removed. Although the Immediacy Factor violates the inclusion criteria for the model, the factor of Time Perception was derived from the same theoretical foundation as Immediacy and remained in the model, serving to assess the theoretical dimension of cognitive immediacy in the deconstructed state. Not only does the CDQ-15 include a measurement of this characteristic but also with the removal of Immediacy Factor the brevity of the scale is improved.

The re-specification of the model rendered the measure being explained by five first-order factors, namely Cognitive Vulnerability, Time Perception, Close-Mindedness, Emotion, and Changeability, and one second-order factor, cognitive deconstruction. As was explored in the model prior to re-specification, the global indices of fit revealed that the data fit a five-factor model of cognitive deconstruction adequately, suggesting that the

relationships among the variables in the model are plausible (Byrne, 2005). In conjunction with this finding, inspection of the goodness-of-fit of the individual parameters revealed that the model contained no parameters that displayed negative variances, the correlations did not exceed one as was desired, and finally each of the parameter estimates within the model was found to be significant (Byrne, 2005). As both the global fit of the model is adequate and as each individual parameter contained within the path diagram was found to be statistically appropriate, it can be concluded that the postulated relationships among the variables are both plausible and adequately explain the scale. As the measure contained 15 items following modification and no longer contained 18 items, and had also been modified to form a more efficient and reliable scale, the revised version of the scale was labelled the CDQ-15.

Within the model, each item of the 15 items contributed a varying amount of variance toward its assigned first order factor. Similarly, each first order factor accounted for differing portions of variance towards the second order factor of cognitive deconstruction, the underlying latent variable that the CDQ measures. In regards to the variance accounted for by the five CDQ factors towards the second order factor of Cognitive Deconstruction, Time Perception contributed the greatest degree of variance accounting for 36%, followed by the Close-Mindedness factor that accounted for 35% of variance, Changeability explaining 24% of variance, Emotion accounting for 18% of the variability in cognitive deconstruction, and finally Cognitive Vulnerability contributing the least with 5% of explained variance in the second order factor of cognitive deconstruction. Interestingly, the previous sample asserted that the strongest contributing factor in the CFA was Cognitive Vulnerability (accounted for 25.84% of variance), which contributed the least amount of variance in the model. Taking into account the acceptable fit of the overall model to the data, the viability and the statistical significance of the parameter

estimates within the model, and the lack of any substantial evidence of model misfit, it can be concluded that cognitive deconstruction is appropriately explained by the five first order factors, namely Time Perception, Close-Mindedness, Changeability, Emotion, and Cognitive Vulnerability and the single second order factor, Cognitive Deconstruction. In turn, it can be suggested that the CDQ-15 is thus far an adequate measure of the defensive state of cognitive deconstruction described in theory (Baumeister, 1990a). It is important, however, that although the CFA model fits the data adequately, that additional evidence demonstrates that each factor within the model reflects its intended construct (Spector, 1992). The remaining research questions attempted to address this.

### **Internal Consistency of the CDQ-15**

As in study one the internal consistency of the scale was also explored, as this is an important requirement for measurement adequacy. The five factor CDQ-15 produced respectable internal consistency and in turn suggested that the multidimensional scale measures the latent variable, cognitive deconstruction. Cronbach's alpha revealed that the CDQ produced a reliability coefficient of .77 ( $p < .001$ ). Nunnally and Bernstein (1994) state that achieving a modest alpha level of approximately .7 is appropriate in the early stages of predictive or construct validation research and that alpha's approaching .8 are desirable in later stages of research. As the alpha coefficient is significant and approaching .8, it can be considered that the CDQ-15 possess satisfactory internal consistency, or in others words, the items on the CDQ-15 satisfactorily measure the same latent variable (Field, 2005). The mean inter-item correlations calculated for each factor were found to be both significant and satisfactory in magnitude and the alpha reliabilities for each factor were all acceptable (Kline, 1999; Tabachnick & Fidell, 2007). According to Nunnally (1978) the reliability levels can be considered acceptable, especially when taking into account that each subscale comprises only three items. It was also found in the statistical

investigation of the CDQ that the alpha reliability for the overall scale if each item was individually removed from the scale, was within satisfactory bounds (Cohen, 1992; DeVellis, 2003; Field, 2005). Even though the internal consistency and the item reliability of the CDQ was appropriate in study one ( $\alpha = .72, p < .01$ ), repeating these investigations and assessing this in study two is important as achieving a level of internal consistency in subsequent samples allows for the scale to be generalised to differing subject groups (Spector, 1992). Given these findings, it was concluded that the CDQ-15 demonstrated appropriate internal consistency.

### **The Validity of the CDQ-15**

**Convergent validity.** The final area explored in this study was the validity of the CDQ-15, another important psychometric requirement necessary in developing a sound questionnaire. Two types of validity were explored in this study, namely convergent validity and known groups validity. It was found in this study that some of the factors on the CDQ-15 appeared to exhibit some possible preliminary support for convergent validity. Convergent validity was established through assessing the association between the scale of interest, the CDQ-15, and measures assessing similar domains as the CDQ-15 factors. Significant correlations between the CDQ-15 factors and the existing published psychological measures were seen as evidence of convergent validity (Spector, 1992).

The CDQ factor of Emotion was assessed for convergent validity with the Positive Affect (PA) factor and the Negative Affect (NA) factor from the PANAS. The CDQ factor of Emotion attempts to measure a lack of affect, whereas the PA measures the presence of an individual's experience of pleasant emotion, and their level of enjoyment, engagement, and concentration. As such, it would be expected that a relationship would exist between the two factors, however, this relationship would be negative as a decrease in emotion is consistent with lower levels of pleasant emotions and enjoyment. A modest relationship

was found between the two factors ( $r = -.27, p < .001$ ), suggesting that as the CDQ Emotion Factor indicates higher levels of reduced emotion, the PA demonstrates lower levels of pleasant emotions. As stated, however, this relationship was modest and cannot be considered strong enough to provide support for the convergent validity of the CDQ factor Emotion. In regards to the association between the Emotion Factor and the NA factor there did not exist a significant relationship. It was plausible that as scores on the Emotion Factor increased indicating higher levels of cognitive deconstruction, that scores on the NA, which indicates unpleasant mood and sadness, may decrease due to the individual entering the deconstructed state and subsequently avoiding negative emotion and emotional distress (Baumeister, 1990a). Despite this possibility, no association was found suggesting that convergence between these factors was absent.

Cognitive Vulnerability was found to be associated with Conscientiousness ( $r = -.34, p < .001$ ). This negative relationship to the BFMM factor of Conscientiousness was also found for the CDQ factor Close-Mindedness ( $r = -.36, p < .001$ ). Conscientiousness refers to the ability an individual has to plan well, to be organised, persistent, achievement orientated, and also responsible (Barrick, Mount, & Strauss, 1993). From the association between the CDQ factors and Conscientiousness it can be seen that the less able a person is to execute planned thought, to be organised, and determined, the greater their reported experiences of both Cognitive Vulnerability and Close-Mindedness. It is not surprising that the scales demonstrate some convergence as the ability to engage in meaningful, deliberate, and goal focused cognitive operations is inconsistent with an individual's behaviour and cognitive processes in the deconstructed state, which is incompatible with meaningful thought (Roberts, Chernyshenko, Stark, & Goldberg, 2005). Therefore, Cognitive Vulnerability, which refers to irrational and fantasy prone thinking, and Close-Mindedness, which refers to rigid and narrow thought patterns and does not promote

problem solving, demonstrated moderate convergence with Conscientiousness as would be expected. The dimension of Close-Mindedness as described previously also displayed a moderate association with Intellect or Openness ( $r = -.59, p < .001$ ). This suggests that as rigid, linear and uncreative thought patterns increase as measured by the close-mindedness factor and expected in the deconstructive response, an individual's innovative, intellectual, complex, and creative thought will decrease as measured by Intellect or Openness. These findings suggest that the factors of Close-Mindedness and Intellect or Openness demonstrate convergence and in turn provide initial support for the convergent validity of this CDQ-15 factor.

The CDQ-15 factor assessing Changeability displayed modest convergence with the BFMM factors of Conscientiousness ( $r = -.37, p < .001$ ) and Agreeableness ( $r = -.34, p < .001$ ). Changeability assesses whether a person's behaviour is consistent with both their past behaviour and with their internal standards and values. It was found that as scores on the Changeability Factor increased indicating greater degrees of inconsistent and disinhibited behaviour that scores decreased on the Conscientiousness Factor. The individual characteristics of the Conscientiousness Factor include being systematic, organised, practical, efficient, and careful. Such systematic, careful, and planned behaviour would not occur in the deconstructed state, which is void of meaningful interpretation and evaluation. This explains the modest convergence between the two factors that was found. A negative association was also found between Changeability and Agreeableness. The Agreeableness Factor measures a person's tendency to be warm, sympathetic, cooperative, and thoughtful. Such characteristics were reported to be lower in participants who reported greater changeability in behaviour. This association may be explained in that if a person does not access their personal standards, moral judgements, and values then the propensity to act in a way that is considerate, thoughtful, sympathetic,

and warm may also diminish. The relationship between the CDQ-15 Factor of Changeability and the BFMM factors of Conscientiousness and Agreeableness suggests that this CDQ-15 factor exhibits potential for producing convergent validity.

The convergent validity for each of the CDQ-15 factors requires further exploration. The CDQ-15 factor of Emotion did not significantly converge with the PANAS factors, and the remaining factors from the CDQ-15 explored converged only modestly or moderately with other measures. The insignificant and modest associations found in regards to the convergent validity of some of the CDQ-15 factors may be explained by the measures each of the CDQ-15 factors was associated with.

Unfortunately, the author was not able to identify published measures that assess the identical characteristics of the deconstructed state. As such, measures that assessed only similar domains to the CDQ-15 factors were utilised. This may have largely influenced the above findings and also any generalisations that can be made regarding the convergent validity of the CDQ-15. As such further exploration regarding the validity of the CDQ-15 will need to be undertaken in future research. Although the PANAS and the BFMM factors do not directly assess the same dimensions as included in the CDQ-15, examining the significant associations between them has provided some preliminary support for validity of the CDQ-15 (Spector, 1992).

**Known groups' validity.** The final form of validity explored in this study was known-groups validity. As in the previous study it was explored whether the scale was able to discriminate between participants who reported greater levels of social isolation compared to participants who reported lower levels of social isolation. It was considered important to re-examine known groups validity in a subsequent sample of participants to determine whether scale modifications impacted the ability of the measure to discriminate between participants.



The final form of validity explored in this study was known groups validity, which involved distinguishing between participants who were socially connected and participants who were socially isolated according to their score on the CDQ-15 (Spector, 1992). Assessing this determines whether the scale is able to demonstrate discrimination. It was found, as was the case in study one, that the CDQ-15 was able to differentiate between socially isolated and socially connected participants. Specifically, participants with greater levels of social isolation also reported an increase in their experience of cognitive vulnerability, disturbed time perception, close-mindedness, a lack of emotion, and also changeability, as would be expected according to the theory of cognitive deconstruction (Baumeister, 1990a). Together, these findings regarding convergent validity and known-groups validity suggest that the CDQ-15 measures what it purports to measure, cognitive deconstruction. Examining these forms of validity, in conjunction with the construct validity explored during the item development process, was an important aspect of constructing a valid scale (DeVellis, 2003).

## **Conclusion**

The CDQ-15 remains in the preliminary stage of development and requires greater exploration in additional samples and settings. This study in conjunction with study one, however, provides a foundation upon which further research exploring the CDQ-15 may be undertaken. The CDQ-15 was developed using a rigorous item development process that assisted in providing construct validity for the scale, it has been amended to include the most appropriate items to capture the underlying characteristics of the deconstructed state, and it has also been subjected to reliability and validity testing to determine that it meets measurement adequacy requirements. Overall, this study has further refined the measure

of cognitive deconstruction so it possesses reliability and validity and can be utilised as a self-report measure of the deconstructed state.

Although requiring further exploration and refinement, the findings of the current study suggest the CDQ-15 is useful in identifying those who experience cognitive deconstruction as a result of exclusion and subsequently engage in maladaptive and potentially harmful behaviours. As previously stated, this is of importance, as there does not currently exist a previously developed scale designed to assess this state. In addition to providing a remedy to the unavailability of a questionnaire evaluating the deconstructed state, the CDQ-15 can assist in complimenting current experimental methods that may be employed for assessing cognitive deconstruction. As the validation of the CDQ-15 continues, researchers and practitioners will be able to collect important information in everyday settings and situations without the use of time consuming and laboratory bound experimental manipulations. This can assist in identifying people in real life settings who are experiencing cognitive deconstruction as a result of insufficient levels of belongingness and may be vulnerable to the subsequent adverse consequences of operating from the deconstructed state.

## **Chapter Five: Investigating the Efficacy of the CDQ-15 in an Experimental Setting**

### **(Study Three)**

Insufficient levels of belongingness can result in a variety of harmful outcomes. Previous research has demonstrated that the undesirable event of social exclusion from another person or group for any reason can have a number of negative consequences such as anxiety (Baumeister & Tice, 1990), depression (Leary, 1990), impaired cognition (Baumeister, Twenge, & Nuss, 2002), aggression (Buckley, Winkle, & Leary, 2004; Twenge, Baumeister, Tice, & Stucke, 2001), self-defeating behaviour (Twenge, Catanese, & Baumeister, 2002), reduced future and meaningful thought (Twenge, Catanese, & Baumeister, 2003), a decrease in pro-social behaviour (Twenge, Baumeister, DeWall, Ciarocco & Bartels, 2007), physical health problems (Cacipoppo et al., 2002), and mental health problems (Baumeister & Tice, 1990). Such consequences are not surprising given that an exclusionary event has the potential to undermine a person's fundamental need to belong and desire to establish and maintain strong social bonds (see Baumeister & Leary, 1995). In response to such events, people may take an adaptive approach and attempt to alter the behaviours, which are contributing to the exclusion (Baumeister & Tice, 1990). This adaptation, however, is not always possible for a number of reasons including an overall lack of insight into the connection between their behaviour and the exclusion, an inability to identify the problem behaviours, an inability to generate alternate behaviours or a belief that a personal characteristic that they cannot (e.g. appearance) or will not (e.g. political views) change is responsible for the exclusion. Thus, finding a means, either consciously or unconsciously, by which to avoid the consequences of the perceived exclusion may instead be sought. The consequences of exclusion can include negative affect as well as contemplating the implications of the social failure for the future, both of which can result in undesirable aspects of the self being highlighted in the excluded

person's awareness. Given these unpleasant consequences and the inability to be proactive in altering the self, isolating the negative affect and avoiding meaningful thought regarding the self or future may occur for some individuals by unconsciously entering the defensive state of cognitive deconstruction (Baumeister, 1990; Twenge, Catanese, & Baumeister, 2003).

The CDQ-15 that was developed in study one and evaluated in study two of this thesis was designed to measure the degree to which a person, who experiences exclusion, unconsciously shifts into the defensive state of deconstruction and engages in the potentially maladaptive cognitions, emotional states, and behaviours that result. The CDQ-15 appears to demonstrate thus far adequate factorial validity, reliability, and known-groups validity. An important step in further exploring the CDQ-15 is to examine the efficacy of the newly developed scale in a variety of settings and samples and its ability to identify the deconstructed state (DeVellis, 2003). Prior to this thesis, cognitive deconstruction has only received support through experimental studies exploring the consequence of exclusion and has never been assessed via self-report questionnaire (see Baumeister, Twenge, & Nuss, 2002; Twenge, Catanese, & Baumeister, 2002; Twenge, Catanese, & Baumeister, 2003). These studies have employed detailed experimental manipulations to induce the experience of social exclusion in order to accurately measure the subsequent impact of this experience upon participants. The experimental manipulations utilised have involved the deception of participants in which they were told that on the basis of personality data completed they were likely to end up alone later in life (see Twenge et al., 2001), or that none of their peers desire to work with them in any upcoming tasks (see Twenge, Baumeister, Tice, & Stucke, 2001b). In addition to these experimental methods undertaken, a number of differing manipulations have also been employed to investigate the effects of social exclusion and have produced significant

findings regarding the negative impacts of exclusion. As outlined in chapter one, such manipulations that induced rejection and exclusion have involved participants being told that they have been excluded from a ball tossing game undertaken with two confederates in an experimental setting (Williams & Sommer, 1997), as well as participants being provided with inaccurate feedback and told that they were selected last to be a part of a laboratory team (Bourgeois & Leary, 2001). Other experimental designs have used an online computer program (Williams, Cheung, & Choi, 2000), have provided participants with false feedback regarding whether they will end up alone in life (Twenge, Catanese, & Baumeister, 2002), have told participants that others were not interested in what they had to say (Snapp & Leary, 2001), and have deceived participants by informing them that others did not wish to communicate with them as demonstrated through failing to respond to mobile phone text messages (Smith & Williams, 2004). Not only have many of these studies produced significant findings, but also researchers utilizing these experimental manipulations have found that the experience for participants is aversive enough to produce changes in cognitions and behaviours that have been moderate to large in effect size (Twenge, Catanese, & Baumeister, 2003).

Inducing the experience of exclusion in an experimental setting is widely accepted as a means by which to explore the consequences of exclusion, thus it was considered important to employ such a method to measure any resulting defensive state of cognitive deconstruction with the CDQ-15. Furthermore, experimental manipulations manufacturing the experience of exclusion have been the only methods undertaken thus far published, which have produced findings supporting the theory of cognitive deconstruction. The experimental manipulation undertaken in the current study was replicated from earlier research and has been found to yield significant findings in exploring the consequences of

social exclusion (see Twenge, Baumeister, De Wall, Ciarocco, & Bartels, 2007; Twenge, Catanese, & Baumeister, 2003; Twenge et al., 2001).

### **Aims and Hypotheses**

The aim of study three was to explore the efficacy of the CDQ in an experimental setting, by investigating whether there is a significant difference in levels of cognitive deconstruction, as measured by the CDQ-15, between participants who experience acceptance from their peers and those who are rejected by their peers. It was anticipated that the experience of exclusion in this study would cause participants to shift unconsciously into the deconstructed state and subsequently score higher on the CDQ-15 than their included counterparts. It was also expected that there would be a significant difference between included and excluded participants scores on the Positive Affect Scale as measured by the PANAS. This was hypothesised based on the idea that included participants would experience an increase in positive affect compared to excluded participants due to the desirability and benefits of acceptance and group inclusion. This hypothesis was formulated in order to evaluate the effectiveness of the exclusion manipulation. Finally, it was also hypothesised that the CDQ-15, as in the previous studies, would differentiate between socially isolated and socially connected participants as measured by the Friendship Scale (Hawthorne, 2006).

## **Method**

### **Participants**

The study consisted of 65 undergraduate psychology students who voluntarily participated in the study for course credit. Thirteen participants were male ( $M = 22.38$  years;  $SD = 2.90$  years) and 52 participants were female ( $M = 21.92$  years;  $SD = 4.22$  years). An additional five participants were also involved in the research, however, they

did not complete the questionnaires required and were subsequently removed from analyses. Each participant was currently residing within Australia. Of the participants in this sample, 34 (53%) identified themselves as single at the time the experiment was undertaken and 30 (47%) reported they currently had a partner. Participants undertook the research in five separate groups. The first group consisted of nine participants, the second group contained 12 participants, the third group of 14 participants, and the final two groups each contained 15 participants. These groups were consistent with the participants' allocated tutorial classes. Twenty-nine of the participants across the five groups were randomly assigned to the rejected condition in this study and the remaining 35 participants were randomly assigned to the accepted condition.

## **Materials**

Participants received a questionnaire booklet containing demographic questions requesting they identify their sex, age, ethnicity, and marital status. Following the required demographic information, participants received the CDQ-15. The CDQ-15 is described in detail in study two. The Cronbach's  $\alpha$  coefficient for the CDQ-15 in the current study was .68. Appendix K contains a complete version of the CDQ-15.

Following the demographic information requested from participants and the CDQ-15, two additional published psychological measures were included within the questionnaire booklet, namely the Friendship Scale (FS) (Hawthorne, 2006) and the Positive and Negative Affect Schedule (PANAS) (Watson, Clark, & Tellegen, 1988). Both the FS and the PANAS have been previously described in the method section of study two and are recorded in Appendix E.3 and Appendix F.2 respectively. In the current study the Cronbach's  $\alpha$  coefficient for the FS, the positive affect scale on the PANAS, and the Negative Affect Scale on the PANAS were .81, .93, and .86 respectively.

## **Procedure**

This study was approved by carried out in accordance with guidelines specified by the Australian Catholic University National Human Research Ethics Committee (see Appendix L). In addition to the usual procedure used for recruitment of all participants of this thesis, specific extra recruitment of male participants was attempted. This was considered of importance given the gender differences observed in the CDQ-15 in the previous study and the initial low number of male volunteers resulting in gender imbalance. Therefore the extra recruitment effort involved advertising specifically for male participants and offering an increased amount of course credit awarded in the hope of attracting a greater number of males volunteers. Unfortunately this was not successful and as such additional males for the current sample were not recruited.

Prior to the commencement of the experiment, all participants were provided with participant information and signed appropriate consent forms (see Appendix M). The initial participant information provided deliberately did not reveal the true nature and intentions of the study in order that the experimental manipulation, which deceived participants in believing they were either excluded or included by their peers, would be effective. Instead of revealing the true intentions of the experiment, participants were led to believe that the researchers were interested in understanding how students relate to each other in general and how they form groups based upon other member's perceived strengths and weaknesses.

Following a brief introduction to the experiment participants were provided with nametags on which they were asked to write their first name. Participants were then provided with five minutes in which they were instructed by the researchers to introduce themselves to every other participant in the room and discuss briefly with each other their perceived strengths and weaknesses. After this time, participants were required to



individually and privately write down the names of two other participants they would like to work with in another activity under the specific instruction: “We are interested in forming groups in which the members like and respect each other. Please write down two other people who you met today and who you would most like to work with” (Twenge et al., 2003). Once participants completed this task, the nominations were collected by the researcher and placed in an empty envelope. Whilst participants were led to believe the researcher was assigning them to groups for an upcoming activity based upon their nominations, they were supervised and strictly instructed not to discuss their nominations with each other. Instead of using these nominations as participants were led to believe, however, each participant was randomly assigned to be rejected or accepted by the group. Participants assigned to the rejected group were removed from the room one by one and were told that no one had picked them to work within the next activity and subsequently that they would be working alone due to the unusual outcome (Twenge et al., 2003). Group participants were then provided with the questionnaire booklet and completed it in a place of isolation as directed by the researcher, under the deception of being socially excluded by their peers. Upon completion, these questionnaires were sealed in provided envelopes and immediately collected by the researchers. Participants who had been randomly selected to be accepted by the group were told altogether that too many people had nominated them to work within the following activity, and that some difficulty had occurred in attempting to separate people based upon their nominations. These participants were then told that due to this unusual outcome, they were to remain in the classroom and were asked to fill out the questionnaire booklet instead of completing a group activity. Upon completion, the questionnaires were sealed in provided envelopes and collected by the researchers. Once the questionnaires were completed by all participants irrespective of group assignment, they were informed of the deception and

appropriately debriefed, de-hoaxed, and provided with the opportunity to seek counselling. This procedure was adapted from research conducted by Twenge, Catanese, and Baumeister (2003).

## Results

### Data Cleaning and Assumption Testing

**Data screening.** Data were collated electronically and analysed using the Statistical Package for Social Sciences (SPSS), version 17.0. Data was screened to ensure accuracy in entry had been achieved. This involved the examination of the data ranges, measures of central tendency, and the variability of each item on the CDQ-15, the Friendship Scale (FS), and the Positive and Negative Affect Scale (PANAS). Each scale suggested all data resided within valid parameters (Tabachnick & Fidell, 2007).

**Missing data.** In addition to the 65 participants described above, a subsequent five participants were involved in the research experiment but as aforementioned, were removed prior to analyses due to an inability to complete the requirements of participation. The failure to complete the required information violated the inclusion criteria recommended by Tabachnick and Fidell (2007). In turn, the data from these participants were considered inappropriate for inclusion in statistical analyses. All other missing data points (of which there were three) were scattered randomly throughout the data set with no items on any of the measures contained missing values in excess of 5%. These missing data points were treated as missing completely at random and were substituted for the item mean as suggested by Tabachnick and Fidell (2007).

**Outliers.** As in previous data analyses, item scores for all measures to be analysed were transformed into standardised  $z$ -scores so that potential univariate outliers that may have an undue influence on further statistical analyses could be identified and addressed.

The standardised scores produced were evaluated in accordance with statistical recommendations and criteria suggested by Tabachnick and Fidell (2007), which states that values outside the range of +3.29 and -3.29 are considered potential outliers and may in turn have an undue influence on the distribution of the data (Tabachnick & Fidell, 2007). One case fell outside this specified range and was subsequently deleted from further analyses as it was considered that in doing so there would be no loss to the generalisability of the results (Tabachnick & Fidell, 2007). No multivariate outliers were found according to the calculation of Mahalanobis distance values in which a  $\chi^2$  of 18.47 ( $df = 4$ ) and a significance criterion of  $p < .001$  was utilised. The removal of this single case resulted in a total of 64 cases remaining in the data set for further analyses.

**Normality.** According to Tabachnick and Fidell (2007), in order to evaluate whether the assumption of multivariate normality has been met, screening the data for both univariate and multivariate outliers must be undertaken as well as the examination of skewness and kurtosis statistics. Whilst values for all other measures displayed only minor deviations from normality, skewness and kurtosis statistics revealed that the FS scale displayed values that suggested the assumption of multivariate normality had been violated (Tabachnick & Fidell, 2007). The examination of frequency histograms, expected normal probability plots, and detrended expected normality plots also suggested the distribution of the FS was displaying both kurtosis' and negative skewness. This indicates that relatively few respondents received low scores on the scale and suggests the majority of participants indicated low levels of social isolation. Data transformation was undertaken to explore whether the data set improved. It was found that while the FS scale produced skewness and kurtosis values closer to zero, the remaining variables of interest in the data set were adversely affected by the transformation and produced values outside the recommended criterion (1.96,  $p < .01$ ) for small samples (Field, 2005). Due to this, untransformed data

were utilised in analyses. It is also taken into consideration that the sample in the current study was a non-clinical student sample and the non-normal distribution on the FS may not be abnormal but rather a product of the sample elected for the research.

Furthermore, according to Tabachnick and Fidell (2007) some multivariate statistics can be relatively robust to moderate violations of normality.

### **Descriptive and Inferential Statistics**

Participants obtained a total mean score of 39.70 ( $SD = 7.61$ ) on the CDQ-15. Scores on the CDQ-15 ranged between 21 and 55, with a possible range between 15 and 90. At the subscale level of the CDQ-15 in which the possible range of scores fell between 3 and 18, participants scored a mean of 10.17 ( $SD = 3.69$ ) on the Cognitive Vulnerability Factor, a mean of 7.16 ( $SD = 2.55$ ) on the Time Perception Factor, a mean score of 7.58 ( $SD = 2.34$ ) on Close-Mindedness, a mean score of 6.53 ( $SD = 2.81$ ) on the Emotion Factor, and a mean score of 8.23 ( $SD = 2.75$ ) on Changeability. Table 5.1 contains the means and standard deviations for both the accepted and rejected participants on the CDQ-15, as well as the  $t$  statistic that assesses significant differences between the two conditions.

Table 5.1

*Descriptive Statistics of Accepted and Rejected Participant Scores on the CDQ-15, the Friendship Scale, and the Positive and Negative Affect Schedule*

	Accepted Condition ( <i>N</i> = 35)		Rejected Condition ( <i>N</i> = 29)		<i>t</i> test	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
CDQ-15	39.51	7.52	39.93	7.84	-.22	.83
Friendship Scale	25.14	3.03	25.59	3.69	-.53	.60
Positive Affect	27.94	8.75	26.52	8.63	.65	.52
Negative Affect	17.23	6.02	19.10	7.85	-1.08	.28

*Note.* *N* = 63. *M* = Mean; *SD* = Standard deviation. PANAS = positive affect scale and negative affect scale combined.

In regards to the Friendship Scale (FS) (Hawthorne, 2006), participants obtained a mean total score of 25.34 (*SD* = 3.32). The possible range of scores on the FS is between 6 and 30, with participants in this sample obtaining scores between 16 and 30. Of all participants 6.3% (*n* = 4) scored in the very socially isolated range, 6.3% of participants (*n* = 4) scores fell within the low social support range, 17.2% of participants (*n* = 11) scored in the range identifying them as having some social support, 43.7% of participants (*n* = 28) scored in the socially connected range, and finally 26.5% of participants (*n* = 17) scores fell in the very socially connected range. In turn, a total of 87.4% of participants (*n* = 56) indicated they had some social support, while the minority, 12.6% of participants (*n* = 8) indicated they had very little or no social support. Table 5.1 details the mean and standard deviations for both accepted and rejected participants on the FS, as well as the *t* statistic utilised to assess a significant difference between the two groups of participants. As can be seen in this table, a significant difference was not found between accepted and rejected participant's scores on the FS, suggesting that participants' perceived degree of social

isolation does not differ between the two groups. In turn, participants' belongingness status should not have an undue influence on subsequent comparisons made between the participant groups.

The final scale utilised in the current study, the Positive and Negative Affect Schedule (PANAS) (Watson, Clark, & Tellegen, 1988) was analysed according to its two separate subscales, namely positive affect and negative affect. Both subscales have a possible range of scores between 10 and 49. In regards to the positive affect scale, the range of scores was between 10 and 49 with a total mean score of 27.30 ( $SD = 8.66$ ). For the Negative Affect Scale, the range of scores displayed by participants was between 10 and 35, with a mean total score of 18.08 ( $SD = 6.92$ ). Table 5.1 also details the means, standard deviations, and  $t$  statistic for participants in both the accepted and rejected conditions. As can be seen there was no significant difference between accepted and rejected participants scores on the Positive Affect Factor on the PANAS, suggesting that acceptance did not increase participants' positive affect in comparison to their rejected counterparts.

### **The Difference between Acceptance and Rejection on the CDQ-15**

A one-way multivariate analysis of variance was undertaken in order to explore the difference between accepted and rejected participants' scores on each of the CDQ-15 factors. The CDQ-15 factors (Cognitive Vulnerability, Time Perception, Close-Mindedness, Emotion, and Changeability) served as dependent variables in the analysis and the experimental condition (accepted or rejected) served as the independent variable. Revision of the homogeneity of variance-covariance matrices and the normality assumptions that underlie MANOVA did not reveal any abnormalities that were cause for concern. An *a priori* significance level was set at .05. The MANOVA revealed no

significant multivariate effects according to Wilks'  $\Lambda$  (.89),  $F(5, 58) = 1.50$ ,  $p = .20$ , partial  $\eta^2 = .12$ .

As was aforementioned in the study aims and research questions, it was considered important to explore differences between the experimental groups of acceptance and rejection whilst controlling for levels of social connectedness, as this has been found in previous studies to significantly influence the CDQ-15 factors. Furthermore, as the difference between the experimental conditions was found to be non-significant in the previous analysis, controlling for the possible influence of participants' levels of social connectedness would allow for an increased accuracy in examination of the differences between the effects of the experimental conditions on the CDQ factors. In turn, a multivariate analysis of covariance (MANCOVA) was undertaken in order to remove the influence of the FS and explore the combination that would have been found had all participants in the sample achieved the same scores on the FS. As in the previous multivariate analysis, the CDQ-15 factors (Cognitive Vulnerability, Time Perception, Close-Mindedness, Emotion, and Changeability) served as dependent variables, the experimental condition (accepted or rejected) served as the independent variable, and participants' scores on the FS acted as the covariate in the analysis. Levene's test of error variances was found to be non-significant as desired suggesting that group variances are equal and that the assumption of homogeneity of variance has not been violated. Box's test revealed that the assumption regarding the equality of variance-covariance matrices was met. An a priori significance level was set at .05. The MANCOVA revealed that the covariate, FS, had a significant multivariate effect on the dependent variable, the CDQ-15 factors as stated by Wilks'  $\Lambda$  (.82),  $F(5, 57) = 2.59$ ,  $p = .04$ , partial  $\eta^2 = .19$ . Reviewing the multivariate effect of experimental condition on the CDQ-15 factors following the removal of participants' social connectedness, however, revealed there still

remained no significant difference on the CDQ-15 factors between the two experimental groups as identified by Wilks'  $\Lambda$  (.88),  $F(5, 57) = 1.63$ ,  $p = .17$ , partial  $\eta^2 = .13$ . Despite utilising the FS as a covariate to exert more stringent experimental control, the effect of the experimental manipulation upon the CDQ remained non-significant.

### **Study Three Discussion**

#### **Explanation of Findings**

The results of study three suggest that there was no significant difference in levels of cognitive deconstruction, as measured by the CDQ-15, between participants who experienced acceptance from their peers and participants who were rejected by their peers. It was anticipated that the experience of the experimentally manufactured exclusion would have caused participants to shift unconsciously into the deconstructed state. It was found, however, that cognitive deconstruction did not emerge as a consequence of the exclusion. Not only were there no significant differences on the overall total score of the CDQ-15 between the accepted and rejected groups, but also no differences were found between participants on the CDQ-15 even upon controlling for participants' prior belongingness status. There exist a number of possible explanations as to why the current study did not produce findings consistent with previous research that has documented characteristics consistent with the theory of cognitive deconstruction to occur following exclusion manipulations. Each will be discussed in turn.

Firstly it is important to address the possibility that the non-significant findings between accepted and rejected participants on the CDQ-15 occurred due to the measurement tool itself lacking the sensitivity to detect and measure cognitive deconstruction in excluded participants. Previous findings, however, from both study one and study two that involved the development of the CDQ-15, demonstrated that the scale



was successful at detecting differences in cognitions, emotions, and behaviours that were consistent with the deconstructed state in people who experienced social isolation. These earlier studies provided findings that revealed significant differences in CDQ-15 scores between participants who were socially isolated and participants who were socially connected, suggesting the CDQ-15 was able to detect greater levels of cognitive deconstruction in the socially excluded participants. The results from the current study also demonstrate that participants' levels of social connectedness significantly predict participants' scores on the CDQ-15.

The next possible explanation for the findings in the current study relate to the experimental manipulation utilised. The experimental manipulation undertaken was replicated from earlier research (see Twenge et al., 2001) and has been found to yield significant findings (see Twenge et al., 2001; Twenge, Baumeister, De Wall, Ciarocco, & Bartels, 2007; Twenge et al., 2003) in terms of differentiating accepted versus rejected participants on various dimensions. Furthermore, researchers utilizing this experimental manipulation to induce exclusion have found that the manufactured experience of exclusion is aversive enough for participants to produce changes in cognitions and behaviours that have been moderate to large in effect size (Stillman, Baumeister, Lambert, Crescioni, DeWall, & Fincham, 2009; Twenge et al., 2003).

In this sample it was found that the manipulation did not cause the two groups to differ in terms of cognitions, emotion, or behaviours measured by the CDQ-15 from entering the deconstructed state as anticipated. It is feasible that no significant differences were found on the CDQ-15 between accepted and rejected participants as the experimental manipulation utilized was not robust enough to induce the experience of exclusion in this sample. In addition to significant differences not being detected between participants who were accepted by their peers and participants who were rejected by their peers on the

CDQ-15, no significant differences were found between participants' scores on the Positive Affect Factor from the PANAS. The second prediction that included participants would report higher scores on the Positive Affect Scale compared to excluded participants was formulated in order to test the robustness of the experimental manipulation.

According to the theory of cognitive deconstruction, an excluded person may experience a reduced emotional response (Baumeister, 1990a; Twenge, Catanese, & Baumeister, 2003).

This occurs due to the person's attempt to defensively isolate the impending negative affect that would result should meaningful interpretation of the social failure be undertaken (Baumeister, 1990a). When a person is included, however, the experience of positive affect may be expected to increase given the host of desirable consequences that are linked with acceptance and group inclusion (Baumeister & Leary, 1995). In the current study, it was anticipated that if the experimental manipulation were successful at inducing the experience of acceptance and rejection, participants who were included and accepted by their peers would display higher levels of positive affect as measured by the PANAS.

This, however, was not found and significant differences were not observed in positive affect between the experimental groups. Subsequently, as this measure that served as a manipulation check, failed to demonstrate any difference between accepted and rejected groups, it is plausible that the experimental manipulation may not have had the desired impact intended in this study. Another possible explanation as to the lack of significant differences between groups of participants that is related to the experimental manipulation undertaken is that some participants may not have considered the experimental manipulation believable. This is unlikely, however, as participants' responses throughout the study did not reflect suspicion and upon debriefing participants expressed being unaware of the deception.

The inability of the CDQ-15 to detect any significant differences between included and excluded participants in the current experimental manipulation may reflect as mentioned failure of the experimental manipulation rather than failure of the CDQ-15 to detect cognitive deconstruction. As mentioned above, this study did not reveal any significant differences between included and excluded participants on the CDQ-15 or on the affective state measure utilised. It should be noted, however, that measures such as the affective state measure utilised in the current study typically yield quite small effects that often fail to reach significance as has been found in other experimental studies exploring the consequences of rejection (see Blackhart, Nelson, Knowles, & Baumeister, 2009). In turn, it is possible that the experimental manipulation employed was problematic in the current study but it is also possible that the Positive Affect Scale from the PANAS did not produce significant findings as has been found to be the case in many other experimental studies (Blackhart et al., 2009). Subsequently, further exploration of the CDQ-15 in an experimental setting will be important in order to clarify these findings.

Given that the experimental manipulation in the current study was adapted from previous research but did not produce consistent findings, it is important to review differences between the sample characteristics in the current study with the participant samples utilised in past research. In regards to sample size, the current study involved 65 participants. This is similar to sample sizes employed in past research executing the same experimental manipulation, which vary in size including samples of 54 (with a mean age of 18.8 years) participants, 96 (with a mean age of 19.1 years) participants, and 100 (with a mean age of 18.6 years) participants (Twenge et al., 2003). Findings from these samples, despite some being smaller in size than the sample in the current study, yielded significant results. The sample in the current study consisted of undergraduate students, as has been the case in past studies employing this particular manipulation (see Twenge et al., 2002,

2003). Given this, the mean age of participants in previous studies utilising this manipulation have ranged from 18.6 years to 19.1 (Twenge et al., 2003). This was not considerably different from the mean age of 22.15 years in the current study. In regards to gender, however, the current study had a higher percentage of females (80%) than past studies, which contained approximately even numbers of males and females (Twenge et al., 2003). It is considered unlikely however, that gender would have influenced whether one felt accepted or rejected given that identifying exclusion is not gender specific and the negative impact of exclusion can be experienced and is experienced in everyday life by both males and females (Williams et al., 2005). Similarly, in regards to the ethnic composition of the sample, it would be considered unlikely should this demographic factor serve as an influencing factor as the advantages and pleasure associated with acceptance and the disadvantages and discomfort linked with rejection can be considered universal and fundamentally important for all human beings (Baumeister & Leary, 1995; Bowlby, 1969, 1973; Maslow, 1954; Williams et al., 2005). As such it was considered plausible that the sample characteristics in the current study would not have largely influenced outcomes.

A final possible explanation regarding the findings may be that although the status of inclusion or exclusion was clear to participants, the importance of this status and whether they were accepted or rejected by the group, may have been experienced as less in this sample of participants than by samples in previous research. It may be that exclusion from peers does not induce significant findings if the peers one is rejected by are not considered to be high in relational value. In other words, if one's relationship with another is considered to be of little consequence, then exclusion from that person would not produce as significant response had the exclusion been dealt from one whose relationship was highly valued and desired. For example, if participants either did not know or did not like the other participants who had rejected or accepted them, it would be unlikely to have

an impact. Furthermore, if peers were not considered to be of relational importance and the participants already experienced satisfactory social support, as was demonstrated to be the case according to scores on the FS, it is possible that the single experience of exclusion was not considered aversive enough to induce cognitive deconstruction. This would be consistent with research undertaken by Smart and Leary (2009) who state that when an individual experiences rejection within a relationship that is highly valued, such as in friendships and romantic relationships, the rejected individual will be more likely to make a prosocial effort in order to repair the relationship. Smart and Leary also state that if the relationship is not well established and considered of importance to the individual, or if the experience of exclusion is a brief isolated event, then the exclusion may be experienced as less important and personally aversive and reactions to the exclusion may not be considered prosocial (Smart & Leary, 2009). As such, had the exclusionary event in the current study occurred at the hands of a close friend or with one whom the individual holds in high regard, the experimental manipulation may have had more impact, even for individuals with adequate social connections and the need to defensively isolate the meaning of the exclusion may have been greater.

As aforementioned in the study aims and hypotheses, it was considered important to explore differences between the experimental groups of acceptance and rejection whilst controlling for levels of social connectedness. This again revealed the influence participant's self-reports of social connectedness has upon the CDQ-15, as has also been found in each previous study in this thesis. This is consistent with the theory of cognitive deconstruction, which posits that individuals experiencing social isolation will have a vulnerability to exhibit a deconstructive response (Baumeister, 1990a). Despite this, when the effect of prior levels of belongingness was removed from analyses it was found that the effect of the experimental condition was still not significant suggesting that findings are

not confounded by high levels of social support in the sample but rather are a product of the measurement ability of the CDQ-15, the experimental manipulation utilised, or the significance attributed to peer exclusion in this sample of participants as discussed above.

### **Implications for Future Research**

When taking into account the findings from this study and the number of possible explanations generated to account for what was found, a number of suggestions for future research have arisen. Firstly, it would be beneficial to explore the utility of the CDQ-15 with a more rigorous experimental design. Exploration of the CDQ-15 in such a context will assist in clarifying the findings from the current study and further explore the ability of the CDQ-15 to successfully discriminate between individuals who have been subjected to exclusion from those who have not. Specifically, one modification of interest to the current design would be administering the CDQ-15 both prior and following the experimental manipulation. This would provide an indication of the level of cognitive deconstruction experienced by participants upon undertaking the experiment, allowing the researcher to observe whether characteristics of cognitive deconstruction are already being experienced and also how being either included or excluded influences these characteristics of cognitive deconstruction. Furthermore, using both pre and post experimental measurement would allow for comparisons to be made between participants prior to the manipulation and to explore the subsequent impact of the manipulation.

Another avenue to be undertaken in future research utilising the CDQ-15, would be to explore further the influence social support and connectedness has upon a person's susceptibility to cognitive deconstruction. It may be possible that when people experience high levels of social connectedness that the blow of an exclusionary event is considered less impacting and aversive they are buffered by the security of the already established they possesses. Furthermore, exploring the relationship between long established social

bonds, not just when they prove to be sufficient but also when they are lacking, and the influence an exclusionary event may have on people's vulnerability to escape to the deconstructed state will be important to explore. Further empirical support and understanding in this area will be important in comprehending the need and means by which to develop and implement effective primary and secondary prevention.

As the CDQ-15 did not discriminate between participants who were included and those who were excluded by their peers in this study, it would be beneficial in the continued validation of the CDQ-15 to explore the relationship between the CDQ-15 and the theoretical constructs upon which the scale has been developed. This will assist in ensuring that the scale measures what it was originally intended to measure. For example, exploring the relationship between the CDQ-15 and other constructs highly associated to the deconstructed state such as self-awareness and the degree to which a person engages in meaningful thought, will assist in the validation of the scale as both constructs have been theorized to be foundational to cognitive deconstruction.

### **CDQ-15 Development**

In reviewing the CDQ-15 it was found that the mean score of participants on this measure fell approximately in the middle of the possible range of scores (39.70 out of a possible total score of 75). This is of interest when considering participants scores on the FS, which on average fell in the socially connected range of social support. The mean score on the FS for participants was 25.34 out of a possible total score of 30. In study one participant's had a mean score of 20 ( $SD = 6$ ) on the FS and in study two a mean score of 18.88 ( $SD = 5.83$ ). In comparison participant's in study three reported greater levels of social support. In turn, it would not have been surprising had the scores on the CDQ-15 also been higher in both study one and two in comparison to the mean score on the CDQ-15 for participants in the current study. Review of the scale means from the earlier studies

in this thesis revealed that CDQ-15 scores were higher ( $M = 56.28$ ;  $SD = 10.53$ ) as would be expected to occur, as levels of social isolation were also higher. The comparison of the scale means across studies suggests that the higher the levels of social support, as in the current study, the lower the scores on the CDQ-15 and the fewer characteristics of the deconstructed state are recorded. In turn, the high mean score in the current study revealed that in a student sample who identified themselves as socially connected, scores on the CDQ-15 fell approximately in the middle of the possible range (15 to 75) of scores. This suggests that for people who are not socially connected, have experienced exclusion, and are in the deconstructed state as illustrated in earlier studies, scores are higher on the CDQ-15. Scores in close approximation to the middle of the possible range of CDQ-15 scores may be indicative of low to mild symptoms consistent with the deconstructed state, whereas scores that can be considered to be clinically meaningful on the CDQ-15 and suggestive of the deconstructed state may be above the mid range and higher in the possible range of scores. In future studies exploring the CDQ-15, it would be beneficial to explore the range of CDQ-15 scores, compare the mean scores on each factor for people who are excluded and those who are not, and also explore the number of endorsed items that reflect high levels of cognitive deconstruction. A greater understanding of the distribution of scores on the CDQ-15 will allow for the meaningful assignment of qualitative descriptors for differing ranges of scores. This will be beneficial in providing researchers with an understanding of the CDQ-15 scores and their associated meaning.

## **Conclusions**

The CDQ-15 is, as all good psychometric tests should be, under continued psychometric scrutiny and validation. It is important in an evolving body of psychological research that scales be rendered available for refinement. In the current study, the CDQ-15 was used in an experimental setting in which it has not previously been explored. Results



produced were statistically non-significant, with the CDQ-15 being ineffective in differentiating between participants who were socially excluded by their peers and those who were included by their peers. Whether this was a consequence of an ineffective experimental design, problems associated to the scale itself, or the sample upon which the findings were based, the CDQ-15 requires further study. Exploring further the CDQ-15 in a variety of settings and its relationship to related constructs will contribute to the validity of the CDQ-15 and the theoretical understanding of cognitive deconstruction.

### **Chapter Six: Validating the CDQ-15 in a Non-Clinical Adult Population (Study Four)**

In the early stages of questionnaire development, scale validation involves acquiring as many different types of evidence as possible to determine whether the scale performs as expected (Spector, 1992). Validation for a measure of cognitive deconstruction commenced with the initial development of the items to ensure they exhibited construct validity (DeVellis, 2003). Factor analysis was then undertaken and convergent and known-groups validity was explored (Spector, 1992). As the CDQ-15 presented as a promising instrument, the next step of scale validation involved exploring the efficacy of the scale in a sample of participants who experienced experimentally induced exclusion. Exploration of the efficacy of the CDQ-15 within differing experimental designs such as that undertaken in study three, was considered important given that it is beneficial to validate new scales in ways that do not solely rely on self-report measures (DeVellis, 2003). As findings from this last validation study produced insignificant results, however, further validity testing was beneficial in the continual development of the CDQ-15 as a reliable and valid measure (Spector, 1992).

It was considered important to examine the relationship between the CDQ-15 with the constructs underlying the theory of cognitive deconstruction. The CDQ-15 has been developed based upon the theory of cognitive deconstruction proposed by Baumeister (1990a), which was described in detail in chapter one of this thesis. This theory posits that some people threatened with social exclusion will unconsciously escape to a defensive state where meaningful thought and cognitive elaboration is avoided (Baumeister, 1990a). This avoidance primarily serves in allowing the person to shun the negative emotion and unpleasant thoughts regarding the self that may threaten to arise due to the perceived exclusion. Due to this, the person in the deconstructed state will exhibit a particular set of cognitions, emotion, and behaviours that reflect their lack of engagement with meaningful,

elaborative, and integrative thought (Baumeister, 1990a). It is the presence (or lack thereof) of these constructs that the CDQ-15 evaluates.

Two central constructs underpinning cognitive deconstruction are the avoidance of meaningful thought and self-awareness (Baumeister, 1990a). Examining these two constructs and their relationship to the CDQ-15 would provide valuable information regarding the criterion-related validity of the scale (Spector, 1992). Criterion-related validity refers to how well a test correlates with a criterion measure, or more specifically, how well a test correlates with an already established standard of comparison and is another important aspect of scale validation (VandenBos, 2007). Exploring predictions regarding the relationship between the CDQ-15 and constructs central to the theory of cognitive deconstruction provides evidence that the CDQ-15 measures what it is intended to measure (Spector, 1992). The constructs central to the theory of cognitive deconstruction that have been examined in relation to the CDQ-15 are described below.

### **Meaningful Thought and Personal Agency**

People engaging in meaningful thought are able to understand and subsequently interpret to a degree the emotional and cognitive significance of their current experience (Bartlett, 1932). This ability to connect one's present experience with broad conceptual structures and existing knowledge bases, as well as meaningfully link the present experience to similar experiences in the past is forfeited in cognitive deconstruction (Baumeister, 1990a). Vallacher and Wegner (1985; 1987) describe this link between behaviour and its subsequent level of significance in their theory of action identification. According to action identification theory, an action can be identified at different levels of a cognitive hierarchy, which range from low level to high level identification of action. People who demonstrate low levels of action identification have a tendency to view their behaviour in terms of its mechanics and its details, whilst people who demonstrate high

level action identification demonstrate awareness regarding the significance of their actions and are able to display understanding regarding the distal ramifications of their actions (Vallacher & Wegner, 1989). It is theorised that people possess a natural tendency to engage in higher level action identification, viewing and undertaking behaviour in terms of its social implications and what the implications for the self may be, and that when more than one identity is available (both high and low), there is a tendency to embrace the higher level identity (Wegner, Vallacher, Kiersted, & Dizadji, 1986; Wegner, Vallacher, Macomber, Wood, & Arps, 1984). Cognitive deconstruction eliminates this option, rendering the person with the cognitive ability to engage only in low level action identification in which meaningful thought is avoided.

Vallacher and Wegner (1989) state there exist individual differences in levels of action identification. Some people are able to understand and interpret their behaviour in relation to its subsequent consequences, implications, and broader meanings, while others engage in activities that are experienced only in a very short-term and immediate fashion, assisting the person in distracting him or herself from broader issues of meaning. Low or high level action identification is proposed to vary according to the action being undertaken and the person's familiarity with the act (Vallacher & Wegner, 1985; 1987; 1989). The tendency to engage primarily in low or high level action identification is described by Vallacher and Wegner (1989) in terms of a person's level of personal agency. According to Vallacher and Wegner, people who demonstrate high levels of personal agency possess the ability to understand and interpret their experiences in relation to their wider meanings and outcomes. In other words, people with high levels of personal agency will engage in high level action identification and engage in thought concerning the causal effects, social meanings and self-descriptive implications of their behaviour. High-level agents have an increased awareness of the significance of their actions and are able to

display understanding regarding the distal ramifications of their actions (Vallacher & Wegner, 1989). Furthermore, they are able to demonstrate consistency and stability in their behaviour, demonstrate an understanding regarding the moral implications of their actions, and tend to possess greater accuracy in self-conceptualisation (Vallacher & Wegner, 1989). People with low levels of personal agency have been described to view their behaviour in terms of its details or its mechanics such is the case for those people experiencing cognitive deconstruction (Vallacher & Wegner, 1989). People who display low levels of personal agency are considered to be much more likely to be impulsive, demonstrate a greater inconsistency in their behaviour over time, show a decrease in self-motivation, and demonstrate a higher level of an external locus of control (Vallacher & Wegner, 1989). Low level agents are also considered to have a less accurate self-concept and demonstrate a tendency to define themselves in regards to how they do things rather than who they are (Vallacher & Wegner, 1989). In regards to cognitive deconstruction, it is proposed that people entering this state following the experience of social exclusion will exhibit thought processes and behaviours consistent with low levels of personal agency. The avoidance of higher level meaningful thought is integral to the deconstructed state and empirically evaluating this relationship between peoples' level of action identification and their degree of cognitive deconstruction will provide further support for both the theory of cognitive deconstruction and the CDQ-15.

### **Meaning in Life**

As can be seen, the deconstructed state is incompatible with meaning. In turn it may be expected that a person experiencing cognitive deconstruction will deny meaningful and high level thought, disregard the future, and defend against integrative and interpretive thinking. Due to this avoidance of meaningful thought he or she may also report experiencing a lack of purpose in life, or in other words, meaninglessness. An existential

concept, the definition of "meaning in life" varies throughout the field of psychology. The end result, however, tends to incorporate experiencing coherence in one's life (Battista & Almond, 1973), goal directedness and purposefulness (Ryff & Singer, 1998), as well as meeting one's needs in relation to personal values, purpose, efficacy, and self-worth (Baumeister, 1991). Research suggests that increased levels of meaning are positively related to other correlates of healthy psychological functioning such as happiness (Debats, van der Lubbe, & Wezeman, 1993) and satisfaction with life (Chamberlain & Zika, 1988). Conversely, the failure to achieve meaning to a sufficient degree has been suggested to result in psychological distress (Frankl, 1963), which subsequently may result in negative affect such as anxiety and depression (Debats, van der Lubbe, & Wezeman, 1993) as well as other harmful consequences such as suicidal ideation and substance abuse (Harlow, Newcombe, & Bentler, 1986). As such it can be seen that meaning and purpose in life is important for a person's subjective well being. A person experiencing cognitive deconstruction forfeits meaningful thought and the subsequent benefits directly and indirectly associated to it.

In a study investigating the relationship between social exclusion and feelings of meaninglessness it was found that participants who were informed that their peers did not desire to work with them in a group activity were more likely to agree with the statement that "Life is meaningless" than participants who believed they were included by their peers (Twenge et al., 2003). It was concluded in this research that rejected participants reported experiencing less meaning in life directly following their exclusion. This finding is consistent with the theory of cognitive deconstruction. Another study conducted by Stillman, Baumeister, Lambert, Crescioni, DeWall, and Fincham (2009) explored in more depth the influence of social exclusion on people's perception of life as meaningful. This was undertaken utilising the "peer exclusion from groups manipulation" (see p. 23 for

further details) in which participants were led to believe that others had rejected them as social interaction partners, and the Cyberball program in which participants are excluded from a ball tossing game (see p. 12 for further details). The first two studies found through these differing experimental manipulations that the experience of social rejection reduced participants' global sense of meaning as measured by the Daily Meaning Scale (Steger, Kashdan, & Oishi, 2008). Study three involved undergraduate university students and instead of attempting to induce rejection via experimental method, included a measure of loneliness, a construct considered to indicate the long-lasting negative valenced feeling of social rejection (see Peplau & Perlman, 1982). It was found that loneliness, assessed by the UCLA Loneliness Scale (Hays & DiMatteo, 1987), significantly predicted less meaning in participants' life according to the Meaning in Life Questionnaire (Steger, Frazier, Oishi, & Kaler, 2006). It can be seen that social exclusion has the potential to reduce a person's sense of meaning in life and cause feelings of meaninglessness to arise. Such findings are consistent with the deconstructive response in that as exclusion occurs and the shift into the defensive state is made and meaningful thought is evaded, so too would subjective feelings of meaning and the ability to identify meaning in life. If one were defensively isolating meaning, the presence of meaning in life would be expected to decrease.

### **Self-Awareness**

Not only is meaningful thought reduced in the deconstructed state, but so is self-awareness. Being socially excluded identifies one as not being part of the group and possibly possessing socially undesirable characteristics (Twenge et al., 2003). Such an experience is unfavourable, as humans generally seek relationships and have a desire to form relational bonds with others (Buss, 1990). Experiencing the deconstructive response stops the person engaging in self-awareness and contemplating the undesirable aspects of

the self that may have been identified by others and facilitated the exclusion. A study conducted by Twenge and colleagues (2003) explored the influence of social exclusion on self-awareness. Forty-two participants completed a personality inventory and were provided with false feedback in which they were told they would end up either alone in life (future alone condition), experience misfortune in life (control condition), or have many fulfilling relationships in life (accepted condition, see the “future alone exclusion manipulation” detailed on p. 23 for further details). Following this manipulation, participants were asked one by one to take a seat and presented with the option of sitting facing towards a mirror or facing away from a mirror. This exercise served as a measure of participants engagement in self-awareness. Future alone participants were significantly more likely to avoid looking at themselves in the mirror compared to control and accepted participants, suggesting that social exclusion decreases participants’ likelihood to engage in self-awareness. As such, these findings support the theory of cognitive deconstruction, which involves both escaping meaningful thought and self-awareness.

### **Social Exclusion and Loneliness**

As mentioned above, in order to validate the CDQ-15 further it is important to examine its relationship with the pivotal constructs described above that underlie the theory of cognitive deconstruction. In addition to this, it is important to further examine the relationship between social exclusion and the CDQ-15 as cognitive deconstruction is a defensive state theorised to occur following the thwarting of belongingness needs. In study three of this thesis the CDQ-15 was unable to differentiate between participants who experienced rejection and those who experienced acceptance in an experimental setting. Subsequently, the current study employed differing means by which to assess and measure social exclusion, one of which was to quantify participants’ reports of recent experiences of social exclusion and the other was to utilise an existing scale that assessed participant’s



subjective reports of loneliness. Loneliness and exclusion are both deficits in belongingness. They do differ in that lonely people may experience inclusion and excluded individuals may not necessarily experience loneliness, however, an important empirically demonstrated similarity between the two constructs is that social rejection often results in feelings of loneliness (Stillman et al., 2009; Cacioppo, Hawkley, & Berntson, 2003; Perplau & Perlman, 1982). In turn, loneliness was utilised as a measure of prolonged feelings of social exclusion in the current study. Furthermore, utilising loneliness as a measure of participant's feelings of exclusion in daily life experienced outside the laboratory has greater external validity than can be achieved in experimental manipulations. It was hoped that measuring loneliness in conjunction with assessing participants' recent exposure to social exclusion would provide a more comprehensive understanding regarding the relationship between social exclusion and cognitive deconstruction than either measure alone (see Stillman et al., 2009).

### **Aims, Hypothesis, and Research Questions**

The aim of the final study in this thesis was to validate the CDQ-15 further in a non-clinical adult population, particularly with reference to the deconstructive theory upon which the scale was developed. It was first expected that there would be an association between the CDQ-15 and the variables of interest, namely personal agency, meaning in life and self-awareness. This is otherwise known as criterion-related validity, which involves the testing of hypotheses regarding how a scale, namely the CDQ-15, would relate to other variables (Spector, 1992). Second, assuming significant relationships were found between the CDQ-15 and these aforementioned variables, examination of which of these variables contributed the most to cognitive deconstruction was undertaken. Third it is expected that the CDQ-15 would differentiate between those participants who had experienced a greater number of exclusionary events compared to participants who had experienced fewer

exclusionary events, as well as differentiating in terms of the amount of loneliness experienced by participants. Loneliness in the current study served to assess participant's long-term experience of feeling socially excluded. Examining the ability of the CDQ-15 to identify higher levels of cognitive deconstruction in socially excluded participants would provide clarification to findings from study three and also generate statistical support for the efficacy of the CDQ-15 in a non-clinical adult population.

## **Method**

### **Participants**

The sample in this final study consisted of 348 participants. An additional 246 participants commenced filling out the questionnaires required, however, ceased participation prior to their completion. It is possible that such a large number of participants failed to complete the study due to data being collected online. The online submission of questionnaires may enable participants with a greater opportunity to cease participation (Hoerger, 2010). Participants may initiate involvement but then drop out of the study due to the ease of terminating participation, the distractions in the participants environment that would be absent in a controlled setting, due to viewing participation as unimportant, or changing one's mind regarding their involvement. This dropout rate is consistent with research exploring the dropout rate of students undertaking online learning. Patterson and McFadden (2009) stated that online students are more likely to drop out of study than students who are based on campus. Furthermore, a number of research studies suggest that up to 50% of students involved with undertaking online courses drop out (see Aragon & Johnson, 2008; Morris, Finnegan, & Wu, 2005). The findings from these studies assist in explaining the 41.4% of the participant sample in the current that failed to adequately complete the questionnaires. It is important to consider that excessive dropout

rates can constitute a significant bias in Internet research such as the current study and must be considered while interpreting the results of such studies. The current study, however, continued participant recruitment until a suitable number of participants had completed the required questionnaire adequately and findings could be made with confidence.

Of the 348 participants who completed the study, 196 participants were male with a mean age of 25.79 years ( $SD = 9.44$ ) and 152 participants were female and had a mean age of 27.45 years ( $SD = 11.57$ ). The mean age of participants overall was 26.51 years ( $SD = 10.44$  years) and the age range of all participants was from 18 to 66 years. All participants involved in the study were recruited internationally via the Internet. Of the participants 161 (46.5%) were currently residing in Canada, 76 (22%) from South Africa, 39 (11.3%) from New Zealand, 34 (9.8%) from Australia, 22 (6.4%) from the United Kingdom, 10 (2.9%) from the United States of America, and finally one participant was involved from each of the countries of Denmark, Serbia, and Malaysia (.9%). One participant did not include their country of residence. In regards to marital status, 213 participants (61.6%) stated that they were single at the time of data collection and 133 (38.4%) identified themselves as having a partner.

## **Materials**

As in the previous studies that explored the reliability and validity of the CDQ-15, each participant received access to a questionnaire booklet titled 'Investigating the Effects of Social Exclusion' (see Appendix N). This questionnaire booklet was accessible on the Internet in electronic format only and contained questions regarding participants' demographic information, including their age, gender, and marital status in order to identify and address the influence each of these variables may have on participant questionnaire responses (see Appendix N.1). Following the demographic information the

booklet contained the Exclusion Exposure Measure, the CDQ-15, the UCLA Loneliness Scale (Russell, 1996), the Behavior Identification Form (Vallacher & Wegner, 1989), the Situational Self-Awareness Scale (Govern & Marsch, 2001), and finally the Meaning in Life Questionnaire (Steger, Frazier, Oishi, & Kaler, 2006). Each scale is discussed below in detail.

**Exclusion exposure measure.** Following the demographic information, the electronic questionnaire booklet contained a series of questions addressing participants' recent experiences of social exclusion. Participants were asked to respond to a series of eight questions that were developed by the author (see Appendix N.2). This information would allow for the measurement of exclusionary experiences and also allow for the differentiation between participants who experienced social exclusion and those who had not. The author developed the eight items on the measure through discussing common exclusionary events that may occur with colleagues and showing these items to members of the public for comprehension and clarity. No further pilot testing was undertaken. All questions were prefaced with: "Have you experienced any of the below events in the past month". Participants indicated either 'yes' or 'no' as to whether or not they had experienced a particular form of social exclusion or rejection experience during the past month. An example item was: "Not been invited to a social event by a close friend or family member". Participants who reported that they had experienced a particular form of social exclusion or rejection received a score of two, whilst participants received a score of one if they had not experienced the exclusionary event in the last month. Scores formed a continuous scale with the minimum possible score being eight and the maximum possible score being 16. The actual range of scores in this study also ranged from eight to 16. Higher scores indicated that the participant had experienced a greater number of

exclusionary events. Similarly, lower scores indicated that fewer exclusionary events had been reported.

**The CDQ-15.** The CDQ-15 as developed by the author has already been previously described in detail and can be viewed in Appendix N.3. In its final form it is a 15-item scale that assesses participant's unconscious escape from engaging in thinking or action that can be considered meaningful or which may facilitate meaningful cognitive elaboration. The Cronbach's  $\alpha$  coefficient for the CDQ with this sample was .73.

**The UCLA Loneliness Scale.** The UCLA Loneliness Scale was originally developed by Russell, Peplau, and Ferguson (1978) and was designed to provide a measure of respondents' subjective feelings of loneliness. Since the scale's initial development further revisions have been made to incorporate both positively and negatively worded items (Russell, Peplau, & Cutrona, 1980) and also to address poor readability and the response format of some items (Russell, 1996). The UCLA Loneliness Scale has come to be viewed as the standard scale utilised in assessing loneliness (Shaver & Brennan, 1991) and the most recent form of the scale (Russell, 1996) was utilised in the current study in order to assess the degree to which respondents reported experiencing loneliness. The UCLA Loneliness Scale is a unidimensional measure that contains 20 items worded both positively and negatively. Responses are made using a four-point Likert-type rating scale ranging from one (*never*) to four (*always*). A total score on the scale is calculated by reverse scoring items one, five, six, nine, ten, fifteen, sixteen, nineteen, and twenty, and then summing each of the items together. The possible range of scores is from 20 to 80. High scores on the scale are indicative of greater levels of subjective feelings of loneliness and reflect greater feelings of social dissatisfaction (Russell, Peplau, & Cutrona, 1980). The original development and validation of the UCLA Loneliness Scale was conducted on young adult undergraduate university students recruited at UCLA (Russell, Peplau, &

Ferguson, 1978) and the most recent version of the scale has since been validated with a number of differing populations including: nurses (Constable & Russell, 1986), teachers (Russell, Altmaier, & Van Velzen, 1987), elderly individuals (Russell & Cutrona, 1991), and adolescents (Mahon & Yarcheski, 1990; Mahon, Yarcheski, & Yarcheski, 1995). In addition it has been translated and validated in a number of differing languages and cultures such as with German participants (Doring & Bortz, 1993), Greek participants (Anderson & Malikiosi-Loizos, 1992), South African participants (Pretorius, 1993), French-Canadian participants (de Grace, Joshi, & Pelletier, 1993), Danish participants (Lasgaard, 2007), and with Taiwanese participants (Wu & Yao, 2008). As can be seen the UCLA Loneliness Scale is a widely used measure. In the initial research validating the UCLA Loneliness Scale (version 3) alpha reliabilities were produced across the four differing participant samples (university students, nurses, teachers, and elderly participants) that were all acceptably high, ranging from .89 to .94 (Russell, 1996). In the current research, Cronbach's  $\alpha$  coefficient for the UCLA Loneliness Scale was .95, which suggests that it demonstrates very good internal consistency (DeVellis, 2003). The full version of the UCLA Loneliness Scale utilised in the current study is included in Appendix N.4.

**The Behavior Identification Form.** The Behavior Identification Form (BIF) developed by Vallacher and Wegner (1989), was designed to assess individual differences in levels of personal agency. The BIF contains 25 items in which respondents are provided with an example action and then asked to describe how they personally perceive the action. The question stem, the example action, is followed by two alternatives from which respondents are able to choose either the option which reflects a higher level of personal agency or the alternative option that reflects a lower level of personal agency. Options that reflect the higher level of personal agency are allotted a score of two while lower level

options endorsed by participants receive a score of one. The possible range of scores obtained is 25 to 50. High scores on the BIF reflect high levels of personal agency, which indicate that the participant possesses a greater ability to understand his or her behaviour in relation to its subsequent consequences and implications. Low scores on the BIF reflect low levels of personal agency, which suggest that the participant has a decreased ability to understand and view his or her behaviour in terms of its implications, but rather views behaviour in terms of its details or its mechanics (Vallacher & Wegner, 1989). The BIF was originally developed in a sample of undergraduate university students. It was shown to be unidimensional in nature and upon its initial development produced a Cronbach's alpha coefficient of .84. In the current study, the BIF again demonstrated respectable internal consistency with an alpha coefficient of .79 (DeVellis, 2003). A complete version of this scale can be found in Appendix N.5.

**The Situational Self-Awareness Scale.** The Situational Self-Awareness Scale (SASS) developed by Govern and Marsch (2001) provides a quantitative measure of individuals' situational self-focus, otherwise known as 'self-awareness'. When defining self-awareness, Govern and Marsch describe the construct according to two differing perspectives, namely public self-awareness and private self-awareness. Public self-awareness refers to the degree to which a person views him or herself as the subject of another person's appraisal (Govern & Marsch, 2001). People who experience high levels of public self-awareness may experience discomfort and evaluation apprehension due to this increased focus on the self. In contrast, private self-awareness refers to the degree to which a person is aware of internal mechanisms such as standards, values, affect, and motives in a given situation. In a state of high private self-awareness, an increase in the clarity and intensity of what is salient to the person in the given situation, such as current mood or values, may be expected to occur (Govern & Marsch, 2001). Both public and

private self-awareness are considered transient states that are susceptible to manipulation. For example, public self-awareness may be induced through requesting a person look into a full length mirror, where as private self-awareness can change by asking a person to focus on their thoughts and feelings (Webb, Marsch, Schneiderman, & Davis, 1989). The SASS contains nine items that assesses three domains, namely public self-awareness (e.g. “Right now, I am self-conscious about the way I look”), private self-awareness (e.g. “Right now, I am conscious of my inner feelings”), and awareness of immediate surroundings (e.g. Right now, I am keenly aware of everything in my environment”). The items that assess a non-self focus, in other words a person’s awareness of his or her immediate surroundings, provide an indication of whether the respondent’s attention is focused on something other than the self (Govern & Marsch, 2001). Items are framed as declarative statements in which responses are made using a seven-point Likert-type rating scale ranging from one (*strongly disagree*) to seven (*strongly agree*). Total scores are calculated by summing the items of each factor, which have a possible range of scores of three to twenty-one. High scores on each of the three domains are indicative of higher levels of public self-awareness, private self-awareness, and awareness of immediate surroundings, where as low scores reflect low levels on each of these domains (Govern & Marsch, 2001). The original development and validation of the SASS was undertaken on undergraduate university students and demonstrated a stable factor structure as well as adequate internal consistency with a Cronbach’s alpha coefficient ranging of .82 for public self-awareness, .70 for private self-awareness, and .72 for awareness of immediate surroundings (Govern & Marsch, 2001). In the current research, Cronbach’s alpha coefficient for the SASS was .80, which suggests that it demonstrates very good internal consistency. The full version of the SASS utilised in the current study is included in Appendix N.6.



**The Meaning in Life Questionnaire.** The final measure completed by participants in the current study was the Meaning in Life Questionnaire (MLQ) developed by Steger, Frazier, Kaler, and Oishi (2006), which assesses the presence of and search for perceived meaning in an individuals' life. The MLQ is a quantitative measure of the degree to which respondent's possesses meaning in life in that moment and the degree to which they search for meaning in life. The questionnaire contains ten positively and negatively worded items in which responses are made on a seven point Likert-type rating scale ranging from one (*absolutely untrue*) to seven (*absolutely true*) (Steger et al., 2006). Total scores are calculated for each factor by summing the item scores and have a possible range of scores of seven to seventy. High scores on this scale reflect greater levels of perceived meaning in life as well as perceived search for meaning in life. Low scores on this scale reflect lower levels of meaning in life and a low level of active searching for meaning in life. The MLQ was originally developed in a sample of undergraduate university students enrolled in an introductory psychology course (Steger et al., 2006). It was shown to have a stable two-factor structure, factor one containing items related to the presence of meaning in life and factor two containing items related to the search for meaning in life. The Cronbach's alpha coefficients across the three initial development studies were all acceptably high ranging from .82 to .86 for the presence of meaning factor, and .86 to .87 for the search for meaning factor (Steger et al., 2006). The test-retest reliabilities of the MLQ presence of meaning factor were .81 at time one and .86 at time two. Similarly, test-retest reliabilities for the MLQ search for meaning factor were .84 at time one and .92 at time two (Steger et al.). The authors also reported good evidence of convergent and discriminant validity for the MLQ (Steger et al., 2006). In the current study, the MLQ demonstrated minimally acceptable internal consistency with an alpha coefficient of .67. A complete version of this scale can be found in Appendix N.7.

## **Procedure**

As in each previous study, the current study was conducted according to the guidelines specified by the Australian Catholic University National Human Research Ethics Committee (see Appendix O). Consistent with the procedure employed in both study one and two of this thesis, participants were recruited through an advertisement on an online social network facility, namely 'Facebook' and completed the required questionnaires online. The procedure undertaken is described in detail in the method section of study two (see p. 99). Participants received the participant information recorded in Appendix G.

## **Results**

### **Data Cleaning and Assumption Testing**

**Data screening.** Data were collated electronically and analysed using the Statistical Package for Social Sciences (SPSS), version 17.0. Preliminary analyses involving data screening and relevant assumption testing were undertaken in order to ensure the data set was clean and honest (Tabachnick & Fidell, 2007). Data were firstly screened to ensure all data entry was executed accurately. Data ranges, measures of central tendency, and the variability of each item on each of the scales utilised were reviewed revealing that all data were within appropriate parameters (Tabachnick & Fidell, 2007). Variables including gender, marital status, and country of residence were also screened to ensure suitability.

**Missing data.** Missing data were reviewed and modified accordingly. Prior to the examination of missing data, 594 cases were in the data set. It was revealed, however, that 246 of these cases contained missing data as discussed in the participant section of this study (see p. 178). As these cases exceeded the 5% of data cut off criteria proposed by

Tabachnick and Fidell (2007) they were eliminated from analyses as recommended. A total of 348 cases remained for further analyses. No additional individual data points were missing in the data set.

**Outliers.** It is important to identify and address outliers when undertaking correlational analyses and regression analysis. When interpreting correlation coefficients, outliers can influence the  $r$ -value to be either overestimated or underestimated (Pallant, 2007), and in multiple regression outliers can have a large impact upon the regression solution. In turn, Tabachnick and Fidell (2007) suggest that outliers be deleted, rescored, or transformed. In order to identify any potential univariate outliers, total scores for each of the scales utilised in the current study were transformed into standardised  $z$ -scores. These standardised scores were evaluated against the criteria suggested by Hair, Anderson, Tatham, and Black (1995) that proposes values falling outside the range of  $\pm 3.0$  to  $4.0$  in samples that contain greater than 80 observations may potentially be an outlier and in turn have an undesirable influence on the data distribution. All but one value fell within this range recommended for large samples. This case was subsequently deleted. Multivariate outliers were also evaluated for each case through the calculation of Mahalanobis distance values. Employing a  $\chi^2$  of 29.58 ( $df = 10$ ) and a significance criterion of  $p < .001$  resulted in the identification of one multivariate outlier. As this may have an undue influence on the results this case was deleted as recommended by Tabachnick and Fidell (2007). The removal of the outliers resulted in a total of 346 cases remaining in the data set for further analyses.

**Normality.** Normality is a critical assumption to be satisfied when performing correlational analysis and regression analysis, particularly as inference is a goal (Pallant, 2007; Tabachnick & Fidell, 2007). Tabachnick and Fidell (2007) recommend that in order to evaluate whether the assumption of normality has been either met accordingly or

violated, the screening for outliers can be undertaken as above, in conjunction with the examination of the skewness and kurtosis of the data set. Examination of the skewness and kurtosis statistics revealed some values that demonstrated possibly influential deviations from normality that may have an undue influence of the results. As the data diverge only moderately from normal, a square root transformation was performed on the data set. This transformation, however, did not improve the skewness and kurtosis statistics.

Subsequently, the shape of the distributions of each variable was examined as is recommended in large samples (Tabachnick & Fidell, 2007). Upon inspection of the distribution of each of the variables in the data set, which involved examining the frequency histograms, expected normal probability plots, and detrended expected normality plots, it was found that the untransformed variables produced graphical displays that were closer at approximating a normal distribution, with actual scores for untransformed variables falling along the diagonal of expected scores with some minor deviations due to random processes (Tabachnick & Fidell, 2007). Given that the untransformed data produced skewness and kurtosis statistics and normality plots that were closer at representing normality, the untransformed variables were retained for further analyses.

**Linearity and homoscedasticity.** Bi-variate scatter plots were examined between pairs of variables (CDQ-15 and the remaining variables in the data set) in order to evaluate the linearity of their relationships. Visual inspection of these graphs revealed pairs of measured variables to be approximately linear in relationship. The assumption of homoscedasticity was also reviewed and found to not be violated, with each of the bi-variate scatter plots producing a spread of data points that were roughly the same width all over, with a wider spread of points towards the middle (Tabachnick & Fidell, 2007). Finally, the statistical test utilised to assess colinearity, namely the variance inflation

factor, was evaluated. It was found that all variables to be utilised in ungrouped analyses produced values below the criterion of 3.0 as desired (Tabachnick & Fidell, 2007). This demonstrates that there is no cause for concern in regards to multicollinearity or singularity.

Descriptive statistics.

Table 6.1 details the mean and standard deviation of each scale.

Table 6.1

*Scale and Factor Means and Standard Deviations*

Scale	Mean	Standard Deviation
CDQ-15	48.65	10.70
Cognitive Vulnerability	12.15	4.27
Time Perception	10.51	4.11
Emotion	8.10	3.74
Close-Mindedness	7.80	3.59
Changeability	10.07	3.45
Exclusion Exposure Measure	11.77	2.11
UCLA Loneliness Scale	55.82	12.89
Behaviour Identification Form	39.45	4.78
Situational Self Awareness Scale	42.62	10.44
Surroundings	14.77	4.39
Private	14.73	4.38
Public	13.12	5.50
Meaning in Life Questionnaire	44.00	9.23
Presence	17.98	8.14
Search	26.02	7.37

### **The Influence of Sample Characteristics: Age, Marital Status, and Gender**

Pearson product-moment correlation coefficients were calculated to investigate significant relationships between sample characteristics including age, gender, marital status, and participant's scores on the CDQ-15 as well as all additional scales analysed (see Table 6.2). This would reveal the level of association between these variables as well as direction of this relationship and is commonly referred to in scale development as criterion-related validity. Given the large sample size in this study, the  $p$  value was set a priori at .01. The age of participants ranged from 18 years to 66 years old ( $M = 26.51$  years;  $SD = 10.44$  years). Age was found to correlate with marital status ( $r = .36, p < .01$ ) as would be expected. An independent samples  $t$ -test revealed a significant difference between age and participants marital status, being either single or partnered ( $t(344) = -4.46, p = .001$ , two-tailed). Marital status was also significantly correlated with gender ( $r = .27, p = .01$ ). This difference was also found to be significant suggesting that more men in the current sample indicated that they were single ( $n = 141$ ) rather than partnered ( $n = 55$ ) compared to the women in the sample of whom 72 reported they were single and 78 reported they were partnered,  $\chi^2(df = 1) = 20.58, p = .001$ . In addition to these correlations, a significant relationship was identified between marital status and one of the factors that comprise the Meaning in Life questionnaire (MLQ), namely the presence of meaning (MLP) ( $r = .14, p = .01$ ). This association was found to be insignificant when performing an independent samples  $t$ -test and employing an alpha level of .01,  $t(344) = -2.42, p = .02$ , two-tailed. The size of this correlation although approaching significance was weak, rendering it of little influence in the current analysis. As can be seen, no significant association was found between the CDQ-15 and participant demographic variables suggesting that these sample characteristics are not influencing other key variables in the following analyses.

Table 6.2

*Pearson Correlation Coefficients for Sample Characteristics and Participants' Total Scale Scores*

Variable	Gender	Age	Marital Status	CDQ-15	EEM	UCLA	BIF	SA/SUR	SA/PRI	SA/PUB	ML/P	ML/S
Gender	1	.07	.27*	-.05	-.06	-.09	.07	.05	.08	.12*	.05	.03
Age		1	.36**	-.10	.01	.07	.10*	-.01	.09	-.05	.06	-.13*
Marital Status			1	-.07	-.09	-.13	.01	.09	.03	.01	.14**	-.13*
CDQ-15				1	.40**	.59**	-.36**	-.30**	-.25**	.12*	-.48**	.14*
EEM					1	.56**	-.16**	-.06	-.01	.12*	-.34**	.21**
UCLA						1	-.28**	-.30**	-.10	.14**	-.53**	.15**
BIF							1	.29**	.30**	.01	.33**	.06
SA/SUR								1	.45**	.15**	.34**	.03
SA/PRI									1	.33**	.21**	.14**
SA/PUB										1	-.13*	.25**
ML/P											1	-.30**
ML/S												1

*Note.* N = 346. *r* = Pearson's correlation coefficient. CDQ-15 = Cognitive Deconstruction Questionnaire-15; EEM = Exclusion Exposure Measure; UCLA = The UCLA Loneliness Scale; BIF = Behaviour Identification Form; SA/SUR = Situational Self-Awareness Scale Surroundings Factor; SA/PRI = Situational Self-Awareness Scale Private Factor; SA/PUB = Situational Self-Awareness Scale Public Factor; ML/P = Meaning in Life Questionnaire Presence of Meaning Factor; ML/S = Meaning in Life Questionnaire Search for Meaning Factor.

\*.05 (two-tailed); \*\*.01 (two-tailed)

### **Correlation Analysis and Criterion-Related Validity**

Correlation analysis and the assessment of the criterion-related validity of the CDQ-15 was undertaken in order to explore the association between the CDQ-15 and the variables of interest, namely personal agency, self-awareness, and meaning in life, and how these variables are associated to cognitive deconstruction. Each of these variables demonstrated a significant relationship with the CDQ-15 at the alpha set a priori at .01. The relationship between participants' scores on the CDQ-15 and the presence of meaning in life (MLQ/P) and was found to be negative ( $r = -.48, p < .01$ ), with participants who reported experiencing higher levels of the presence of meaning in their lives reported fewer characteristics of cognitive deconstruction. The shared variance between the CDQ-15 and the MLQ/P was 22.56%. A significant negative relationship also was found between the CDQ-15 and the BIF ( $r = -.36, p < .01$ ). According to the coefficient of determination, 12.81% of participant's scores in cognitive deconstruction are explained by participants' level of personal agency. The relationship between the CDQ-15 and participants' awareness of their surroundings (as measured by the SA/SUR) was also investigated utilising Pearson product-moment correlation coefficient ( $r = -.32, p < .01$ ). The effect size of this correlation can be considered medium in magnitude according to Cohen (1992), accounting for 10.24% of variance in scores assessing participant's awareness of their surroundings being explained by cognitive deconstruction. Similarly, a significant negative association was revealed between the CDQ-15 and private self-awareness (SA/PRI) ( $r = -.25, p < .01$ ), explaining 6.25% of variance. Pearson product moment correlation coefficients were also calculated for public self-awareness (SA/PUB) and participants search for meaning in life (MLQ/S), both of which demonstrated a significant relationship with the CDQ-15 at the .05 level (see Table 6.2).



## Regression Analysis

Standard multiple regression was undertaken in order to determine how much variance in cognitive deconstruction (CDQ-15) is explained by the group of predictors, namely personal agency, presence of meaning in life, awareness of surroundings, and private self-awareness. This analysis provided the information regarding the relative contribution each of the independent variables explains in the dependent variable (CDQ-15). Tolerance statistics and variance inflation statistics were all satisfactory indicating no presence of multicollinearity. The residual scatterplot and normal probability plot suggested no major deviations from normality or outliers. Revision of the standardised residual values revealed that one case fell outside the bound of 3.0 and -3.0, however, Cooks distance value of .06 suggests that this case would not have an undue influence on the results.

The results of the multiple regression analysis indicate that these four predictors accounted for a moderate proportion of the variance in cognitive deconstruction,  $R^2 = .29$ ,  $p < .001$ . Thus, personal agency, the presence of meaning in life, awareness of surroundings, and private self-awareness together account for 29.1% of the variance in cognitive deconstruction. The current model is statistically significant,  $f(4, 341) = 34.91$ ,  $p < .001$ . The standardised coefficients reveal that MLQ/P produces the largest beta coefficient, suggesting that the presence of meaning in life was the most significant predictor, explaining 12.96% of the variance associated with the CDQ-15,  $R^2 = 12.96\%$ ,  $\beta = -.36$ ,  $t(344) = -7.19$ ,  $p < .001$ . The next strongest unique predictor was personal agency,  $R^2 = 3.61\%$ , ( $\beta = -.19$ ,  $t(344) = -3.48$ ,  $p < .001$ ). This explained a further 3.61% of the variance associated with the CDQ-15. The participant's awareness of their surroundings (SA/SUR) was the next predictor in the model, significantly predicted participant's scores of the CDQ-15 at the .05 alpha level,  $R^2 = 1.4\%$ ,  $\beta = -.12$ ,  $t(344) = -$

2.14,  $p = .03$ , explaining a unique variance of 1.44%. The final independent variable in the model was participant's private self-awareness (SA/PRI), which was not a significant predictor of the CDQ-15,  $R^2 = .36\%$ ,  $\beta = -.06$ ,  $t(344) = -1.16$ ,  $p = .25$ . Table 6.3 contains the unstandardised regression coefficients (B) and intercept, the standardised regression coefficients ( $\beta$ ) the semipartial correlations ( $sr$ ),  $R$ ,  $R^2$ , and adjusted  $R^2$  for all four predictors.

Table 6.3

*Standard Multiple Regression Analyses for Variables Predicting Cognitive Deconstruction*

Variable	<i>B</i>	$\beta$	<i>sr</i>	<i>p</i>
MLQ/P	-.48	-.36	-.33	.00
BIF	-.42	-.19	-.17	.00
SA/SUR	-.28	-.16	-.10	.03
SA/PRI	-.15	-.06	-.05	.25

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Intercept = 80.20

$R^2 = .29$

Adjusted  $R^2 = .28$

$R = .54$

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*Note.*  $N = 346$ .  $B$  = Unstandardised regression coefficient.  $\beta$  = standardised regression coefficient.  $sr$  = semipartial correlation.  $p$  = probability.  $R^2$  = Multiple correlation squared.  $R$  = Multiple correlation. ML/P = Meaning in Life Questionnaire Presence of Meaning Factor; BIF = Behaviour Identification Form; SA/SUR = Situational Self-Awareness Scale Surroundings Factor; SA/PRI = Situational Self-Awareness Scale Private Factor.

### Multivariate Analysis of Variance (MANOVA)

**Exclusion exposure and cognitive deconstruction.** In order to explore how the CDQ-15 differentiates between participants who have recently experienced social

exclusion compared to participants who have not, a multivariate analysis of variance (MANOVA) was undertaken. Initially, however, Pearson product moment correlation coefficients were reviewed and revealed a significant positive association between the CDQ-15 and the exclusion exposure measure (EEM) ( $r = .40, p = .01$ ). Participants were then allocated group membership according to their self-reported experiences of social exclusion. The sample had a mean score of 11.78 ( $SD = 2.11$ ) on the author-developed exposure to exclusion measure (EEM). The sample was split into two groups based upon a median split ( $Mdn = 12$ ), in which participants who scored below the median point were categorised as having fewer exclusion experiences ( $n = 155$ ) and participants who scored above categorised as having more exclusion experiences ( $n = 191$ ). The CDQ-15 factors (Cognitive Vulnerability, Time Perception, Close-Mindedness, Emotion, and Changeability) served as dependent variables in the analysis and high and low groups on the EEM comprised the independent variable. An *a priori* significance level was set at .05.

Data was checked for outliers, skewness, kurtosis, and visual inspection of normality plots was undertaken to evaluate the presence of multivariate normality. No outliers were identified in the data set. Skewness and kurtosis values also did not exceed the range recommended by Tabachnick and Fidell. In addition, normality plots suggested that the data approximated a normal distribution. Furthermore, as the groups were similar in size and there were greater than 20 degrees of freedom for error in the univariate case, the test can be considered robust (Tabachnick & Fidell, 2007). The assumption of multivariate normality and the assumption of equality of covariances were also considered satisfied according to Levene's test and Box's *M* test. Both were found to be non-significant as desired. Exploring the linear combinations between the CDQ-15 and the two groups of participant scores (included versus excluded) revealed an approximately linear

relationships among each set of variables as desired and also revealed that the assumption of homoscedasticity was not violated.

The MANOVA undertaken revealed a statistically significant multivariate effect for exclusion on the CDQ-15 as identified by Wilks'  $\Lambda$  (.88),  $F(5, 340) = 8.99, p > .001$ , partial  $\eta^2 = .12$ . Due to the fact that MANOVA often reflects significant differences for some but not all the dependent variables that are included in the analyses, univariate comparisons can subsequently be explored (Field, 2005). Univariate comparisons revealed significant differences for participants who experienced less exclusion in comparison to participants who experienced more exclusion on four of the five CDQ-15 factors (see Table 6.4). Field (2005) suggests that MANOVA protects the univariate comparisons against inflated Type 1 error but only for the variables for which significant group differences exist. It has been suggested that undertaking subsequent post hoc analyses that can account for this (Harris, 1975). In turn, simple comparisons were undertaken, which compared the group mean for the high EEM group (great exposure to social exclusion) and the low EEM group (lower exposure to social exclusion). These comparisons revealed that respondents in the high EEM group scored significantly higher on the four CDQ-15 factors of Cognitive Vulnerability, Time Perception, Close-Mindedness, and Changeability than participants in the low EEM group.

Table 6.4

*Descriptive Statistics and Univariate Analyses on the CDQ-15 Factors for Participants with Less and More Exclusion*

CDQ-15 Factors	Less Exclusion Condition		More Exclusion Condition		$F^a$	$p^b$	Partial $\eta^2$
	$M$	$SE$	$M$	$SE$			
Cognitive Vulnerability	10.97	.33	13.12	.30	22.88	.00	.06
Time Perception	9.25	.32	11.54	.29	28.63	.00	.08
Emotion	7.98	.30	8.20	.27	.291	.59	.00
Close Mindedness	7.08	.28	8.39	.56	11.71	.00	.03
Changeability	9.64	.28	10.34	.25	4.58	.03	.01

*Note.*  $N = 346$ .  $M =$  Mean;  $SE =$  Standard error. <sup>a</sup>For each ANOVA,  $F(1, 344)$ .

<sup>b</sup> $p =$  (two-tailed).

**Loneliness and cognitive deconstruction.** In order to explore further the relationship between the CDQ-15 and social exclusion, the UCLA Loneliness Scale served as a measure of the enduring feelings of social exclusion experienced by participants. According to Cohen's (1992) effect size descriptions, the positive association between cognitive deconstruction (CDQ-15) and loneliness (UCLA Loneliness Scale) can be considered strong ( $r = .59, p < .01$ ) with the direction of the association being the more lonely an individual is, the more symptoms characteristic of cognitive deconstruction they are likely to experience. According to  $R^2$ , which specifies the strength of the association, loneliness accounts for 31.14% of variance in respondent's scores on the CDQ-15. Similar to the procedure undertaken in the previous MANOVA, the sample was split into

two groups based upon a median split ( $Mdn = 58$ ), in which participants who scored below the median point were categorised as having fewer feelings of social exclusion ( $n = 168$ ) and participants who scored above categorised as having increased feelings of social exclusion ( $n = 178$ ). The CDQ-15 factors (Cognitive Vulnerability, Time Perception, Close-Mindedness, Emotion, and Changeability) served as dependent variables in the analysis and high and low groups on the UCLA Loneliness Scale comprised the independent variable. An *a priori* significance level was set at .05 as above.

Skewness and kurtosis values were reviewed in order to assess normality. It was found that the UCLA was positively skewed. Subsequently as recommended for non-normally distributed data, transformations were undertaken. Transformations need to be undertaken for all variables involved in an analysis where comparisons are being made (Field, 2005). While the square-root transformation undertaken improved the skewness of the UCLA Loneliness Scale scores, it created large skewness and kurtosis in the CDQ-15 scores. Upon visual inspection of normality plots, untransformed data was closer at representing a normal distribution. Subsequently, data remained untransformed and as the groups were similar in size and there were greater than 20 degrees of freedom for error in the univariate case, the test can be considered robust (Tabachnick & Fidell, 2007).

Exploring the linear combinations between the CDQ-15 and UCLA revealed an approximately linear relationships among this set of variables as desired and also revealed that the assumption of homoscedasticity was not violated.

The MANOVA demonstrated a statistically significant multivariate effect for exclusion on the CDQ-15 as identified by Wilks'  $\Lambda(.80)$ ,  $F(5, 340) = 17.35$ ,  $p > .001$ , partial  $\eta^2 = .20$ . Univariate comparisons revealed significant differences for participants who experienced greater feelings of social exclusion in comparison to participants who experienced fewer feelings of social exclusion on four of the five CDQ-15 factors (see

Table 6.5). Simple comparisons that compared the group means for each group whilst controlling for type I error at the .01 level across five comparisons, revealed that participants in the high feelings of social exclusion scored significantly higher on the four CDQ-15 factors of Cognitive Vulnerability, Time Perception, Close-Mindedness, and Changeability than participants who were lower of feelings of social exclusion.

Table 6.5

*Descriptive Statistics and Univariate Analyses on the CDQ-15 Factors for Participants in the High and Low Scoring Groups on the UCLA Loneliness Scale*

CDQ-15 Factors	Low Scores on the UCLA Group		High Scores on the UCLA Group		$F^a$	$p^b$	Partial $\eta^2$
	$M$	$SE$	$M$	$SE$			
Cognitive Vulnerability	11.15	.32	13.11	.31	19.13	.00	.05
Time Perception	8.96	.30	12.00	.29	53.52	.00	.14
Emotion	7.78	.29	8.40	.28	2.42	.12	.01
Close Mindedness	6.65	.26	8.90	.26	37.50	.00	.10
Changeability	9.30	.26	10.81	.25	17.14	.00	.05

*Note.*  $N = 346$ .  $M =$  Mean;  $SE =$  Standard error. <sup>a</sup>For each ANOVA,  $F(1, 344)$ . <sup>b</sup> $p =$  (two-tailed).

### Study Four Discussion

This final study in the current thesis aimed to continue to examine the validity, specifically the criterion-related validity of the CDQ-15 by assessing the scale's relationship with key variables proposed in the theory of cognitive deconstruction

(Baumeister, 1990a). It was also considered of importance to gather further evidence regarding the relationship between the CDQ-15 and social exclusion, the experience that can trigger the deconstructive response, and determine whether the CDQ-15 identifies those who have experienced an exclusionary event and subsequently shift into the deconstructed state. It was found that the key variables of personal agency, meaning in life, and self awareness were all associated with cognitive deconstruction as measured by the CDQ-15 with less personal agency, meaning of life and self awareness being related to greater levels of cognitive deconstruction. Of these variables, meaning in life contributed the most to cognitive deconstruction. The CDQ-15 was also able to differentiate the sample in terms of participants' exposure to exclusionary events, as well as loneliness, which served as a measure of long-term feelings of exclusion.

### **The Influence of Age, Marital Status, and Gender on the CDQ-15**

Prior to investigating the predictions made in this study, it was explored whether demographic characteristics, namely age, marital status, and gender influenced this sample's scores on the CDQ-15. Neither age nor marital status significantly influenced participants' scores on the CDQ-15. In addition to this, gender did not have a significant association with the CDQ-15. This is contrary to findings from study two, in which gender differences existed on the Emotion Factor of the CDQ-15. This finding, however, was found in a sample that included a disproportionate number of males to females. In the current study, however, the sample possessed an even gender split and results suggested that perhaps the genders do not differ in their responses to the CDQ-15. It would still be important to continue to explore gender differences on the CDQ-15 in any future studies utilising this newly developed scale, particularly in samples and settings that differ from those explored in the current thesis.



The association of age, marital status and gender with the remaining variables in the current study was also explored in order to evaluate whether any associations may potentially have an undue influence on the results. A significant relationship was found between marital status, whether one is single or partnered, and the presence of meaning in life. The strength of the correlation was weak, however the direction of the relationship suggested that those who are partnered identify themselves as possessing more meaning in life. Although generalisations cannot be made given the size of the correlation, this finding supports the theory that a major means by which people derive meaning is from social interactions (Baumeister & Leary, 1995; Stillman, Baumeister, Lambert, Crescioni, DeWall, & Fincham, 2009). It is possible that having a significant other with whom one connects and with whom one's belonging needs are met, increases the presence of meaning in life. However this is only speculation given that even though having a partner may increase the likelihood, it does not necessarily mean that one's need for belonging is fulfilled.

### **The Relationship between Meaning in Life and Cognitive Deconstruction**

The next area of exploration in this study involved investigating whether there was an association between variables central in the theory of cognitive deconstruction and the CDQ-15. The deconstructive response is theorised to occur as a person attempts to escape meaningful thought and the negative self-awareness that may arise following the experience of exclusion and the thwarting of belongingness needs (Baumeister, 1990a). A significant relationship between the two variables of cognitive deconstruction and the presence of meaning in life was found indicating that the more participants reported experiencing the characteristics of cognitive deconstruction, as measured by the CDQ-15, the fewer participants reported experiencing meaning in life. This is consistent with the theory of cognitive deconstruction, which suggests that as people enter the deconstructed

state the more likely they will be to deny meaningful thought, disregard the future, and defend against integrative and interpretive thinking (Baumeister, 1990a). When isolating meaning a person is likely to experience difficulty in identifying meaning in his or her life. The association found in this study between experiencing meaning and cognitive deconstruction, a defensive response to exclusion, is consistent with findings from previous research conducted by Twenge, Catanese, and Baumeister (2003) who found that social exclusion was linked to a retreat from meaningful thought and a greater propensity to agree that life was meaningless. Stillman, Baumeister, Lambert, Crescioni, DeWall, and Fincham (2009) also found that socially excluded participants reported less meaning in life compared to included and control participants. Such thought patterns would be expected to occur in the deconstructed state.

As has been described throughout this thesis, cognitive deconstruction occurs as a possible response for dealing with the negative experience of being socially excluded. Should relationships with others be removed as occurs in exclusion, meaning in life may decrease not only because isolating meaningful thought occurs and identifying meaning in life is rendered unavailable, but also because people derive meaning from their relationships with others. If these relationships with others are removed or simply threatened, feelings of meaninglessness may ensue. Some people deal with this experience by escaping to the deconstructed state. The relationship between the CDQ-15 and the Meaning in Life Questionnaire, which assesses the presence of meaning in one's life, provides support that this may occur.

### **The Relationship between Meaningful Thought/Personal Agency and Cognitive Deconstruction**

In order to gather further evidence regarding the validity of the CDQ-15, the association between meaningful thought and cognitive deconstruction was examined.

Meaningful and higher-order thinking was assessed utilising a measure of personal agency (Vallacher & Wegner, 1989), which assesses how much people think about the causal effects, social meanings and self-descriptive implications of their behaviour and experiences. It was found that the lower participants' personal agency and the less participants engaged in meaningful thought the higher their scores on the CDQ-15.' This suggests that decreases in meaningful thought are consistent with greater levels of cognitive deconstruction. This finding is consistent with the theory of cognitive deconstruction (Baumeister, 1990a). Participants engaging in less meaningful thought are more likely to avoid thinking about the future implications of their actions, have a decreased awareness regarding the ramifications of their behaviour, be inconsistent and unstable in the way they act, demonstrate a poor understanding regarding the moral implications of their actions, and tend to display an impaired self-conceptualisation (Vallacher & Wegner, 1985; 1987; 1989). Such behaviour is congruent with that which occurs in the deconstructed state following the assault of an exclusionary experience. Findings in the current study suggest this behaviour is increased in people indicating greater degrees of cognitive deconstruction.

### **The Relationship between Self-Awareness and Cognitive Deconstruction**

The next variable central to the theory of cognitive deconstruction and included in the current study to provide further information regarding the validity of the CDQ was self-awareness. Escaping self-awareness is a primary motivation for the deconstructive response as discomfort may arise from reviewing the aspects of the self that may have encouraged the occurrence of the exclusion. In the current study, self-awareness was divided into public self-awareness (the degree to which a person views themselves as the subject of another person's appraisal), private self-awareness (the degree to which a person is aware of internal mechanisms such as standards, values, affect, and motives in a given

situation), and awareness of surroundings (the degree to which a person is focused on something other than the self) (Govern & Marsch, 2001). A significant negative association was found between each type of self-awareness and the CDQ-15, meaning that the greater a person's public, private, and external awareness the lower their cognitive deconstruction. The association between awareness of surroundings and cognitive deconstruction was greatest in magnitude, suggesting that participants scoring higher on the CDQ-15 report a decreased awareness of their surroundings and thus may pay less attention to external factors in their environment. This would be expected to occur in the deconstructed state, as it is theorized that effort is specifically applied to leaving one's surroundings and the environment in which the threat of social exclusion occurs. If the person were to devote attention and keep their immediate surroundings in their awareness, they may continue to be reminded of the exclusion and greater cognitive effort would need to be applied in order to keep troubling thoughts out of awareness. Although the association was not as strong, the finding that higher scores on the CDQ-15 correlate with lower scores on private self-awareness suggest that as cognitive deconstruction increases, a person's awareness of their internal experience decreases. For example, a person may have a reduced awareness of how they feel and experience reduced clarity regarding what is important to them and what they value (Govern & Marsch, 2001). This is consistent with the deconstructive response, as when meaningful thought is avoided and self-awareness is subsequently reduced, the person will in turn isolate affect, experience a lack of emotion, and have reduced awareness of his or her personal standards, morals, and values, which results in inconsistent and disinhibited behaviour (Baumeister, 1990a). As such, the findings firstly appear to support the theory of cognitive deconstruction and secondly suggest that the CDQ-15 measures this defensive state accurately.

### **Criterion-Related Validity**

In regards to scale development, the association between the CDQ-15 and the variables described above suggest that the newly developed scale demonstrates criterion-related validity. Criterion-related validity involves generating predictions regarding how the scale of interest, the CDQ-15, will be associated to another construct or theory, such as has been described above (Spector, 1992). Overall, as the CDQ-15 related to the variables of meaning in life, personal agency, and self-awareness as predicted according to cognitive deconstruction theory it can be suggested that the CDQ-15 does demonstrate criterion related validity.

Following the finding that each of the variables derived from the theory of cognitive deconstruction converge with the CDQ-15, it was explored what the variables as a whole contributed to the deconstructed state and which of these variables contributed the most this sample of participants. Overall, the predictors in the regression model accounted for 29.1% of variance in the CDQ-15. Lack of meaning in life was the best predictor that a person may experience cognitive deconstruction as it had the largest unique contribution to the CDQ-15. Of the remaining predictors, personal agency and awareness of one's surroundings each made a unique contribution to cognitive deconstruction, however, the contribution for each of these variables was small. The last variable included in the model, private self-awareness, did not significantly improve the model. Overall findings suggest each of the variables are significantly related to cognitive deconstruction and that reduced meaning in life is the strongest predictor, with the remaining variables of personal agency and awareness of one's surroundings offering significant but modest explanatory power.

### **The Relationship between Social Exclusion, Loneliness, and Cognitive Deconstruction**

The final hypothesis investigated the ability of the CDQ-15 to discriminate between those participants who had experienced social exclusion compared to participants who had

not, and those who reported higher versus lower levels of loneliness. The scores on the CDQ-15 were significantly different between participants who had frequently experienced exclusion and those who had not, based upon self-reports of the number of exclusionary events experienced in the past month. It should be noted however, that exclusionary events were measured according to an author-developed scale, which may possess validity flaws due to its lack of psychometric evaluation. This potential problem is discussed further in the limitations section of chapter seven. Participants reporting a greater exposure to exclusion according to this measure also reported higher CDQ-15 scores, indicating they experience greater levels of cognitive deconstruction. In regards to loneliness, which was utilised as a measure of participant's enduring feelings of social exclusion, it was found that participants scoring higher in loneliness correspondingly scored significantly higher on the CDQ-15 when compared to participants who reported lower levels of loneliness. Findings in this study reveal that the CDQ-15 is able to identify characteristics of cognitive deconstruction in socially excluded people (those who have experienced recent exclusionary events and those who report feelings of exclusion). Such findings are consistent with the theory of cognitive deconstruction as it is the experience of social exclusion that threatens a person's fundamental need to belong and subsequently produces the deconstructive response (Baumeister, 1990a). The strong relationship between cognitive deconstruction and social exclusion also provides evidence for the validity of the CDQ-15, demonstrating that the questionnaire relates to variables in the theory upon which it was developed as was expected. This finding assists in providing some clarification to results in the preceding study in which the CDQ-15 was unable to detect differences between participants exposed to an experiment meant to induce feelings of exclusion and inclusion. The findings in the current study indicate that the scale is able to identify the deconstructed state and that the insignificant results in the previous study may have been

unrelated to the measurement capabilities of the CDQ-15, but potentially more related to the ineffectiveness of the manipulation in the study or participants perception of the importance of acceptance from their peers. It was considered important in the current study to explore this relationship between the CDQ-15 and social exclusion utilising differing forms of measurement in order to both validate the CDQ-15 and acquire further insight into the ability of the CDQ-5 to identify people experiencing feelings of social exclusion.

The individual factors of the CDQ-15, namely Cognitive Vulnerability, Time Perception, Emotion, Close-Mindedness, and Changeability, were investigated to see if each was able to discriminate between participants who had been exposed to greater degrees of exclusion (EEM) and higher level of exclusionary feelings (UCLA Loneliness Scale). Group differences were found for all but the Emotion factor. It is uncertain as to why the Emotion factor failed to discriminate as predicted particularly as this finding is inconsistent with findings from study one and two, which found that each factor on the CDQ-15 including Emotion was able to discriminate between socially isolated and socially connected participants, with socially isolated participants identifying a greater lack of emotion than their socially connected counterparts. Furthermore, this finding is inconsistent with findings from previous research in which emotion was significantly reduced in participants who had experienced exclusion compared to participants who experienced inclusion measured in both implicit and explicit mood measures (Twenge, Catanese, & Baumeister, 2003). In turn, it is considered important to explore how this factor of the CDQ-15 functions in subsequent studies and samples. Furthermore, exploring the convergent validity of the Emotion Factor on the CDQ-15 with other established mood scales would be beneficial in order to ensure that this CDQ-15 factor operates as intended.

## **Conclusion**

The current study was able to provide further validation, specifically criterion-related validity, for the CDQ-15 through identifying the relationships between the newly developed scale and the variables that are theoretically linked to cognitive deconstruction, the state this new scale attempts to measure. The CDQ-15 was also able to successfully identify the characteristics of cognitive deconstruction in people who had experienced recent events of social exclusion as well as those who reported experiencing long-standing feelings of social exclusion. Both of these measures assessing social exclusion were related to higher scores on the CDQ-15. Overall, the findings from this study suggest that constructs central to the theory of cognitive deconstruction upon which the CDQ-15 was formed, are associated to the scale as predicted. This suggests that the CDQ-15 is an accurate measure of the deconstructed state.



## **Chapter Seven: Integrative Discussion**

### **Thesis Findings**

This aim of this thesis was to develop a reliable and effective measure of cognitive deconstruction. The measure was titled the Cognitive Deconstruction Questionnaire - 15 (CDQ-15) and is the first assessment tool designed specifically to measure the defensive state of cognitive deconstruction proposed by Baumeister (1990a). Prior to the CDQ-15 being developed, it was not possible to obtain self-report assessments of the deconstructed state as a whole. Rather, this state had only been explored in part through some studies that have investigated the consequences of social exclusion (see Twenge, Catanese, & Baumeister, 2003). It was therefore considered important to create a scale that assessed cognitive deconstruction in order to further advance the measurement of this theory and to add to findings already achieved in previous research (Baumeister, Twenge, & Nuss, 2002; Twenge, Catanese, & Baumeister, 2003). In addition to being able to explore the theory of cognitive deconstruction with a measure that has been specifically designed for this purpose, the development of a scale that could be easily administered was considered important in order to evaluate the characteristics of cognitive deconstruction for people who are subjected to exclusion, rejection, ostracism, and experience few close interpersonal bonds in everyday life. This is of importance as the consequences of cognitive deconstruction can be harmful and produce behaviours that may foster further exclusion. When the deconstructive response is identified, effective intervention can then be implemented. Such interventions may include re-establishing a persons' belongingness needs and providing therapeutic assistance so as the excluded person can correct the cognitions and behaviours that occur in the deconstructed state that can possibly facilitate future exclusion and a perpetuating cycle of isolation. Four studies were undertaken in this

thesis in order to develop such a measure that assesses the defensive state of cognitive deconstruction.

**Study one.** The first study developed the initial version of the measure of cognitive deconstruction and contained 120 items (CDQ-120). This measure was evaluated and refined in a sample of participants who completed the CDQ-120, as well as a measure of social isolation, the Friendship Scale (Hawthorne, 2006). Exploratory factor analysis (EFA) was undertaken as no prior operationalisations of the phenomena as a whole had been undertaken. It was found that six factors statistically emerged in this analysis, namely Cognitive Vulnerability, Close-Mindedness, Emotion, Time Perception, Immediacy, and Changeability. As well as developing construct validity, the EFA served as an item reduction process in which the initial 120 items included in the item pool were reduced to 18 items and formed the CDQ-18. A large number of items were initially included in the item pool, as item redundancy at the commencement of scale development is desired in order to retain only items that best capture the domains of interest. The reduced number of items retained following the EFA were also required in order to ensure scale brevity. Furthermore, a short scale may best capture the defensive state of cognitive deconstruction as utilising a longer instrument may cause the respondent to engage in meaningful thought and personal reflection that is counterintuitive to the deconstructive response. It was also found in study one that the CDQ-18 demonstrated respectable internal consistency (DeVellis, 2003). The CDQ-18 also demonstrated appropriate known-groups validity, by successfully differentiating between participants who reported social isolation and participants who reported social connectedness. It was specifically revealed that participants who experienced greater levels of social isolation reported significant increases in cognitive vulnerability, distorted time perception, reported experiencing more close mindedness, an increase in behaviour changeability, as well as a lack of emotion.

**Study two.** The second study in this thesis explored the factor structure, reliability, and validity of the CDQ-18. Participants completed the CDQ-18 in conjunction with the FS, the Positive and Negative Affect Schedule (Watson, Clark, & Tellegen, 1988) and Saucier's Big Five Mini Markers (Saucier, 1994) that were utilised to assess known groups validity and convergent validity. It was found following the removal of the Immediacy factor that the item-factor relationship produced in the EFA was able to meet the criteria required for a model in CFA. The immediacy factor was removed, as it was in violation to the goodness-of-fit criteria specified a-priori and appeared to operate in a manner inconsistent with the theory of cognitive deconstruction as was also found in study one. This resulted in the scale containing 15 items across five factors (CDQ-15). The CFA model found that the items related to one another as intended, that the latent variables underlying the items were accurate, and overall the data fit the model of cognitive deconstruction adequately (DeVellis, 2003). In regards to the reliability of CDQ-15, it was found that CDQ-15 had respectable internal consistency with a Cronbach's alpha coefficient of .77 ( $p < .01$ ) (DeVellis, 2003). In addition to this, some factors on the CDQ-15 displayed possible preliminary convergent validity with the Positive Affect Scale from the PANAS the some of the factors on the BFMM. The convergence found between the CDQ-15 factor and the additional scales, however, were only modest in magnitude and require further exploration in future research. The CDQ-15 was also able to demonstrate known-groups validity by distinguishing between participants who were socially connected and participants who were socially isolated. Overall it was concluded this study that the CDQ-15 was a reliable measure of cognitive deconstruction that is useful in identifying characteristics of cognitive deconstruction in people experiencing social isolation.

**Study three.** The next step in developing a reliable and valid measure of cognitive deconstruction was to investigate the efficacy of the CDQ-15. Specifically, study three

investigated whether the CDQ-15 was able to show as a function of degree, participants who entered the deconstructed state as a result of artificially inducing the experience of social exclusion. The research design was a modified replication of the method utilized by Twenge, Catanese, and Baumeister (2002) who employed an experimental manipulation to induce rejection or acceptance. Under the deception of being included or excluded by their peers participants completed the CDQ-15. Findings from this study suggested that there was no significant difference on the CDQ-15 scores between participants who were in the accepted condition and participants who were in the rejected condition. Removing the potential influence of participants' high levels of social connectedness did not influence this finding. Explanations for this finding include the possibility that the CDQ-15 lacked the sensitivity to successfully measure cognitive deconstruction in excluded participants, that the experimental manipulation may have not been robust enough to induce the deconstructed state, or that the importance participants attributed to being accepted or rejected by this particular group was not significant enough to induce feelings of either inclusion or exclusion (Twenge, Catanese, & Baumeister, 2002, 2003).

**Study four.** As a result of the non-significant findings in study three, it was considered necessary to explore the ability of the CDQ-15 to distinguish between people who had experienced exclusion and those who had not. This final study also explored the relationship between the CDQ-15 and other key variables underpinning the theory of cognitive deconstruction as described by Baumeister (1990a). These key variables explored included meaningful thought, otherwise referred to as personal agency, meaning in life, and self-awareness. Each of these variables was found to be associated to the CDQ-15 as anticipated with low levels of meaning in life being the strongest predictor of cognitive deconstruction. As for the ability of the CDQ-15 to differentiate between people reporting exclusion and those reporting acceptance, it was found that CDQ-15 scores were

significantly different between participants who had frequently experienced exclusion and those who had not, with excluded participants scoring higher on the CDQ-15 and therefore reporting more characteristics of cognitive deconstruction. In addition to this, participants' feelings of exclusion were also assessed by measuring their degree of subjective feelings of loneliness in which it was found that the CDQ-15 differentiated between those participants who experienced greater versus fewer feelings of loneliness. Convergence in findings across the differing measures of social exclusion, as was the case in this study, provides support that the conclusions drawn are accurate and may reflect patterns that can be generalised. Overall, the findings from this study suggest that the CDQ-15 is an accurate measure of cognitive deconstruction. These findings also provide valuable empirical support for the theory of cognitive deconstruction (Baumeister, 1990a) that had not been previously globally assessed or explored utilising a self-report measure prior to this thesis.

**Summary of findings.** This thesis has commenced to develop and refine a reliable and valid preliminary measure of cognitive deconstruction that can be utilized to identify the deconstructive response in people who experience social exclusion and decreased levels of belongingness. The scale, however, requires further psychometric testing and evaluation in an experimental setting to confirm the ability of the CDQ-15 to detect the deconstructed state. Despite this, the CDQ-15 has demonstrated appropriate internal consistency and has also displayed appropriate validity. Specifically, the scale construction process and factor analyses undertaken assisted in ensuring the CDQ-15 contained content validity and construct validity, and the assessment of the association between the CDQ-15 and already established measures provided some support for convergent validity. The known-groups validity of the CDQ-15 was established throughout this thesis revealing that scale operated as expected in multiple samples of participants. Finally criterion-related validity was found between the CDQ-15 and

measures assessing variables central to the theory of cognitive deconstruction upon which the CDQ-15 is based. Overall, the preliminary psychometric properties of the CDQ-15 appear to be adequate. Furthermore, findings suggest that the CDQ-15 measures what it purports to measure, with socially isolated and lonely participants experiencing a greater level of cognitive deconstruction compared to those participants who are socially connected. Not only does this provide support for the CDQ-15 as a measure of cognitive deconstruction, but also for the theory of cognitive deconstruction, which proposes that the deconstructive response may follow experiencing the threat of exclusion or the thwarting of belongingness needs (Baumeister, 1990a).

### **Implications of this Research**

The current thesis has developed a self-report scale that appears to measure reliably cognitive deconstruction, a defensive state entered into by some people who experience social exclusion. Until this time, no such measure has been available. The CDQ-15 appears to be able to identify the deconstructive response in people who have experienced social exclusion and provides valuable empirical support for the theory of cognitive deconstruction. It should be noted, however, that the CDQ-15 did not produce significant findings when evaluated in an experimental setting. As such, further exploration into the ability of the CDQ-15 to detect the deconstructed state is necessary to ensure the measure is able to register this response to social exclusion. Should this measure of the deconstructed state continue to be utilised in future research studies, further information regarding the psychometric properties of the CDQ-15 will be accumulated. Following this, continued empirical exploration regarding Baumeister's (1990a) theory of cognitive deconstruction as a response to social exclusion can be more readily undertaken.

The CDQ-15 has been developed to be a time efficient scale that can be easily administered to assess a persons' experience of cognitive deconstruction in a variety

settings. Previous assessments of the consequences of cognitive deconstruction have only been investigated in experimental settings in studies that have focused upon exploring the consequences of social exclusion (Twenge, Catanese, & Baumeister, 2003). The CDQ-15 can be easily administered without the use of an experimental manipulation as has been undertaken in past research or without administering numerous scales. This will be helpful in evaluating cognitive deconstruction in people who are subjected to exclusion and experiencing few close interpersonal bonds in their everyday life. Furthermore, the exploration of the global state of cognitive deconstruction has not yet been undertaken until the current development of the CDQ-15, as this past experimental research has focused upon exploring only some of the characteristics of the deconstructed state.

The CDQ-15 can act as a reliable questionnaire that measures cognitive deconstruction and can subsequently provide valuable information regarding a person's escape from meaningful thought and self-awareness, and specifically, his or her current susceptibility to cognitive vulnerability, distorted time perception, their degree of close-mindedness, the degree of emotion experienced, and finally their changeability in behaviour (Baumeister, 1990a). This information will not only assist in assessing the outcomes of exclusion on a person, but also identify those who are at risk of future exclusion. Researchers and clinicians may also utilize this scale in order to understand and identify excluded people who are coping defensively with insufficient levels of belongingness, negative self-awareness, and emotional distress through cognitive deconstruction and subsequently highlight the defensive and potentially detrimental cognitions, emotions, and behaviours that the person may be engaging in. Identifying the presence of cognitive deconstruction through the use of a simple and time-efficient questionnaire such as the CDQ-15, may assist in providing effective therapeutic intervention so as the excluded person can correct cognitions and behaviours that could

possibly result in future exclusion and a perpetuating cycle of isolation. Furthermore, the development of the CDQ-15 is significant in that it may also assist in identifying in some socially excluded individuals the necessity to promote adaptive coping and also provide direction regarding subsequent intervention that is important. Such intervention may involve satisfying belongingness needs by re-establishing or creating new interpersonal bonds or dealing appropriately with negative thoughts and emotions, rather than coping defensively with decreased belongingness needs through avoiding meaningful thought and self-awareness.

### **Limitations**

**Gender.** One of the limitations in this thesis was the uneven gender distribution in studies one, two, and three. The disproportionate number of males to females made it difficult to determine whether genders differed in their responses on the CDQ-15. Differences between males and females responses on the CDQ-15 were considered important to explore in the development stages of this scale in order to understand how scores may be influenced by gender and how this may impact future samples completing the CDQ-15. Addressing the limitation of uneven gender distributions was attempted in the first three studies. The recruitment of participants was extended in both study one and two in order to allow for the opportunity of more males to participate. In study three recruitment methods were specifically tailored in order to enlist more men by offering additional credit points for undergraduate university students and also by offering additional research participation times specifically for males. Despite this, an unequal numbers of males and females formed the samples in the first three studies.

Upon exploring the influence of gender on the measure of cognitive deconstruction, it was found in study two that there was a significant difference between males and females on the Emotion Factor. However this potential influence of gender was not



explored further due to its lack of statistical power, and also because the sample in study three had only had 13 males compared to 52 females. In the study four a sample of 196 men and 150 women was recruited, which allowed for the adequate analysis of the impact of gender upon CDQ-15 scores. Exploring the CDQ-15 in an evenly distributed sample of males and females found that gender did not influence the Emotion Factor or any of the remaining factors on the CDQ-15. It is still recommended, however, that future research explore the influence of gender on the CDQ-15 in each new sample utilized so as to explore further any possible differences in the experience of cognitive deconstruction between men and women.

**Dichotomisation of continuous variables.** Another limitation (noted in the current thesis) that pertains to each study is the dichotomisation of variables in statistical analyses. Artificially dichotomising a continuous variable, such as when median splits were undertaken, is often considered a conservative approach that potentially lowers the power of obtaining statistical significance and can result in the loss of important statistical information (Maxwell & Delaney, 1993). Information is lost when dichotomising continuous variables as respondents in each of the dichotomised subgroups are rendered as identical when in fact they are not. This reduction in information has been reported to result in decreases in measurement precision, the underestimation of the size of bivariate relationships, and the power of true effects detected (Cohen, 1978; Humphreys & Fleishman, 1974). In turn, the use of median splits in each of the studies in the current thesis may have lowered estimates of effect size and statistical power. Maxwell and Delaney (1993) discuss in their review of statistical influence of median splits that major cause for concern arises from using this technique in designs that involve two independent variables. Dichotomising a single independent variable reportedly almost always produces only a conservative bias (Maxwell & Delaney, 1993). The opposite effect however has

been found to occur when multiple independent variables are dichotomised, which may potentially overestimate effect size and power. The use of median splits was only undertaken with single independent variables throughout the studies in the current thesis. As such it is likely that although dichotomising the variables that assessed social exclusion of participants may have possibly diminished effect size and statistical power, it is unlikely that findings were overestimated (Maxwell & Delaney, 1993). It is important to take into consideration that dichotomising the dimensional constructs of social isolation (Friendship Scale), social exclusion (Exclusionary Exposure Measure), and loneliness (UCLA Loneliness Scale) into arbitrarily formed groups may have had an influence on the results.

**Missing data.** Although taken into consideration throughout this thesis, it is important to discuss the potential influence missing data may have had upon findings. In study one 28.1% of participants failed to complete the required questionnaires and in study two, 19.4% of participants withdrew prematurely. Study three utilised a different recruitment method and design so was not subject to the large dropout rates that Internet based studies appear to experience. Finally, study four saw 41.4% of participants cease participation prior to adequate completion of the required online questionnaires. As mentioned above, participants who were non-completers were recruited over the Internet suggesting that this means of data collection may possess problems specific to participant drop out. The online completion of questionnaires may enable participants with a greater opportunity to cease participation and increase the amount of missing data in a sample (Hoerger, 2010). This may have occurred in the current thesis as many participants who were considered non-completers initiated involvement online but chose to opt out of the research, some even before entering demographic information. This may have occurred due to multiple reasons such as respondent fatigue, the simplicity of removing oneself from an online study, viewing ones' participation as inconsequential, or being distracted in an

uncontrolled setting that would not have been the case had participants completed the questionnaires with experimenter supervision. As discussed previously, the large dropout rate has also been documented to occur with students undertaking online learning with researchers documenting up to 50% of students involved with undertaking online courses drop out (see Aragon & Johnson, 2008; Morris, Wu, & Finnegan, 2005; Patterson & McFadden, 2009). The findings from these studies are consistent with the dropout rates in the current thesis. Missing data can often affect the validity of the conclusions made about the relationship between variables as well as the generalisability of findings to the wider population. Although the current study still possessed suitable sample sizes to develop and explore the CDQ-15, future research exploring systematic differences between participants who complete questionnaires online compared to participants who can be considered non-completers will be important. Such research exploring participants' reasons for dropping out of Internet based studies will be important for all researchers utilising online data collection.

**Utilising trait measures.** Throughout this thesis the CDQ-15 was correlated and involved in statistical analyses with a large assortment of trait measures compared to only a few state measures such as the PANAS. This occurred due to the lack of state measures that could be found and were available that assessed the constructs of interest. Subsequently, the inability to compare the CDQ-15 with state based measures is a limitation in the current thesis. Rather than correlate with state measures, the CDQ-15 correlated significantly with a number of trait based measures, which is something that a state measure may not be expected to do. In turn, it is important to consider the possibility that the CDQ-15 may in fact be assessing a trait and measuring the kind of person someone is rather than assessing a state and measuring how someone is thinking and feeling at a particular moment in time. It is possible that there is a trait of cognitive deconstruction,

however the series of studies in this thesis aimed to assess the state of cognitive deconstruction. In turn, future research exploring the possibility of cognitive deconstruction as a trait rather than a state would be beneficial as would be investigating the relationship between the CDQ-15 and state based measures should they become available or known. In addition to this, some modifications to the CDQ-15 could possibly be undertaken to make it potentially more useful as a state measure. For example some items such as “Each day seems to last a long time” may be manipulated to emphasise a current momentary state. The instructions for the CDQ-15 may also benefit from refinement and may be altered from “On the following pages are statements that describe peoples’ perception of time, how tasks are undertaken, how personal standards impact behaviour, and how people think, feel, and act in general” to “On the following pages are statements that describe peoples’ perception of time, how tasks are undertaken, how personal standards impact behaviour, and how people think and feel right this minute” in order to convey the idea that a state is being measured as opposed to a trait.

**Measuring social exclusion.** Another limitation is how social exclusion was assessed throughout the thesis. Across the four studies social exclusion was assessed in various ways. Firstly, a social isolation measure (The Friendship Scale; Hawthorne, 2006) provided an indication of participant’s subjective experience of social exclusion. Low scores on this scale indicated high levels of social isolation. Although the FS is a reliable instrument, it is important in the construction and refinement of psychological assessment tools that newly developed measures are not simply evaluated via self-reports from participants but also through differing means such as experimental or observational methods. These differing forms of measurement provide evidence for the scale’s validity. Assessing the CDQ-15 through a different method was attempted in study three, which explored the CDQ-15 in participants who had experimentally been subjected to social

exclusion. These findings, however, were insignificant. Following the attempted evaluation of social exclusion through self-report measures of isolation and experimental manipulation, social exclusion and the subsequent influence on cognitive deconstruction was evaluated in the final study in terms of the number of self-reported experiences of exclusion participants reported over a one month period as well as scores on a loneliness scale. These measures, as well as the social isolation scale utilised in study one and two were not specifically developed to measure respondent's exposure to social exclusion or the severity of such experiences. As such the validity of the constructs expressed in these scales in this these may be questionable and future research with additional measures of social exclusion would be beneficial. Furthermore, the measure assessing participants' exposure to exclusion was author constructed and has not undergone psychometric evaluation and testing regarding its reliability or validity. Exploring the relationship between the CDQ-15 and social exclusion through utilising differing measures of exclusion in the future will increase the confidence that findings can be generalised regarding the newly developed scale and the theory of cognitive deconstruction. Obtaining an objective measure of exclusion, such as reports from others or through observation of individuals, in conjunction with a subjective measure specifically assessing exposure to and severity of social exclusion, may assist in proving valuable evidence regarding the findings of the current thesis. Furthermore, evaluating the CDQ-15 in populations that may be considered vulnerable to social exclusion would provide valuable evidence regarding the CDQ-15 and the theory of cognitive deconstruction.

### **Future Research**

**Exploration of the psychometric properties of the CDQ-15.** As the CDQ-15 is in the early stages of development, continued investigation of the scale regarding its reliability and validity will be beneficial. Specifically, it will be important in future

research utilising the CDQ-15 to confirm the factor structure established in this thesis.

This is recommended in future research firstly in order to explore the variance accounted for by each of the factors in the CDQ-15, as this will provide greater clarity regarding the contribution and influence each characteristic has in explaining the deconstructed state.

Secondly, as the model in the confirmatory factor analysis was altered in order to produce a more adequate fit in study one, it returns to being exploratory and subsequently again requires confirmation. This would be achieved by analysing the factor structure of the CDQ-15 in future research.

In addition to confirming the factor structure of the CDQ-15, exploring and collating more evidence regarding the reliability of the CDQ-15 will be important. Although the CDQ-15 has demonstrated respectable internal consistency throughout this thesis, further exploration of the reliability of this scale in differing settings is desirable. This is particularly important as higher alpha reliabilities are necessary for clinical decision making. Furthermore, continued exploration of the internal consistency of the CDQ-15 will need to occur in order to investigate test-retest reliability as well as explore the CDQ-15 in studies that employ a differing population to that in the current thesis. This will assist in ensuring that the CDQ-15 is a reliable measure across diverse samples.

In conjunction with reliability, the current thesis has also attempted to evaluate the validity of the CDQ-15 through exploring content validity, construct validity, convergent validity, known-groups validity, and criterion-related validity. Findings from the current series of studies regarding the validity of the CDQ-15 are promising. However, as is the case for all newly-developed psychological scales, continued refinement and exploration of the measure needs to be undertaken to ensure that the CDQ-15 meets the basic psychometric properties required of sound assessment instruments. In exploring the validity of the CDQ-15, establishing discriminant validity will be important as this was not

assessed in the current thesis. In addition, predictive validity was not evaluated in the current thesis and would be beneficial to investigate in future research. Predictive validity aims to explore a measure's ability to predict a subsequent event and is a form of criterion related validity (Spector, 1992). Although criterion related validity, specifically concurrent validity was explored in study four, further exploration will be required to evaluate the predictive validity of the CDQ-15 by measuring participants' scores on this scale and then comparing them with results from measures obtained at some point in the future.

Evaluating the predictive validity of the CDQ-15 will provide valuable information regarding the ability of the scale to predict characteristics of cognitive deconstruction that may be experienced by people at a future time. Furthermore, exploring the validity of the CDQ-15 will be important in populations who are at high risk of social exclusion such as in a homeless population, in bullied and excluded young people in school settings, or in the workplace, will assist further in providing important evidence that the CDQ-15 is sensitive in the assessment of cognitive deconstruction and the differing degrees of this state that may be experienced.

**Norm development.** Future research will be necessary in developing the scale norms for the CDQ-15. The current series of studies has allowed for the construction of a reliable and valid measure, however, data derived from a large sample that is representative of the population for which the scale is intended is necessary in order to explore scale norms. Exploration of CDQ-15 scores in differing samples of people at high risk for experiencing social exclusion and thus cognitive deconstruction will assist in providing statistical information that would assist in this. Furthermore, should future research be undertaken with the CDQ-15, obtaining a representative sample of each population that the scale is to be utilised in will be important (Spector, 1992). In addition to exploring scale norms in differing populations, obtaining additional statistical

information on factors such as gender, age, and socioeconomic status will assist in norm development and the meaningful interpretation of CDQ-15 scores.

**Exploration of the CDQ-15 in an experimental setting.** Continued exploration regarding the efficacy of the CDQ-15 will be important in future research. As discussed previously, the CDQ-15 was unable to identify the characteristics of cognitive deconstruction in participants who were experimentally manipulated to experience either acceptance or rejection. Due to this, exploring the efficacy of the CDQ-15 in a setting where exclusion is experimentally induced will assist in clarifying findings from this study and provide evidence regarding the ability of the CDQ-15 to identify the deconstructed state in excluded participants. Not only will this be important for scale refinement purposes, but also in extending empirical support for the theory of cognitive deconstruction. Utilising the CDQ-15 in such research may assist in providing information regarding not only the presence of cognitive deconstruction but also the severity of the exclusionary experience necessary to induce the deconstructed state. Such utilization of the CDQ-15 in experimental settings would also allow future research to investigate the influence participants' prior belongingness status may have upon the individual differences in susceptibility to cognitive deconstruction.

**Cognitive deconstruction and belongingness needs.** Applying further research to investigate the relationship between strong, stable social bonds and its potential ability to act as a buffer for people who experience an exclusionary event is important. An intervention such as teaching appropriate coping techniques or the social skills needed to reinstate social connectedness may prevent cognitive deconstruction and the host of negative consequences that ensue when this defensive state is activated. Employing a longitudinal design that monitors fluctuating levels of deconstruction would assist in providing information regarding the impact that current available social support can have



on the deconstructed state, such as any changes in severity of the characteristics of deconstruction in relation to the changes in quantity or quality of social support. It would further allow for the measurement of the possible consequences of cognitive deconstruction over time, such as monitoring aversive risk taking behaviours that are more likely to occur when existing within this defensive state (see Buckley, Winkle, & Leary, 2004; Twenge et al., 2001; Twenge, Catanese, & Baumeister, 2002; Twenge, Catanese, & Baumeister, 2003). Some behaviours resulting from a reduction in meaningful thought may not only have the ability to isolate the person further, impair decision making skills, and reduce emotional awareness, but if prolonged and sustained may also perpetuate even more harmful behaviours. For example, the deconstructed state has been linked to suicide and acts of mass violence (Baumeister, 1990; Leary et al. 2003). Cognitive deconstruction is not considered the only precursor to such aversive events, however the characteristics of the deconstructive response such as the refusal of meaningful thought, a lack of emotion, irrational thinking, and increases in impulsivity may increase the likelihood of such acts occurring. Therefore future research exploring the influence that continued escape from the self and meaningful thought may have on a person and his or her vulnerability to psychopathology would be beneficial.

## **Conclusions**

It can be concluded from the four studies conducted in this thesis that the CDQ-15 appears to be a reliable and valid measure of cognitive deconstruction and can be utilized to identify some of the characteristics of the deconstructed state in people who have experienced social exclusion. The CDQ-15 demonstrated adequate factor structure and internal properties, specifically internal consistency, content validity, construct validity, preliminary convergent validity, known groups validity, and criterion-related validity. Furthermore, the CDQ-15 discriminated between participants who reported experiencing

socially exclusion and participants those who did not, with excluded, isolated, and lonely participants reporting greater cognitive vulnerability, close-mindedness, impaired time orientation, more changeability in behaviour, and in some studies a decrease in emotion.

This suggests socially excluded people experience a greater level of cognitive deconstruction compared to those people who experience sufficient levels of belongingness. Further exploration into the efficacy of the CDQ-15, particularly in an experimental setting, will be necessary in to ensure the scale is able to accurately identify the deconstructed state. Overall, these findings are consistent with and provide empirical support for the theory of cognitive deconstruction proposed by Baumeister (1990a).

### References

- Abraham, M. (2003). *Can a boost to belonging buffer the immediate painful effects of ostracism? More evidence for no moderation*. Unpublished honours thesis, Macquarie University, Sydney, Australia.
- Abrams, D., Marques, J., Bown, N., & Dougill, M. (2002). Anti-norm and pro-norm deviance in the bank and on the campus: Two experiments on subjective group dynamics. *Group Processes and Intergroup Relations*, 5, 163-182. doi: 10.1177/1368430202005002922
- Airew, A. (1996). Innateness and canalization. *Philosophy of Science*, 63, 19-27.
- Albright, J. J. & Hun, M. P. (2009). Confirmatory factor analysis using Amos, LISREL, Mplus, and SAS/STAT CALIS. *The Trustees of Indiana University*, 1, 1–85. Retrieved from <http://www.indiana.edu/~statmath/stat/all/cfa/cfa.pdf>
- Anderson, L. R. & Malikioti-Loizos, M. (1992). Reliability data for a Greek translation of the revised UCLA Loneliness Scale: Comparisons with data from the USA. *Psychological Reports*, 71, 665-666. doi: 10.2466/PR0.71.6.665
- Aragon, S. R., & Johnson, E. S. (2008). Factors influencing completion and noncompletion of community college online courses. *The American Journal of Distance Education*, 22, 146-158. doi: 10.1080/08923640802239962
- Arbuckle, J. L. (2007). *Amos 16.0 users guide*. Spring House, PA: Amos Development Corporation.
- Barden, R. C., Garber, J., Leiman, B., Ford, M. E., & Masters, J. C. (1985). Factors governing the effective remediation of negative affect and its cognitive and behavioral consequences. *Journal of Personality and Social Psychology*, 49, 1040–1053. doi: 10.1037/0022-3514.49.4.1040

- Barrick, M. R., Mount, M. K. & Strauss, J. P. (1993). Autonomy as a moderator of the relationships between the Big Five personality dimensions and job performance. *Journal of Applied Psychology, 78*, 111-118. Retrieved from [http://wehner.tamu.edu/mgmt.www/barrick/Pubs/1993\\_Barrick\\_Mount.pdf](http://wehner.tamu.edu/mgmt.www/barrick/Pubs/1993_Barrick_Mount.pdf)
- Bartlett, F. C. (1932). *Remembering: A study in experimental and social psychology*. Cambridge, England: Cambridge University Press.
- Bartlett, M. S. (1954). A note on the multiplying factors for various X approximations. *Journal of the Royal Statistics Society, B16*, 296–298.
- Battista, J., & Almond, R. (1973). The development of meaning in life. *Psychiatry, 36*, 409–427.
- Baumeister, R. F. (1990a). Anxiety and deconstruction: On escaping the self. In J. M. Olson, & M. P. Zanna (Eds.), *Self-inference processes: The Ontario symposium volume 6* (pp. 259-291). New Jersey: Lawrence Erlbaum Associates, Publishers.
- Baumeister, R. F. (1990b). Suicide as escape from self. *Psychological Review, 97*, 90–11. doi: 10.1037/0033-295X.97.1.90
- Baumeister, R. F. (1991). *Escaping the self: alcoholism, spirituality, masochism, and other flights from the burden of selfhood*. New York: Basic Books.
- Baumeister, R. F. (1997). Esteem threat, self-regulatory breakdown, and emotional distress as factors in self-defeating behavior. *Review of General Psychology, 1*, 145–174.
- Baumeister, R. F., & DeWall, C. N. (2005). Inner disruption following social exclusion: Reduced intelligent thought and self-regulation failure. In K. D. Williams, J. P. Forgas, & W. von Hippel (Eds.), *The social outcast: Ostracism, social exclusion, rejection, and bullying* (pp. 53-73). New York: Psychology Press.

- Baumeister, R. F., DeWall, C. N., Ciarocco, N. J., & Twenge, J. M. (2005). Social exclusion impairs self-regulation. *Journal of Personality and Social Psychology*, 88, 589 – 604. Retrieved from [http://www.adler.edu/UserFiles/File/Social\\_Exclusion\\_Impairs\\_Self-Regulation\\_081607.pdf](http://www.adler.edu/UserFiles/File/Social_Exclusion_Impairs_Self-Regulation_081607.pdf)
- Baumeister, R. F., DeWall, C. N., & Vohs, K. D. (2009). Social rejection, control, numbness, and emotion: How not to be fooled by Gerber and Wheeler (2009). *Perspectives on Psychological Science*, 4, 489-493. Retrieved from [http://www.psychologicalscience.org/journals/pps/4\\_5\\_pdfs/Baumeister\\_final.pdf](http://www.psychologicalscience.org/journals/pps/4_5_pdfs/Baumeister_final.pdf)
- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, 117, 497-529. Retrieved from [http://blog.lib.umn.edu/stei0301/sp\\_bbk/BandM%20Need%20to%20Belong.pdf](http://blog.lib.umn.edu/stei0301/sp_bbk/BandM%20Need%20to%20Belong.pdf)
- Baumeister, R. F., & Tice, D. M. (1990). Anxiety and social exclusion. *Journal of Social and Clinical Psychology*, 9, 165–195.
- Baumeister, R. F., Twenge, J. M., & Nuss, C. K. (2002). Effects of social exclusion on cognitive processes: Anticipated aloneness reduces intelligent thought. *Journal of Personality and Social Psychology*, 83, 817-827. doi: 10.1037//0022-3514.83.4.817
- Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin*, 107, 238–246.
- Bentler, P. M. (1992). On the fit of models to covariances. *Psychological Bulletin*, 88, 588-606.

- Bentler, P. M., & Bonett, D. G. (1980). Significance tests and goodness-of-fit in the analysis of covariance structures. *Psychological Bulletin*, 88, 588-600. doi: 10.1037/0033-2909.88.3.588
- Berger, P., & Luckman, T. (1966). *The social construction of reality*. Middlesex: Penguin Books Ltd.
- Billig, M. G., & Tajfel, H. (1973). Social categorization and similarity in intergroup behavior. *European Journal of Social Psychology*, 3, 27-52. doi: 10.1002/ejsp.2420030103
- Blackhart, G. C., Nelson, B. C., Knowles, M. L., & Baumeister, R. F. (2009). Rejection elicits emotional reaction but neither causes immediate distress nor lowers self-esteem: A meta-analytic review of 192 studies on social exclusion. *Personality and Social Psychology Review*, 13, 269-309. doi: 10.1177/1088868309346065
- Bloom, B. L., White, S. W., & Asher, S. J. (1979). Marital disruption as a stressful life event. In G. Levinger & O. C. Moles (Eds.), *Divorce and separation: Context, causes, and consequences* (pp. 184–200). New York: Basic Books.
- Bourgeois, K. S., & Leary, M. R. (2001). Coping with rejection: Derogating those who choose us last. *Motivation and Emotion*, 25, 101-111. doi: 10.1023/A:1010661825137
- Bowlby, J. (1958). The nature of the child's tie to his mother. *International Journal of Psychoanalysis*, XXXIX, 1-23.
- Bowlby, J. (1969). *Attachment and loss: Vol. 1. Attachment*. New York: Basic Books.
- Bowlby, J. (1973). *Attachment and loss: Vol. 2. Separation anxiety and anger*. New York: Basic Books.
- Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models* (pp. 136 –162).

Newbury Park, CA: Sage.

Buss, D. M. (1990). The evolution of anxiety and social exclusion. *Journal of Social and Clinical Psychology, 9*(2), 196-201.

Byrne, B. M. (2001). *Structural equation modeling with AMOS: Basic concepts, applications, and programming*. Mahway, NJ: Lawrence Erlbaum Associates.

Byrne, B. M. (2005). Factor analytic models: viewing the structure of an assessment instrument from three perspectives. *Journal of Personality Assessment 85*(1), 17–32. doi: 10.1207/s15327752jpa8501\_02

Buckley, K. E., Winkel, R. E., & Leary, M. R. (2004). Reactions to acceptance and rejection: Effects of level and sequence of relational evaluation. *Journal of Experimental Social Psychology, 40*, 14-28. doi: 10.1016/S0022-1031(03)00064-7

Cacioppo, J. T., Hawkley, L. C., Crawford, L. E., Ernst, J. M., Burleson, M. H., Kowalewski, R. B., Malarkey, W. B., Van Cauter, E., & Berntson, G. G. (2002). Loneliness and health: Potential mechanisms. *Psychosomatic Medicine, 64*, 407-417. Retrieved from <http://www.psychosomaticmedicine.org/cgi/reprint/64/3/407>

Cacioppo, J. T., Hawkley, L. C., & Berntson, G. G. (2003). The anatomy of loneliness. *Current Directions in Psychological Science, 12*, 71-74. doi: 10.1111/1467-8721.01232

Carter-Sowell, A. R., Chen, Z., & Williams, K. D. (2008). Ostracism increases social susceptibility. *Social Influence, 3*, 143-153

Case, R. B., Moss, A. J., Case, N., McDermott, M., & Eberly, S. (1992). Living alone after myocardial infarction: A prospective, population-based study of the elderly. *Journal of the American Medical Association, 267*, 515-519. Retrieved from <http://jama.ama-assn.org/cgi/reprint/267/4/515>

- Cattell, R. B. (1966). The scree test for the number of factors. *Multivariate Behavioral Research, 1*, 245-276. doi: 10.1207/s15327906mbr0102\_10
- Cattell, R. B. & Vogelman, S. A. (1977). A comprehensive trial of the scree and KG criteria for determining the number of factors. *Multivariate Behavioral Research, 12*, 289-325. doi: 10.1207/s15327906mbr1203\_2
- Chamberlain, K., & Zika, S. (1988). Measuring meaning in life: An examination of three scales. *Personality and Individual Differences, 9*, 589–596. doi: 10.1016/0191-8869(88)90157-2
- Chambliss, C., Austin, M., Brosh, G. I., Outten, R., Rowles, M. (2005). The relationship between substance use and scores on the Mini Markers Five Factors Personality scale in college and high school students. *Journal of Alcohol and Drug Education, 49*, 21-31.
- Constable, J. F. and Russell, D. W. (1986). The effect of social support and the work environment upon burnout among nurses. *Journal of Human Stress, 12(1)*, 20-26. doi: 10.1080/0097840X.1986.9936762
- Crawford, J. R., & Henry, J. D. (2004). The positive and negative affect schedule (PANAS): Construct validity, measurement properties and normative data in a large non-clinical sample. *British Journal of Clinical Psychology, 45*, 83-104. Retrieved from [http://www.abdn.ac.uk/~psy086/dept/pdfs/BJCP\\_2004\\_PANAS.pdf](http://www.abdn.ac.uk/~psy086/dept/pdfs/BJCP_2004_PANAS.pdf)
- Cronbach, L. J., & Meehl, P. E. (1955). Construct validity in psychological tests. *Psychological Bulletin, 52*, 281–302.
- Crook, K., Beaver, B. R., & Bell, M. (1998). Anxiety and depression in children: A preliminary examination of the utility of the PANAS-C. *Journal of Psychopathology and Behavioral Assessment, 20(4)*, 333-350. doi: 10.1023/A:1021967623139



- Cohen, J. (1992). A power primer. *Psychological Bulletin*, *112*(1), 155-159.
- Cohen, R. J., & Swerdlik, M. E. (2002). *Psychological testing and assessment: An introduction to tests and measurement* (5th ed.). New York: McGraw-Hill.
- Crowne, D. P., & Marlowe, D. (1960). A new scale of social desirability independent of psychopathology. *Journal of Consulting Psychology*, *24*(4), 349-354. doi: 10.1037/h0047358
- Curran, P. J., West, S. G., & Finch, G. F. (1996). The robustness of test statistics to nonnormality and specification error in confirmatory factor analysis. *Psychological Methods*, *1*, 16–29. Retrieved from [http://www.unc.edu/~curran/pdfs/Curran,West%26Finch\(1996\).pdf](http://www.unc.edu/~curran/pdfs/Curran,West%26Finch(1996).pdf)
- Debats, D. L., van der Lubbe, P. M., & Wezeman, F. R. A. (1993). On the psychometric properties of the Life Regard Index (LRI): A measure of meaning in life. *Personality and Individual Differences*, *14*, 337-345. doi: 10.1016/0191-8869(93)90132-M
- De Grâce, G. R., Joshi, P., & Pelletier, R. (1993). L'échelle de solitude de l'Université Laval (ÉSUL): Validation canadienne-française du UCLA Loneliness Scale. *Revue Canadienne des Sciences du Comportement*, *25*(1), 12-27.
- DeVellis, R. F. (2003). *Scale development: Theory and application* (2<sup>nd</sup> ed.). Thousand Oaks, CA: Sage Publications.
- Dickey, D. (1996). Testing the fit of our models of psychological dynamics using confirmatory methods: An introductory primer. In B. Thompson (Ed.), *Advances in social science methodology* (Vol. 4, pp. 219-227). Greenwich, CT: JAI.
- Doring, N., & Bortz, J. (1993). Psychometrische Einsamkeitsforschung. Deutsche Neukonstruktion der UCLA Loneliness Scale (Psychometric loneliness research: A new German version of the UCLA loneliness scale). *Diagnostica*, *39*, 224–239.

- Downey, G., & Feldman, S. I. (1996). Implication of rejection sensitivity for intimate relationships. *Journal of Personality and Social Psychology, 70*, 1327-1343.  
Retrieved from  
<http://www.ffri.uniri.hr/~ibrdar/komunikacija/seminari/Downey,%201996%20-%20Rejection%20Sensitivity%20for%20intimate%20relationsh.pdf>
- Dwight, S. A., Cummings, K. M., & Glenar, J. L. (1998). Comparison of criterion-related validity coefficients for the Mini-Markers and Goldberg's markers of the Big Five personality factors. *Journal of Personality Assessment, 70*(3), 541-550. doi: 10.1207/s15327752jpa7003\_11
- Dzuiban, S., & Shirkey, E. (1974). When is a correlation matrix suitable for factor analysis? *Psychological Bulletin, 81*, 358-361.
- Ebel, R. L. (1969). The relation of scale fineness to grade accuracy. *Journal of Educational Assessment, 6*(4), 217-221. doi: 10.1111/j.1745-3984.1969.tb00679.x
- Eisenberger, N. I., Lieberman, M. D., Williams, K., D. (2003). Does rejection hurt? An fMRI study of social exclusion. *Science, 302*, 290-292. doi: 10.1126/science.1089134
- Engelen, U., De Peuter, S., Victoir, A., Van Diest, I., & Van den Bergh, O. (2006). Verdere validering van de "Positive and Negative Affect Schedule" (PANAS): Twee nederlandstalige versies vergeleken. *Gedrag & Gezondheid, 34*, 89 –102.
- Erikson, E. H. (1964). *Insight and Responsibility*. New York: W. W. Norton.
- Erikson, E. H. (1968). *Identity: Youth and crisis*. New York: W. W. Norton.
- Field, A. P. (2005). *Discovering statistics using SPSS: (and sex, drugs, and rock 'n' roll)* (2<sup>nd</sup> Ed.). Thousand Oaks, California: Sage Publications Ltd.
- Frankl, V. E. (1963). *Man's search for meaning: An introduction to logotherapy*. New York: Washington Square Press.

- Freud, A. (1936). *The Ego and the Mechanisms of Defense*. New York: International Universities Press.
- Fry, E. (1977). Fry's readability graph: Clarifications, validity, and extension to level 17. *Journal of Reading, 21*, 242-252.
- Furnham, A. & Henderson, M. (1982). The good, the bad and the mad: Response bias in self-report measures. *Personality and Individual Differences, 3*, 311-320.  
doi:10.1016/0191-8869(82)90051-4
- Gagne, P. E., & Hancock, G. R. (2006). Measurement model quality, sample size, and solution propriety in confirmatory factor models. *Multivariate Behavioral Research, 41*, 65-83.
- Galinha, I. C., & Pais-Ribeiro, J. L. (2005). Contribuição para o estudo da versão portuguesa da *Positive and Negative Affect Schedule* (PANAS): I – Abordagem teórica ao conceito de afecto. *Análise Psicológica, 2*, 209-218. Retrieved from <http://www.scielo.oces.mctes.pt/pdf/aps/v23n2/v23n2a11.pdf>
- Gaudreau, P., Sanchez, X., & Blondin, J. P. (2006). Positive and Negative Affective States in a performance-related setting testing the factorial structure of the PANAS across two samples of French-Canadian participants. *European Journal of Psychological Assessment, 22*, 240-249. doi: 10.1027/1015-5759.22.4.240
- Gjesme, T. (1979). Future time orientation as a function of achievement motives, ability, delay of gratification, and sex. *Journal of Psychology, 101*, 173-188. doi: 10.1080/00223980.1979.9915069
- Goldberg, L. R. (1992). The development of markers for the Big-Five factor structure. *Psychological Assessment, 4*, 26-42. Retrieved from <http://www.psych.utoronto.ca/users/peterson/PSY2302007/Goldberg.pdf>

- Gonsalkorale, K., & Williams, K. D. (2007). The KKK won't let me play: Ostracism by a despised outgroup hurts. *European Journal of Social Psychology, 37*, 1176-1186. doi: 10.1002/ejsp.392
- Govern, J. M., & Marsch, L. A. (2001). Development and validation of the situational self-awareness scale. *Consciousness & Cognition, 10*, 366-378. doi: 10.1006/ccog.2001.0506
- Green, S. B., Akey, T. M., Fleming, K. K., Hershberger, S. L., & Marquis, J. G. (1997). Effect of the number of scale points on chi-square fit indices in confirmatory factor analysis. *Structural Equation Modeling, 4*, 108 –120. doi: 10.1080/10705519709540064
- Greenberg, J., Solomon, S., Pyszczynski, T., Rosenblatt, A., Burling, J., Lyon, D., Simon, L., & Pinel, E. (1992). Why do people need self-esteem? Converging evidence that self-esteem serves as an anxiety-buffering function. *Journal of Personality and Social Psychology, 63*, 913–922. doi: 10.1037/0022-3514.63.6.913
- Grice, J. W., & Iwasaki, M. (2007). A truly multivariate approach to MANOVA. *Applied Multivariate Research, 12*(3), 199-226. Retrieved from <http://www.phaenex.uwindsor.ca/ojs/leddy/index.php/AMR/article/viewFile/660/572>
- Guttman, L. (1954). A new approach to factor analysis: The radex. In P. F. Lazarsfeld (Ed.), *Mathematical thinking in the social sciences*, (pp. 258–349). Glencoe: Free Press.
- Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1995). *Multivariate data analysis with readings* (4th ed). New Jersey: Prentice-Hall International.
- Harlow, H. F. (1958). The nature of love. *American Psychologist, 13*, 673-685. Retrieved from

[http://psychclassics.yorku.ca/Harlow/love.htm?session=0JhSMuyOISMG0UXiTC  
TJCtKVtF](http://psychclassics.yorku.ca/Harlow/love.htm?session=0JhSMuyOISMG0UXiTC<br/>TJCtKVtF)

- Harlow, L. L., Newcombe, M. D., & Bentler, P. M. (1986). Depression, self-degradation, substance use, and suicidal ideation: Lack of purpose in life as a meditational factor. *Journal of Clinical Psychology, 42*(1), 5-21. doi: 10.1002/1097-4679(198601)42:1<5::AID-JCLP2270420102>3.0.CO;2-9
- Hawthorne, G. (2006). Measuring social isolation in older adults: Development and validation of the Friendship Scale. *Social Indicators Research, 77*(3), 521-548. doi: 10.1007/s11205-005-7746-y
- Hays, R. D., & DiMatteo, M. R. (1987). A short-form measure of loneliness. *Journal of Personality Research, 51*, 69-81. doi: 10.1207/s15327752jpa5101\_6
- Hinkin, T. R. (1995). A review of scale development in the study of behavior in organizations. *Journal of Management, 21*, 967-988.
- Hoerger, M. (2010). Participant dropout as a function of survey length in Internet-mediated university studies: Implications for study design and voluntary participation in psychological research. *Cyberpsychology, Behavior, and Social Networking, 0*, 0. doi: 10.1089/cyber.2009.0445
- Hogg, M. A., Fielding, K. S., & Darley, J. (2005). Fringe dwellers: Processes of deviance and marginalization in groups. In D. Abrams, M. A. Hogg, & J. M. Marques (Eds.), *The social psychology of inclusion and exclusion* (pp. 191–210). New York: Psychology Press.
- Hoyle, R. H., & Panter, A. T. (1995). Writing about structural equation models. In R. H. Hoyle (Ed.), *Structural equation modeling, concepts, issues, and applications* (pp. 158-176). Thousand Oaks, CA: Sage Publications.

- Hu, L., & Bentler, P. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, *6*(1), 1–55. doi: 10.1080/10705519909540118
- Hu, L., Bentler, P., & Kano, Y. (1992). Can test statistics in covariance structure analysis be trusted? *Psychological Bulletin*, *112*(2), 351–362. doi: 10.1037/0033-2909.112.2.351
- Idaszak, J., & Drasgow, F. (1987). A revision of the job diagnostic survey: Elimination of a measurement artefact. *Journal of Applied Psychology*, *72*, 69–74. doi: 10.1037/0021-9010.72.1.69
- Jackson, D. L., Gillespie, J. A., & Purc-Stephenson, R. (2009). Reporting practices in confirmatory factor analysis: An overview and some recommendations. *Psychological Methods*, *14*(1), 6–23. doi: 10.1037/a0014694
- Janda, L. H. (1996). *The psychologist's book of self-tests*. New York: Berkley Books.
- Joreskog, K. G. (1969). A general approach to confirmatory maximum likelihood factor analysis. *Psychometrika*, *34*, 183–202. doi: 10.1007/BF02289343
- Joreskog, K. G., & Sorbom, D. (1986). LISREL VI. Mooresville, IN: Scientific Software.
- Joreskog, K. G., & Sorbom, D. (1993). LISREL VIII users guide. Mooresville, IN: Scientific Software.
- Kaiser, H. F. (1970). A second generation little jiffy. *Psychometrika*, *35*(4), 401–415. doi: 10.1007/BF02291817
- Kline, R. B. (1998). *Principles and practices of structural equation modeling*. New York: Guilford.
- Krohne, H. W., Egloff, B., Kohlmann, C.-W., & Tausch, A. (1996). Untersuchungen mit einer deutschen Version der Positive And Negative Affect Schedule (PANAS). /

- Investigations with a German version of the Positive and Negative Affect Schedule (PANAS). *Diagnostica*, 42, 139-156. Retrieved from <http://doi.apa.org/?uid=1996-05083-003>
- Krosnick, J. A. (1999). Survey research. *Annual Review of Psychology*, 50, 537-567.
- Kuhlen, R. G., & Monge, R. H. (1968). Correlates of estimated rate of time passage in the adult years. *Journal of Gerontology*, 23, 427-433.
- Lakin, J. L., & Chartrand, T. L. (2005). Exclusion and nonconscious behavioral mimicry. In K. D. Williams, J. P. Forgas & W. von Hippel (Eds.), *The social outcast: Ostracism, social exclusion, rejection, and bullying* (pp. 279-296). New York: Psychology Press.
- Lasgaard, M. (2007). Reliability and validity of the Danish version of the UCLA Loneliness Scale. *Personality and Individual Differences*, 42, 1359-1366. doi: 10.1016/j.paid.2006.10.013
- Lawley, D. N., & Maxwell, A. E. (1963). *Factor analysis as a statistical method*. London: Butterworth.
- Leary, M. R. (1990). Responses to social exclusion: Social anxiety, jealousy, loneliness, depression, and low self-esteem. *Journal of Social and Clinical Psychology*, 9, 221-229.
- Leary, M. R. (2005). Varieties of interpersonal rejection. In K. D. Williams, J. P. Forgas, & B. von Hippel (Eds.), *The social outcast: Ostracism, social exclusion, rejection, and bullying* (pp. 213-247). New York: Cambridge University Press.
- Leary, M. R., Kowalski, R. M., Smith, L., Phillips, S. (2003). Teasing, rejection, and violence: Case studies of the school shootings. *Aggressive Behavior*, 29, 202-214.

- Levine, J. M., & Moreland, R. L. (1994). Group socialization: Theory and research. In W. Stroebe & M. Hewstone (Eds.), *European review of social psychology* (Vol. 5, pp. 305-336). Chichester, UK: Wiley.
- Leary, M. R., Tambor, E. S., Terdal, S. K., & Downs, D. L. (1995). Self-esteem as an interpersonal monitor: The sociometer hypothesis. *Journal of Personality and Social Psychology*, 68, 518-530. Retrieved from [http://www.lrsi.uqam.ca/documents/PSY9520/05%20%20l'estime%20de%20soi%20%20%20ses%20fonctions,%20cons%20E9quences,%20et%20processus%20alternatifs/LEARY\\_~1.PDF](http://www.lrsi.uqam.ca/documents/PSY9520/05%20%20l'estime%20de%20soi%20%20%20ses%20fonctions,%20cons%20E9quences,%20et%20processus%20alternatifs/LEARY_~1.PDF)
- Likert, R. (1932). *A Technique for the measurement of attitudes*. New York: Archives of Psychology.
- Lissitz, R. W., & Green, S. B. (1975). Effect of the number of scale points on reliability: A Monte Carlo approach. *Journal of Applied Psychology*, 60, 10-13. doi: 10.1037/h0076268
- Lofland, L. H. (1982). Loss and human connection: An exploration into the nature of the social bond. In W. Ickes & E. S. Knowles (Eds.), *Personality, roles, and social behavior* (pp. 219-242). New York: Springer-Verlag.
- MacDonald, G., Kingsbury, R., & Shaw, S. (2005). Adding insult to injury: Social pain theory and response to social exclusion. In K. D. Williams, J. P. Forgas, & W. von Hippel (Eds.), *The social outcast: Ostracism, social exclusion, rejection, & bullying* (pp. 77-90). New York: Psychology Press.
- Mahon, N. E., & Yarcheski, A. (1990). The dimensionality of the UCLA Loneliness Scale in early adolescents. *Research in Nursing & Health*, 13, 45-52. doi: 0.1002/nur.4770130108



- Mahon, N. E., Yarcheski, A., & Yarcheski, T. J. (1995). Validation of the Revised UCLA Loneliness Scale for adolescents. *Research in Nursing & Health, 18*, 263-270.  
doi: 10.1002/nur.4770180309
- Marques, J. M., Abrams, D., & Serodio, R. G. (2001). Being better by being right: Subjective group dynamics and derogation of in- group deviants when generic norms are undermined. *Journal of Personality and Social Psychology, 81*, 436–447. doi: 10.1037//0022-3514.81.3.436
- Marques, J. M., Paez, D., & Abrams, D. (1998). Social identity and intragroup differentiation as subjective social control. In S. Worchel, J. F. Morales, D. Paez, & J. C. Deschamps (Eds.), *Social identity: International perspectives* (pp. 124–141). New York: Sage.
- Maslow, A. H. (1954). *Motivation and personality*. New York: Harper & Row.
- Maslow, A. H. (1968). *Motivation and personality*. New York: Harper & Row.
- Masson, J. M. (1985). *The complete letters of Sigmund Freud & Wilhelm Fliess, 1887–1904*. Cambridge, UK: Belknap Press.
- McCulloch, T. L., & Haslerud, G. M. (1921). Affective responses of an infant chimpanzee reared in isolation from its kind. *Journal of Comparative Psychology, 28*(3), 437-445. doi: 10.1037/h0061175
- Metee, D. R., Taylor, S. E., & Fisher, S. (1971). The effect of being shunned upon the desire to affiliate. *Psychonomic Science, 23*, 429-431.
- Mooradian, T. A., & Nezlek, J. B. (1996). Comparing the NEO-FFI and Saucier's Mini-Markers as measures of the Big Five. *Personality and Individual Differences, 21*, 213-215. doi: 10.1016/0191-8869(96)00057-8

- Morris, L. V., Finnegan, C., & Wu, S. (2005). Tracking student behavior, persistence, and achievement in online courses. *The Internet and Higher Education*, 8, 221-231. doi: 10.1016/j.iheduc.2005.06.009
- Netemeyer, R. G., W. O. Bearden and S. Sharma (2003). *Scaling Procedures: Issues and Applications*. London: Sage Publications.
- Nunnally, J. C. (1978). *Psychometric theory* (2nd ed.). New York: McGraw-Hill.
- Nunnally, J. C. & Bernstein, I. H. (1994). *Psychometric theory*. (3<sup>rd</sup> ed.). McGraw-Hill, New York.
- Olsson, U. H., Troye, S. V., & Howell, R. D. (1999). Theoretic fit and empirical fit: The performance of maximum likelihood versus generalized least squares in structural equation models. *Multivariate Behavioral Research*, 34, 31–59.
- Ostir, G. V., Smith, P. M., Smith, D., & Ottenbacher, K. J. (2005). Reliability of the positive and negative affect schedule (PANAS) in medical rehabilitation. *Clinical Rehabilitation*, 19(7), 767-769. doi: 10.1191/0269215505cr894oa
- Palmer, J. K., & Loveland, J. M. (2004). Further investigation of the psychometric properties of Saucier's Big Five Mini-Markers: Evidence for criterion and construct validity. *Individual Differences Research*, 2, 231-238. Retrieved from <http://web.ebscohost.com.ezproxy1.acu.edu.au/ehost/pdfviewer/pdfviewer?vid=2&hid=109&sid=66438b8e-eabe-493c-a52e-15985c07c138%40sessionmgr112>
- Panksepp, J. (2003). At the interface of the affective, behavioral, and cognitive neurosciences: Decoding the emotional feelings of the brain. *Brain and Cognition*. 52(1), 4–14. doi: 10.1016/S0278-2626(03)00003-4
- Patterson, B., & McFadden, C. (2009). Attrition in online and campus degree programs. *Online Journal of Distance Learning*, 12. Retrieved from <http://www.westga.edu/~distance/ojdl/summer122/patterson112.html>

- Peplau, L. A., & Perlman, D. (1982). *Loneliness: A sourcebook of current theory, research and therapy*. New York: Wiley-Interscience.
- Piaget, J. (1959). *Judgment and reasoning in the child*. Paterson: Littlefield, Adams, & Co.
- Pines, M., & Aronson, E. (1983). Antecedents, correlates, and consequences of sexual jealousy. *Journal of Personality, 51*, 108-135. doi: 10.1111/j.1467-6494.1983.tb00857.x
- Pretorius, T. B. (1993). The metric equivalence of the UCLA Loneliness Scale for a sample of South African Students. *Educational and Psychological Measurement, 53*, 233-239. doi: 10.1177/0013164493053001026
- Reiss, I. L. (1986). A sociological journey into sexuality. *Journal of Marriage and the Family, 48*, 233-242. Retrieved from <http://www.jstor.org.ezproxy1.acu.edu.au/stable/352390?origin=crossref&>
- Roberts, B. W., Chernyshenko, O. S., Stark, S., & Goldberg, L. R. (2005). The structure of conscientiousness: An empirical investigation based on seven major personality questionnaires. *Personnel Psychology, 58*, 103-139. doi: 10.1111/j.1744-6570.2005.00301.x
- Robles, R., & Paez, F. (2003). Estudio sobre la traducción al español y las propiedades psicométricas de las escalas de afecto positivo y negativo (PANAS). *SaludMental, 26*, 69-75. Retrieved from <http://www.medigraphic.com/pdfs/salmen/sam-2003/sam031h.pdf>
- Rosenberg, M. (1979). *Conceiving the Self*. Malabar, FL: Robert E. Krieger.
- Russell, D. W. (1996). The UCLA Loneliness Scale (version 3): Reliability, validity and factorial structure. *Journal of Personality Assessment, 66*, 20-40. Retrieved from

<http://web.ebscohost.com.ezproxy2.acu.edu.au/ehost/pdfviewer/pdfviewer?vid=2&hid=113&sid=331ac5dc-8974-441a-a538-dae13d17850c%40sessionmgr111>

Russell, D. W., Altmaier, E., & Van Velzen, D. (1987). Job related stress, social support, and burnout among classroom teachers. *Journal of Applied Psychology, 72*, 269-274.

Russell, D. W., & Cutrona, C. E. (1991). Social support, stress, and depressive symptoms among the elderly: Test of a process model. *Psychology and Aging, 6*, 190-201. doi: 10.1037/0882-7974.6.2.190

Russell, D. W., Peplau, L. A., & Cutrona, C. E. (1980). The revised UCLA Loneliness Scale: Concurrent and discriminant validity evidence. *Journal of Personality and Social Psychology, 39*, 472-480. Retrieved from [http://www.peplaulab.ucla.edu/Publications\\_files/Russel%20Peplau%20%26%20Cutrona%2080.pdf](http://www.peplaulab.ucla.edu/Publications_files/Russel%20Peplau%20%26%20Cutrona%2080.pdf)

Russell, D. W., Peplau, L. A., & Ferguson, M. L. (1978). Developing a measure of loneliness. *Journal of Personality Assessment, 42*, 290-294. doi: 10.1207/s15327752jpa4203\_11

Ryff, C. D., & Singer, B. (1998). The contours of positive human health. *Psychological Inquiry, 9*, 1-28. doi: 10.1207/s15327965pli0901\_1

Saucier, G. (1994). Mini-Markers: A brief version of Goldberg's unipolar Big-Five markers. *Journal of Personality Assessment, 63*, 506-516. Retrieved from <http://web.ebscohost.com.ezproxy1.acu.edu.au/ehost/pdfviewer/pdfviewer?vid=2&hid=109&sid=db6a67d8-270a-4af4-9a52-64bb53171956%40sessionmgr110>

Reiss, I. L. (1986). A sociological journey into sexuality. *Journal of Marriage and the Family, 48*, 233-242. Retrieved from <http://www.jstor.org.ezproxy1.acu.edu.au/stable/352390?origin=crossref>

- Schachter, S. (1959). *The psychology of affiliation*. Stanford, CA: Stanford University Press.
- Schriesheim, C. A., Powers, K. J., Scandura, T. A., Gardiner, C. C. & Lankau, M. J. (1993). Improving construct measurement in management research: Comments and a quantitative approach for assessing the theoretical content adequacy of paper-and-pencil survey-type instruments. *Journal of Management*, *19*, 385-417. doi: 10.1016/0149-2063(93)90058-U
- Shaver, P. R., & Brennan, K. A. (1991). Measures of depression and loneliness. In J. P. Robinson, P. R. Shaver, & L. S. Wrightsman (Eds.), *Measures of personality and social psychological attitudes* (Vol. 1, pp. 195-281). London: Elsevier.
- Smart R. L., & Leary, M. R. (2009). Reactions to discrimination, stigmatization, ostracism, and other forms of interpersonal rejection: A multimotive model. *Psychological Review*, *116*, 365-383. doi: 10.1037/a0015250
- Smith, A., & Williams, K. D. (2004). R U there? Ostracism by cell phone text messages. *Group Dynamics: Theory, Research, and Practice*, *8*, 291-301. doi: 10.1037/1089-2699.8.4.291
- Snapp, C. M., Leary, M. R. (2001). Hurt feelings among new acquaintances: Moderating effects of interpersonal familiarity. *Journal of Personal and Social Relationships*, *18*, 315–326. doi: 10.1177/0265407501183001
- Snook, S. C., & Gorsuch, R. L. (1989). Component analysis versus common factor-analysis: A Monte- Carlo study. *Psychological Bulletin*, *106*, 148-154.
- Sommer, K. L., Williams, K. D., Ciarocco, N. J., & Baumeister, R. F. (2001). When silence speaks louder than words: Explorations into the intrapsychic and interpersonal consequences of social ostracism. *Basic and Applied Social Psychology*, *23*, 227–245. doi: 10.1207/S15324834BASP2304\_1

- Spector, P. E. (1992). *Summated rating scales construction: An introduction*. Newbury Park, CA: Sage Publications.
- Steger, M. F., Frazier, P., Oishi, S., & Kaler, M. (2006). The Meaning in Life Questionnaire: Assessing the presence of and search for meaning in life. *Journal of Counseling Psychology, 53*, 80–93. doi: 10.1037/0022-0167.53.1.80
- Steger, M. F., Kashdan, T. B., & Oishi, S. (2008). Being good by doing good: Daily eudaimonic activity and well-being. *Journal of Research in Personality, 42*, 22-42. doi: 10.1016/j.jrp.2007.03.004
- Steiger, J. H., & Lind, J. C. (1980). Statistically-based tests for the number of common factors. Paper presented at the annual Spring meeting of the Psychometric Society, Iowa City, IA.
- Stevens, J. (1996). Exploratory and confirmatory factor analysis. In J. Stevens (Ed.), *Applied multivariate statistics for the social sciences* (pp. 362 – 427). Mahwah, NJ: Erlbaum.
- Stillman, T. F., Baumeister, R. F., Lambert, N. M., Crescioni, A. W., DeWall, N. C., & Fincham, F. D. (2009). Alone and without purpose: Life loses meaning following social exclusion. *Journal of Experimental Social Psychology, 45*, 686-694. doi: 10.1016/j.jesp.2009.03.007
- Sugawara, H. M., & MacCallum, R. C. (1993). Effect of estimation method on incremental fit indexes for covariance structure models. *Applied Psychological Measurement, 17*, 365–377.
- Tabachnik, B. G., & Fidell, L. S. (2001). *Using multivariate statistics* (5<sup>th</sup> ed.). Boston: Pearson Education Inc.

- Tjafel, H., & Turner, J. (1979). An integrative theory of intergroup conflict. In W. Austin & S. Worshel, *The social psychology of intergroup relations* (pp. 33-48).  
Monterey, CA: Brooks/Cole.
- Tucker, L. R., & Lewis, C. (1973). A reliability coefficient for maximum likelihood factor analysis. *Psychometrika*, 38, 1–10. doi: 10.1007/BF02291170
- Twenge, J. M., Baumeister, R. F., Tice, D. M., & Stucke, T. S. (2001). If you can't join them, beat them: The effects of social exclusion on aggressive behavior. *Journal of Personality and Social Psychology*, 81, 1058-1069. doi: 10.1037/0022-3514.81.6.1058
- Twenge, J. M., Baumeister, R. F., DeWall, C. N., Ciarocco, N. J., & Bartels, J. M. (2007). Social exclusion decreases prosocial behavior. *Journal of Personality and Social Psychology*, 92; 56–66. doi: 10.1037/0022-3514.92.1.56
- Twenge, J. M., Catanese, K. R., & Baumeister, R. F. (2002). Social exclusion causes self-defeating behavior. *Journal of Personality and Social Psychology*, 83, 606-615.  
doi: 10.1037/0022-3514.83.3.606
- Twenge, J.M., Catanese, K.R., & Baumeister, R.F. (2003). Social exclusion and the deconstructed state: Time perception, meaninglessness, lethargy, lack of emotion, and self-awareness. *Journal of Personality and Social Psychology*, 85, 409-423.  
doi: 10.1037/0022-3514.85.3.409
- Uchino, B. N., Cacioppo, J. T., & Kiecolt-Glaser, J. K. (1996). The relationship between social support and physiological processes: A review with emphasis on underlying mechanisms and implications for health. *Psychological Bulletin*, 119, 488-531.  
Retrieved from  
<http://www.psych.utah.edu/people/people/uchino/Publications/1996%20Uchino%20PB.pdf>

- Vaillant, G. E. (1971). Theoretical hierarchy of adaptive ego mechanisms. *Archives of General Psychiatry*, *24*, 107-118.
- Vallacher, R. R., & Wegner, D. M. (1985). *A theory of action identification*. Hillsdale, NJ: Erlbaum.
- Vallacher, R. R., & Wegner, D. M. (1987). What do people think they're doing? Action identification and human behavior. *Psychological Review*, *94*, 3-15. Retrieved from [http://wexler.free.fr/library/files/vallacher%20\(1987\)%20what%20do%20people%20think%20they're%20doing.%20action%20identification%20and%20human%20behavior.pdf](http://wexler.free.fr/library/files/vallacher%20(1987)%20what%20do%20people%20think%20they're%20doing.%20action%20identification%20and%20human%20behavior.pdf)
- Vallacher, R. R., & Wegner, D. M. (1989). Levels of personal agency: Individual variation in action identification. *Journal of Personality and Social Psychology*, *57*, 660-71. Retrieved from <http://www.wjh.harvard.edu/~wegner/pdfs/Vallacher&Wegner1989.pdf>
- Van Beest, I., & Williams, K. D. (2006). When inclusion costs and ostracism pays, ostracism still hurts. *Journal of Personality and Social Psychology*, *91*, 918-928.
- VandenBos, G. R. (2007). *APA Dictionary of Psychology*. Washington, DC: American Psychological Association.
- Watson, D., Clark, L. A., & Tellegen, A. (1998). Development and validation of a brief measure of Positive and Negative Affect: The PANAS scales. *Journal of Personality and Social Psychology*, *54*, 1063-1070. Retrieved from <http://www.tamu.edu/classes/psyc/payne/ID/ID%20articles/Watson%20et%20al.%201988.pdf>



- Webb, W. M., Marsh, K. L., Schneiderman, W., & Davis, B. (1989). Interaction between self-monitoring and manipulated states of self-awareness. *Journal of Personality and Social Psychology*, *56*, 70-80. doi: 10.1037/0022-3514.56.1.70
- Wegner, D. M., Vallacher, R. R., Kiersted, G., & Dizadjii, D. (1986). Action identification in the emergence of social behavior. *Social Cognition*, *4*, 18-38.
- Wegner, D. M., Vallacher, R. R., Macomber, G., Wood, R., & Arps, K. (1984). The emergence of action. *Journal of Personality and Social Psychology*, *46*, 269–279.
- Weiss, R. S. (1979). The emotional impact of marital separation. In G. Levinger & O. C. Moles (Eds.), *Divorce and separation: Context, causes, and consequences* (pp. 201-210). New York: Basic Books.
- Weng, L. J. (2004). Impact of the number of response categories on coefficient alpha and test-retest reliability. *Educational and Psychological Measurement*, *64*(6), 956–972. Retrieved from <http://ntur.lib.ntu.edu.tw/bitstream/246246/172729/1/10.pdf>
- Williams, K. D. (1997). Social ostracism. In R. M. Kowalski (Ed.), *Aversive interpersonal Behaviors* (pp. 133-170). New York: Plenum Press.
- Williams, K. D. (2001). *Ostracism: The power of silence*. New York: Guilford Press.
- Williams, K. D., Cheung, C., & Choi, W. (2000). Cyberostracism: Effects of being ignored over the Internet. *Journal of Personality and Social Psychology*, *79*, 748-762. doi: 10.1037//0022-3514.79.5.748
- Williams, K. D., Forgas, J. P., von Hippel, W., & Zadro, L. (2005). The social outcast: An overview. In K. D. Williams, J. P. Forgas, & H. von Hippel (Eds.), *The Social Outcast: Ostracism, Social Exclusion, Rejection, and Bullying* (pp. 1-15). New York: Psychology Press.

- Williams, K. D., Shore, W. J., & Grahe, J. E. (1998). The silent treatment: Perception of its behaviours and associated feelings. *Group Processes and Intergroup Relations, 1*, 117-141. doi: 10.1177/1368430298012002
- Williams, K. D., & Sommer, K. L. (1997). Social ostracism by one's coworkers: Does rejection lead to loafing or compensation? *Personality and Social Psychology Bulletin, 23*, 693-706. doi: 10.1177/0146167297237003
- Williams, K. D., & Zadro, L. (2001). Ostracism: On being ignored, excluded, and rejected. In M. R. Leary (Ed.), *Interpersonal rejection* (pp. 21–53). London: Oxford University Press.
- Williams, K. D., & Zadro, L. (2005). Ostracism: The indiscriminate early detection system. In K. D. Williams, J. P. Forgas, & W. von Hippel (Eds.), *The social outcast: Ostracism, social exclusion, rejection, and bullying* (pp. 19-34). New York: The Psychology Press.
- Windaman, K. F. (1993). Common factor analysis versus principal component analysis: Differential bias in representing model parameters? *Multivariate Behavioral Research 28*(3), 263-311. doi: 10.1207/s15327906mbr2803\_1
- Wu, C., & Yao, G. (2008). Psychometric analysis of the short-form UCLA Loneliness Scale (ULS-8) in Taiwanese undergraduate students. *Personality and Individual Differences, 44*, 1762-1771. doi: 10.1016/j.paid.2008.02.003
- Yalom, I. D. (1980). *Existential psychotherapy*. New York: Basic Books.
- Zadro, L., Williams, K. D., & Richardson, R. (2003, April). *Ostracism in the real-world: Interviews with long-term targets and sources of ostracism*. Paper presented at the Society for Australasian Social Psychology, Sydney, Australia.
- Zadro, L., Williams, K. D., & Richardson, R. (2004). How low can you go? Ostracism by a computer is sufficient to lower mood and self-reported levels of belonging, control,

self-esteem, and meaningful existence. *Journal of Experimental Social Psychology*, 40, 560–567. doi: 10.1016/j.jesp.2003.11.006

Zingg, R. M. (1940). Feral man and extreme cases of isolation. *The American Journal of Psychology*, LIII, 487-517.

Zwick, W. R., & Velicer, W. F. (1986). Comparison of five rules for determining the number of components to retain. *Psychological Bulletin*, 99, 432-442. doi: 10.1037/0033-2909.99.3.432

## **Appendices**

### *Appendix A*

#### Statements Depicting the Eight Theoretical Characteristics of Cognitive Deconstruction

##### **1) Cognitive Immediacy:**

- Limited focus to events, goals, and projects that occur in the short-term immediate present.
- A here and now focus.
- Past experiences and future goals withdraw from the individual's current awareness.
- Disordered time perception with an immersion in the present rather than the past or future.
- Subjective sense of the passage of time alters (time passes slowly) due to short-term focus.

##### **2) Procedure orientation:**

- Focus is primarily on means, including techniques and procedures, rather than ends, such as moral evaluations and evaluations of performance standards.
- Fascination with procedural detail while broader meanings may require meaningful thought that is avoided.
- Means are more proximal than ends.
- Focusing on ends is avoided as this encompasses thinking pertaining to broader endeavours.
- Lack of meaningful future thought.

##### **3) Passivity and Impulsivity**

- Avoidance of meaningful thought and action.
- Not actively taking initiative.

- Avoidance of planning, deciding, accepting responsibility, and evaluating possible outcomes (consequences and implications).
- Noncommittal and/or unstable commitment and unarticulated intention.
- Lethargy in executive functions.
- An increase in impulsivity and aimless activity.
- Action would fail to express commitment, specific intent, future orientation, and connection to the individual's internal standards such as values, morals, attitudes, and beliefs.
- Lack of long -term goals.

#### **4) Close-Mindedness:**

- Thinking may follow narrow, rigid, uncreative, linear, and stereotyped patterns due to the rejection of meaningful thought.
- Preference for concrete and specific thinking.
- Avoidance of creative and divergent thinking.
- Learning and solving problems is challenging especially problems that are ambiguous or open ended.
- Avoidance of interpreting new ideas.
- Difficulty integrating new ideas into a belief system because the individual will have to rethink their assumptions regarding the self and the world.
- Avoidance of tasks that require cognitive flexibility and seeking insight.

#### **5) Inconsistencies:**

- Inability to compare two aspects of behaviour or behaviours that occur at different times.
- Avoidance of meaningful elaboration of all actions and focuses on the immediate present.

- Tendency not to reflect on how present actions and their implications may contradict broad principals or the implications of past actions.
- Prone to, but unaware of behavioural inconsistencies and contradictions.
- Decreased cognitive elaboration.
- An increase in inconsistent behaviour due to the inability to detect and regulate inconsistencies in behaviour.
- Avoidance of new experiences.

#### **6) Disinhibition:**

- Decreased ability to detect behaviours that violate internal standards.
- Decreased ability to compare possible behaviours against internalized standards such as norms, rules, restrictions, and moral principles, thus willing to engage in acts which are counter to internal values and believes.
- Less likely to weigh actions against rules, regulations, and principals of conduct (abstract standard).

#### **7) Emotion:**

- By not thinking in terms of abstract standards, ones' goals, projects and cultural guidelines, the basis for emotional response is undermined.
- Substantial reduction in the degree of emotional response.
- Lack/absence of emotion, particularly negative emotion.
- Implicitly avoiding emotion-arousing stimuli.
- Focusing of the mind on trivial, immediate, and meaningless issues.

**8) Cognitive Vulnerability:**

- Receptive to elaborating new meanings that offer benign, pleasant, and controllable implications.
- Increases in vulnerability to irrational thought patterns, fantasy and flight of the imagination, and to external influences.

*Appendix B*

## Items Generated and Included in the Item Pool for the Characteristics of Cognitive Deconstruction

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**Item stems in construct groupings**

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**Cognitive Immediacy**

- 1 My focus of attention is on the immediate present.
  - 2 I do not limit my focus to the immediate present.
  - 3 I center my awareness in the here and now.
  - 4 I place my attention on what occurs right now.
  - 5 My awareness extends past what happens right now.
  - 6 I feel that I restrict my attention to what happens in the short term.
  - 7 I focus my attention on what will happen in the long term.
  - 8 I prefer to only focus on the here and now.
  - 9 I prefer to not only focus on the here and now.
  - 10 I am not placing attention on future goals.
  - 11 I am placing attention on goals I hope to achieve in the future.
  - 12 I am thinking about events from my past.
  - 13 I am not thinking about events from my past.
  - 14 I am comfortable thinking about the past.
  - 15 Time appears to pass slowly.
  - 16 Time appears to pass quickly.
  - 17 Each day seems to last a long time.
  - 18 Each day seems to pass quickly.
  - 19 I feel as though my days drag by.
  - 20 I feel as though my days race by.
-



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**Procedure Orientation**

- 21 I do not think about the long-term implications of my behaviour.
- 22 I think about the long-term consequences of my behaviour.
- 23 I don't think about whether my actions are right or wrong.
- 24 I evaluate my actions according to personal moral standards.
- 25 I do not think about if I am behaving ethically.
- 26 It is important to me that I behave ethically.
- 27 I get carried away with doing things.
- 28 I don't think about outcomes when I'm involved in the action.
- 29 I am interested in the details of how things are done.
- 30 I am not interested in the details of how things are done.
- 31 I avoid focusing my attention on the broader meaning of my actions.
- 32 I focus my attention on the broader meaning of my actions.
- 33 I feel threatened when I think about the wider implications of my behaviour.
- 34 I feel calm when I think about the wider implications of my behaviour.
- 35 When I pay attention to the broader meanings of my actions I feel overwhelmed.
- 36 I do not feel overwhelmed when I pay attention to the broader meanings of my actions.
- 37 I find thinking about future endeavours unappealing.
- 38 I find thinking about future endeavours appealing.
- 39 The future implications of my actions are frightening.
- 40 I am not frightened by the future implications of my actions.

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**Passivity and Impulsivity**

- 41 I find it difficult to get going.
  - 42 It is easy for me to get going.
  - 43 It is difficult for me to make decisions.
-

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**Passivity and Impulsivity (*continued*)**

- 44 I do not find it difficult to make decisions.
- 45 I find it hard to accept responsibilities.
- 46 I willingly accept responsibilities.
- 47 I find it difficult to commit myself to things.
- 48 I can commit myself easily to things.
- 49 I would describe myself as indifferent.
- 50 I would describe myself as enthusiastic.
- 51 I fail to think things through.
- 52 I think things through.
- 53 I find I often engage in meaningless activity.
- 54 I find that I do not often engage in meaningless activity.
- 55 I act without any specific intentions.
- 56 I act with intent.
- 57 My behaviour could be described as hasty and rash.
- 58 My behaviour could be described as purposeful and deliberate.
- 59 I make decisions spontaneously.
- 60 I spend time making decisions.

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**Close-Mindedness**

- 61 My thinking is uncreative.
- 62 The way I think is creative.
- 63 I avoid interpreting new ideas and concepts.
- 64 I embrace interpreting new ideas and concepts.
- 65 I dislike problem solving.
- 66 I enjoy problem solving.
-

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**Close-Mindedness (*continued*)**

- 67 I find it difficult to incorporate new ideas into my thinking and beliefs.
- 68 I do not find it difficult to incorporate new ideas into my thinking and beliefs.
- 69 I would avoid integrating new ideas into my belief system at this moment.
- 70 I would welcome integrating new ideas into my belief system at this moment.
- 71 I avoid playing with new ideas.
- 72 I embrace playing with new ideas.
- 73 I avoid thinking up alternative solutions to a problem.
- 74 I enjoy thinking up alternative solutions to a problem.
- 75 I avoid the challenge of problem solving.
- 76 I enjoy the challenge of problem solving.
- 77 I cannot think outside the square.
- 78 I can think outside the square.
- 79 I like to be told what to do on a task.
- 80 I like to figure out a task without being told how.

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**Inconsistencies**

- 81 The way I act is always changing.
- 82 My behaviour is constant.
- 83 I tend to act inconsistently.
- 84 I tend to act consistently.
- 85 I do not compare my behaviour in the here and now to my behaviour in the past.
- 86 I compare my behaviour now to the way I have behaved in the past.
- 87 I act randomly across time.
- 88 I act in the same way across time.
- 89 I don't behave the same today as I have in the past.
-

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**Inconsistencies** (*continued*)

- 90 I behave the same today as I have in the past.
- 91 My present actions contradict with the way I have acted in the past.
- 92 My present actions correspond with the way I have acted in the past.
- 93 I find it difficult to behave consistently across time.
- 94 I have no trouble behaving consistently across time.
- 95 My present behaviour often defeats the purpose of past behaviour.
- 96 My present behaviour compliments my past behaviour.
- 97 I say one thing and do another.
- 98 I do what I say.
- 99 I don't pay attention to how I behave.
- 100 I pay attention to how I behave.

---

**Disinhibition**

- 101 My behaviour doesn't match with my moral principles.
- 102 My behaviour matches with my moral principles.
- 103 I don't compare my actions to my personal standards.
- 104 I compare and match my actions to my personal standards.
- 105 I don't notice when my behaviour violates my personal standards.
- 106 I quickly notice when my behaviour violates my personal standards.
- 107 I find myself behaving in a way that does not align with my values and beliefs.
- 108 My behaviour aligns with my values and beliefs.
- 109 I act outside my personal rules and restrictions.
- 110 I act within my personal rules and restrictions.
- 111 I ignore my personal moral principles.
- 112 I do not ignore my personal moral principles.
-

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**Disinhibition** (*continued*)

- 113 Although I am unaware of it at the time I engage in acts that violate my personal standards.
- 114 I do not encounter times when I act in a way that violates my personal standards.
- 115 My actions fail to reflect what I believe is right.
- 116 My actions reflect what I believe is right.
- 117 I break the rules.
- 118 I do not break the rules.
- 119 I don't think about my values before I act.
- 120 I think about my values before I act.

---

**Emotion**

- 121 I am not in tune with my feelings.
- 122 I am in tune with my feelings.
- 123 I currently do not feel emotion.
- 124 I currently am experiencing emotion.
- 125 I avoid emotion-arousing situations.
- 126 I do not avoid emotion-arousing situations.
- 127 I wish to escape emotive situations.
- 128 I have no need to escape emotive situations.
- 129 I center my attention on meaningless issues.
- 130 I center my attention on important issues.
- 131 I am feeling less emotional than normal.
- 132 I am feeling more emotional than normal.
- 133 I currently feel nothing.
- 134 I currently feel emotion.
- 135 I am not experiencing emotional distress.
-

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**Emotion (*continued*)**

136 I am currently experiencing emotional distress.

137 I am comfortable focusing on unimportant issues.

138 I avoid focusing on trivial concerns.

139 I feel less emotion than usual.

140 I feel the same amount of emotion as usual.

---

**Cognitive Vulnerability**

141 I catch myself thinking irrationally.

142 I don't catch myself thinking irrationally.

143 I create new meanings in my mind that are more pleasant than reality.

144 I don't create new meanings in my mind as an alternative to reality.

145 I develop alternatives in my mind that are more controllable than in reality.

146 I don't develop alternative in my mind that are more controllable than reality.

147 My thoughts are filled with fantasy.

148 I don't fill my thoughts with fantasy.

149 I escape to fantasy.

150 I do not use fantasy as an escape.

151 My imagination takes over in my thoughts.

152 My imagination does not take over in my thoughts.

153 I am susceptible to letting my thinking become irrational.

154 I am not susceptible to letting my thinking become irrational.

155 Irrational thought patterns occur easily in my mind.

156 It is rare that irrational thought patterns occur in my mind.

157 I create pleasing alternatives to reality in my mind.

158 I do not create alternatives to reality in my mind.

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**Cognitive Vulnerability (*continued*)**

159 I am not in control of my thoughts.

160 I am in control of my thoughts.

*Appendix C*Instructions, Definitions, and Item Allocation Forms Provided to the Panel of  
Psychologists**C.1 Instructions:**

Please classify each randomly ordered item into one of the eight categories provided. The theoretical definitions for each construct utilized in developing this measure are provided overleaf. Included in a separate booklet are the items and the eight corresponding constructs that each individual item needs to be assigned to. Please indicate one and only one category that you believe contains the most accurate description of the item. It is important to classify every item. Each category corresponds to a particular construct as detailed below:

- Cognitive Immediacy (Cog. Imm.)
- Procedure Orientation (Pro. Ori.)
- Passivity and Impulsivity (Pas/Imp)
- Close Mindedness (Clo. Min.)
- Inconsistencies (Inc.)
- Disinhibition (Dis.)
- Emotion (Emo.)
- Cognitive Vulnerability (Cog. Vul.)

Thank you for your assistance. Your opinion is greatly appreciated.



## **C.2 Definitions:**

Cognitive Deconstruction is defined as the ‘attempted refusal of meaningful thought particularly with reference to integrative, interpretive mental acts’ (Baumeister, 1990). Characteristics and consequences of cognitive deconstruction include:

### **1. Cognitive Immediacy**

Definition:

- Limited focus to events, goals, and projects that occur in the short-term immediate present
- A here and now focus
- Past experiences and future goals withdraw from the individual’s current awareness
- Disordered time perception with an immersion in the present rather than the past or future
- Subjective sense of the passage of time alters (time passes slowly) due to short-term focus
- Relatively brief intervals appear to take a long time

### **2. Procedure Orientation**

Definition:

- Focus is primarily on means including techniques and procedures, rather than ends such as moral evaluations and evaluations of performance standards
- Fascination with procedural detail while broader meanings may appear threatening
- Means are more proximal than ends
- Focusing on ends is avoided as this encompasses thinking pertaining to broader endeavours
- Lack of meaningful future thought

### **3. Passivity and Impulsivity**

Definition:

- Avoidance of meaningful thought and action
- Not actively taking initiative
- Inactive

- Avoidance of planning, deciding, accepting responsibility, and evaluating possible outcomes (consequences and implications)
- Noncommittal
- Lethargy in executive functions
- An increase in impulsivity and aimless activity
- Action would fail to express commitment, specific intent, future orientation, and connection to the individual's internal standards such as values, morals, attitudes, and beliefs
- Unstable commitment and unarticulated intention
- Lack of long term goals

#### **4. Close-mindedness**

Definition:

- Thinking may follow narrow, rigid, uncreative, linear, and stereotyped patterns due to the rejection of meaningful thought
- Preference for concrete and specific thinking
- Avoidance of creative and divergent thinking
- Learning and solving problems is challenging
- Difficulty learning, and solving problems that are ambiguous or open ended
- Avoidance of interpreting new ideas
- Difficulty integrating new ideas into a belief system because the individual will have to rethink their assumptions regarding the self and the world
- Avoidance of tasks that require cognitive flexibility and seeking insight

#### **5. Inconsistencies**

Definitions:

- Inability to compare two aspects of behaviour or behaviours that occur at different times
- Avoidance of meaningful elaboration of all actions and focuses on the immediate present
- Tendency not to reflect on how present actions and their implications may contradict broad principals or the implications of past actions

- Prone, but oblivious, to inconsistency and contradiction
- Decreased cognitive elaboration
- An increase in inconsistent behaviour due to the inability to detect and regulate inconsistencies in behaviour
- Avoidance of new experiences

## **6. Disinhibition**

Definition:

- Decreased ability to compare possible behaviours against internalized standards such as norms, rules, restrictions, and moral principles, which help the individual from engaging in certain possible acts
- Inability to detect what behaviours violate normal inner standards
- Less likely to weigh actions against abstract standards

## **7. Emotion**

Definition:

- By not thinking in terms of abstract standards, the selves goals and projects, and cultural guidelines, the basis for emotional response is undermined
- Substantial reduction in the degree of emotional response
- Lack/absence of emotion, particularly negative emotion
- Implicitly avoid emotion arousing stimuli
- Focusing of the mind on trivial, immediate, and meaningless issues

## **8. Cognitive Vulnerability**

Definition:

- Irrational thought patterns may occur easily
- Receptive to elaborating new meanings that offer benign, pleasant, and controllable implications
- Increases in vulnerability to irrational thinking, fantasy and flight of the imagination, and to external influences

**C.3 Item Allocation Form**

Item No.	Item	(1) Cog. Imm.	(2) Pro. Ori.	(3) Pas. & Imp.	(4) Clo. Min.	(5) Inc.	(6) Dis.	(7) Emo.	(8) Cog. Vul.
1	My focus of attention in on the immediate present.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
2	I am placing attention on goals I hope to achieve in the future.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
3	Each day seems to pass quickly.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
4	I get carried away with doing things.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
5	I find thinking about future endeavours unappealing.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
6	I find it hard to accept responsibilities.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
7	I find that I do not often engage in meaningless activity.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
8	I embrace interpreting new ideas and concepts.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
9	I embrace playing with new ideas.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
10	I like to figure out a task without being told how.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
11	I don't behave the same today as I have in the past.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
12	My present behaviour often defeats the purpose of past behaviour.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
13	My actions fail to reflect what I believe is right.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
14	I am in tune with my feelings.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.

15	I am feeling less emotional than normal.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
16	My imagination takes over in my thoughts.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
17	It is rare that irrational thought patterns occur in my mind.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
18	I feel that I restrict my attention to what happens in the short term.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
19	It is important to me that I behave ethically.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
20	I willingly accept responsibilities.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
21	I enjoy problem solving.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
23	I enjoy thinking up alternative solutions to a problem.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
24	I say one thing and do another.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
25	I pay attention to how I behave.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
26	I act outside my personal rules and restrictions.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
27	I would welcome integrating new ideas into my belief system at this moment.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
27	I do not ignore my personal moral principles.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
28	I don't think about my values before I act.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
29	I catch myself thinking irrationally.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
30	I feel threatened when I think about the wider implications of my behaviour.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.

30	I develop alternatives in my mind that are more controllable than in reality.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
31	I am not susceptible to letting my thinking become irrational.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
32	I am not in control of my thoughts.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
33	I do not limit my focus to the immediate present.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
34	I place my attention on what occurs right now.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
35	I focus my attention on what will happen in the long term.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
36	I feel as though my days drag by.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
37	I do not think about the long term implications of my behaviour.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
39	I feel calm when I think about the wider implications of my behaviour.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
40	I find it difficult to commit myself to things.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
41	I can commit myself easily to things.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
42	I would describe myself as indifferent.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
43	I act without any specific intentions.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
44	The way I act is always changing.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
45	I don't notice when my behaviour violates my personal standards.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
46	I ignore my personal moral principles.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
47	I avoid emotion arousing situations.	Cog. Imm.	Pro. Ori.	Pas. &	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.

				Imp.					
48	I center my attention on important issues.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
49	I feel less emotion than usual.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
50	I do not use fantasy as an escape.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
51	I prefer to not only focus on the here and now.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
52	I feel as though my days race by.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
53	I avoid focusing my attention on the broader meaning of my actions.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
54	It is difficult for me to make decisions.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
55	I do not find it difficult to make decisions.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
56	My behaviour could be described as hasty and rash.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
57	I avoid interpreting new ideas and concepts.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
58	I avoid the challenge of problem solving.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
59	I tend to act consistently.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
60	I act within my personal rules and restrictions.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
61	I currently am experiencing emotion.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
62	I do not avoid emotion arousing situations.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
63	I currently feel emotion.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.

64	I avoid focusing on trivial concerns.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
65	I don't catch myself thinking irrationally.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
66	I don't create new meanings in my mind as an alternative to reality.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
67	Each day seems to last a long time.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
68	I act with intent.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
69	The way I think is creative.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
70	I avoid playing with new ideas.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
71	I cannot think outside the square.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
72	I behave the same today as I have in the past.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
73	I don't pay attention to how I behave.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
74	Although I am unaware of it at the time I engage in acts that violate my personal standards.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
75	I do not break the rules.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
76	I center my attention on meaningless issues.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
77	I currently feel nothing.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
78	I create new meanings in my mind that are more pleasant than reality.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
79	Time appears to pass quickly.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
80	I think about the long term consequences of my behaviour.	Cog. Imm.	Pro. Ori.	Pas. &	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.



				Imp.					
81	I evaluate my actions according to personal moral standards.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
82	I am not frightened by the future implications of my actions.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
83	I fail to think things through.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
84	My behaviour could be described as purposeful and deliberate.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
85	I do not find it difficult to incorporate new ideas into my thinking and beliefs.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
86	I act randomly across time.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
87	I find it difficult to behave consistently across time.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
88	My behaviour aligns with my values and beliefs.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
89	I have no need to escape emotive situations.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
90	I am susceptible to letting my thinking become irrational.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
91	I am not placing attention on future goals.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
92	I am interested in the details of how things are done.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
93	I can think outside the square.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
94	I act in the same way across time.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
95	I compare and match my actions to my personal standards.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
96	I am feeling more emotional than normal.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.

97	I don't fill my thoughts with fantasy.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
98	I am thinking about events from my past.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
99	I do not think about if I am behaving ethically.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
100	I would describe myself as enthusiastic.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
101	I make decisions spontaneously.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
102	My thinking is uncreative.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
103	I compare my behaviour now to the way I have behaved in the past.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
104	My present actions contradict with the way I have acted in the past.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
105	I do not encounter times when I act in a way that violates my personal standards.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
106	I don't develop alternative in my mind that are more controllable than reality.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
107	I am in control of my thoughts.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
108	I am not interested in the details of how things are done.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
109	I do not feel overwhelmed when I pay attention to the broader meanings of my actions.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
110	I find thinking about future endeavours appealing.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
111	The future implications of my actions are frightening.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
112	It is easy for me to get going.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.

113	My behaviour is constant.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
114	I quickly notice when my behaviour violates my personal standards.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
115	I think about my values before I act.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
116	I feel the same amount of emotion as usual.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
117	I create pleasing alternatives to reality in my mind.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
118	I don't think about outcomes when I'm involved in the action.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
119	I find it difficult to get going.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
120	I would avoid integrating new ideas into my belief system at this moment.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
121	I have no trouble behaving consistently across time.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
122	My behaviour doesn't match with my moral principles.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
123	I am not experiencing emotional distress.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
124	Irrational thought patterns occur easily in my mind.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
125	When I pay attention to the broader meanings of my actions I feel overwhelmed.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
126	I avoid thinking up alternative solutions to a problem.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
127	I do not compare my behaviour in the here and now to my behaviour in the past.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
128	My present behaviour compliments my past behaviour.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.

129	I am currently experiencing emotional distress.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
130	My imagination does not take over in my thoughts.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
131	I think things through.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
132	I enjoy the challenge of problem solving.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
133	My behaviour matches with my moral principles.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
134	I am not in tune with my feelings.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
135	I center my awareness in the here and now.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
136	I am not thinking about events from my past.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
137	I am comfortable thinking about the past.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
138	I like to be told what to do on a task.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
139	I don't compare my actions to my personal standards.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
140	I find myself behaving in a way that does not align with my values and beliefs.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
141	My thoughts are filled with fantasy.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
142	I find I often engage in meaningless activity.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
143	My present actions correspond with the way I have acted in the past.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
144	I break the rules.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
145	I escape to fantasy.	Cog. Imm.	Pro. Ori.	Pas. &	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.

				Imp.					
146	I don't think about whether my actions are right or wrong.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
147	I wish to escape emotive situations.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
148	I am comfortable focusing on unimportant issues.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
149	I find it difficult to incorporate new ideas into my thinking and beliefs.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
150	My actions reflect what I believe is right.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
151	I prefer to only focus on the here and now.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
152	I currently do not feel emotion.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
153	I do not create alternatives to reality in my mind.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
154	Time appears to pass slowly.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
155	My awareness extends past what happens right now.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
156	I tend to act inconsistently.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
157	I dislike problem solving.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
158	I do what I say.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
159	I focus my attention on the broader meaning of my actions.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.
160	I spend time making decisions.	Cog. Imm.	Pro. Ori.	Pas. & Imp.	Clo. Min.	Inc.	Dis.	Emo.	Cog. Vul.

*Appendix D*

## Instructions and the Construct Relevance Form Provided to the Panel of Psychologists

**D.1 Instructions:**

Please rate how relevant (low, moderate, high) you think each item is to its corresponding construct. The definition of the construct is provided above the corresponding items. In addition, please feel free to comment as you see fit regarding individual items and their clarity and conciseness or any alternate ways of tapping the phenomena that I may have failed to include. Thank you. Your opinion is greatly valued.

Cognitive Deconstruction is defined as the ‘attempted refusal of meaningful thought particularly with reference to integrative, interpretive mental acts’ (Baumeister, 1990).

Characteristics and consequences of cognitive deconstruction include:

1. Cognitive Immediacy
2. Procedure Orientation
3. Passivity and Impulsivity
4. Close-mindedness
5. Inconsistencies
6. Disinhibition
7. Emotion
8. Cognitive Vulnerability

## D.2 Construct Relevance Form

### Cognitive Immediacy

My focus of attention is on the immediate present.	Low	Moderate	High
I don't limit my focus to the immediate present.	Low	Moderate	High
I center my awareness in the here and now.	Low	Moderate	High
I place my attention on what occurs right now.	Low	Moderate	High
My awareness extends past what happens right now.	Low	Moderate	High
I feel that I restrict my attention to what happens in the short term.	Low	Moderate	High
I focus my attention on what will happen in the long term.	Low	Moderate	High
I prefer to only focus on the here and now.	Low	Moderate	High
I prefer to not only focus on the here and now.	Low	Moderate	High
I am not placing attention on future goals.	Low	Moderate	High
I am placing attention on goals I hope to achieve in the future.	Low	Moderate	High
I am thinking about events from my past.	Low	Moderate	High
I am not thinking about events from my past.	Low	Moderate	High
I am comfortable thinking about the past.	Low	Moderate	High
Time appears to pass slowly.	Low	Moderate	High

Time appears to pass quickly.	Low	Moderate	High
Each day seems to last a long time.	Low	Moderate	High
Each day seems to pass quickly.	Low	Moderate	High
I feel as though my days drag by.	Low	Moderate	High
I feel as though my days race by.	Low	Moderate	High

### Procedure Orientation

I do not think about the long term implications of my behaviour.	Low	Moderate	High
I think about the long term consequences of my behaviour.	Low	Moderate	High
I don't think about whether my actions are right or wrong.	Low	Moderate	High
I evaluate my actions according to personal moral standards.	Low	Moderate	High
I do not think about if I am behaving ethically.	Low	Moderate	High
It is important to me that I behave ethically.	Low	Moderate	High
I get carried away with doing things.	Low	Moderate	High
I don't think about outcomes when I'm involved in the action.	Low	Moderate	High
I am interested in the details of how things are done.	Low	Moderate	High
I am not interested in the details of how things are done.	Low	Moderate	High



I avoid focusing my attention on the broader meaning of my actions.	Low	Moderate	High
I focus my attention on the broader meaning of my actions.	Low	Moderate	High
I feel threatened when I think about the wider implications of my behaviour.	Low	Moderate	High
I feel calm when I think about the wider implications of my behaviour.	Low	Moderate	High
When I pay attention to the broader meanings of my actions I feel overwhelmed.	Low	Moderate	High
I do not feel overwhelmed when I pay attention to the broader meanings of my actions.	Low	Moderate	High
I find thinking about future endeavours unappealing.	Low	Moderate	High
I find thinking about future endeavours appealing.	Low	Moderate	High
The future implications of my actions are frightening.	Low	Moderate	High
I am not frightened by the future implications of my actions.	Low	Moderate	High

### **Passivity and Impulsivity**

I find it difficult to get going.	Low	Moderate	High
It is easy for me to get going.	Low	Moderate	High
It is difficult for me to make decisions.	Low	Moderate	High
I do not find it difficult to make decisions.	Low	Moderate	High
I find it hard to accept responsibilities.	Low	Moderate	High

I willingly accept responsibilities.	Low	Moderate	High
I find it difficult to commit myself to things.	Low	Moderate	High
I can commit myself easily to things.	Low	Moderate	High
I would describe myself as indifferent.	Low	Moderate	High
I would describe myself as enthusiastic.	Low	Moderate	High
I fail to think things through.	Low	Moderate	High
I think things through.	Low	Moderate	High
I find I often engage in meaningless activity.	Low	Moderate	High
I find that I do not often engage in meaningless activity.	Low	Moderate	High
I act without any specific intentions.	Low	Moderate	High
I act with intent.	Low	Moderate	High
My behaviour could be described as hasty and rash.	Low	Moderate	High
My behaviour could be described as purposeful and deliberate.	Low	Moderate	High
I make decisions spontaneously.	Low	Moderate	High
I spend time making decisions.	Low	Moderate	High

**Close-mindedness**

My thinking is uncreative.	Low	Moderate	High
The way I think is creative.	Low	Moderate	High
I avoid interpreting new ideas and concepts.	Low	Moderate	High
I embrace interpreting new ideas and concepts.	Low	Moderate	High
I dislike problem solving.	Low	Moderate	High
I enjoy problem solving.	Low	Moderate	High
I find it difficult to incorporate new ideas into my thinking and beliefs.	Low	Moderate	High
I do not find it difficult to incorporate new ideas into my thinking and beliefs.	Low	Moderate	High
I would avoid integrating new ideas into my belief system at this moment.	Low	Moderate	High
I would welcome integrating new ideas into my belief system at this moment.	Low	Moderate	High
I avoid playing with new ideas.	Low	Moderate	High
I embrace playing with new ideas.	Low	Moderate	High
I avoid thinking up alternative solutions to a problem.	Low	Moderate	High
I enjoy thinking up alternative solutions to a problem.	Low	Moderate	High
I avoid the challenge of problem solving.	Low	Moderate	High
I enjoy the challenge of problem solving.	Low	Moderate	High

I cannot think outside the square.	Low	Moderate	High
I can think outside the square.	Low	Moderate	High
I like to be told what to do on a task.	Low	Moderate	High
I like to figure out a task without being told how.	Low	Moderate	High

### Inconsistencies

The way I act is always changing.	Low	Moderate	High
My behaviour is constant.	Low	Moderate	High
I tend to act inconsistently.	Low	Moderate	High
I tend to act consistently.	Low	Moderate	High
I do not compare my behaviour in the here and now to my behaviour in the past.	Low	Moderate	High
I compare my behaviour now to the way I have behaved in the past.	Low	Moderate	High
I act randomly across time.	Low	Moderate	High
I act in the same way across time.	Low	Moderate	High
I don't behave the same today as I have in the past.	Low	Moderate	High
I behave the same today as I have in the past.	Low	Moderate	High
My present actions contradict with the way I have acted in the past.	Low	Moderate	High

My present actions correspond with the way I have acted in the past.	Low	Moderate	High
I find it difficult to behave consistently across time.	Low	Moderate	High
I have no trouble behaving consistently across time.	Low	Moderate	High
My present behaviour often defeats the purpose of past behaviour.	Low	Moderate	High
My present behaviour compliments my past behaviour.	Low	Moderate	High
I say one thing and do another.	Low	Moderate	High
I do what I say.	Low	Moderate	High
I don't pay attention to how I behave.	Low	Moderate	High
I pay attention to how I behave.	Low	Moderate	High

### **Disinhibition**

My behaviour doesn't match with my moral principles.	Low	Moderate	High
My behaviour matches with my moral principles.	Low	Moderate	High
I don't compare my actions to my personal standards.	Low	Moderate	High
I compare and match my actions to my personal standards.	Low	Moderate	High
I don't notice when my behaviour violates my personal standards.	Low	Moderate	High
I quickly notice when my behaviour violates my personal standards.	Low	Moderate	High

I find myself behaving in a way that does not align with my values and beliefs.	Low	Moderate	High
My behaviour aligns with my values and beliefs.	Low	Moderate	High
I act outside my personal rules and restrictions.	Low	Moderate	High
I act within my personal rules and restrictions.	Low	Moderate	High
I ignore my personal moral principles.	Low	Moderate	High
I do not ignore my personal moral principles.	Low	Moderate	High
Although I am unaware of it at the time I engage in acts that violate my personal standards.	Low	Moderate	High
I do not encounter times when I act in a way that violates my personal standards.	Low	Moderate	High
My actions fail to reflect what I believe is right.	Low	Moderate	High
My actions reflect what I believe is right.	Low	Moderate	High
I break the rules.	Low	Moderate	High
I do not break the rules.	Low	Moderate	High
I don't think about my values before I act.	Low	Moderate	High
I think about my values before I act.	Low	Moderate	High

### **Emotion**

I am not in tune with my feelings.	Low	Moderate	High
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I am in tune with my feelings.	Low	Moderate	High
I currently do not feel emotion.	Low	Moderate	High
I currently am experiencing emotion.	Low	Moderate	High
I avoid emotion arousing situations.	Low	Moderate	High
I do not avoid emotion arousing situations.	Low	Moderate	High
I wish to escape emotive situations.	Low	Moderate	High
I have no need to escape emotive situations.	Low	Moderate	High
I center my attention on meaningless issues.	Low	Moderate	High
I center my attention on important issues.	Low	Moderate	High
I am feeling less emotional than normal.	Low	Moderate	High
I am feeling more emotional than normal.	Low	Moderate	High
I currently feel nothing.	Low	Moderate	High
I currently feel emotion.	Low	Moderate	High
I am not experiencing emotional distress.	Low	Moderate	High
I am currently experiencing emotional distress.	Low	Moderate	High
I am comfortable focusing on unimportant issues.	Low	Moderate	High

I avoid focusing on trivial concerns.	Low	Moderate	High
I feel less emotion than usual.	Low	Moderate	High
I feel the same amount of emotion as usual.	Low	Moderate	High

### **Cognitive Vulnerability**

I catch myself thinking irrationally.	Low	Moderate	High
I don't catch myself thinking irrationally.	Low	Moderate	High
I create new meanings in my mind that are more pleasant than reality.	Low	Moderate	High
I don't create new meanings in my mind as an alternative to reality.	Low	Moderate	High
I develop alternatives in my mind that are more controllable than in reality.	Low	Moderate	High
I don't develop alternative in my mind that are more controllable than reality.	Low	Moderate	High
My thoughts are filled with fantasy.	Low	Moderate	High
I don't fill my thoughts with fantasy.	Low	Moderate	High
I escape to fantasy.	Low	Moderate	High
I do not use fantasy as an escape.	Low	Moderate	High
My imagination takes over in my thoughts.	Low	Moderate	High
My imagination does not take over in my thoughts.	Low	Moderate	High



I am susceptible to letting my thinking become irrational.	Low	Moderate	High
I am not susceptible to letting my thinking become irrational.	Low	Moderate	High
Irrational thought patterns occur easily in my mind.	Low	Moderate	High
It is rare that irrational thought patterns occur in my mind.	Low	Moderate	High
I create pleasing alternatives to reality in my mind.	Low	Moderate	High
I do not create alternatives to reality in my mind.	Low	Moderate	High
I am not in control of my thoughts.	Low	Moderate	High
I am in control of my thoughts.	Low	Moderate	High

*Appendix E*

## Study One Questionnaire

**E.1 Demographic Information**

**Please fill in the information below as accurately as possible.**

Today's date: \_\_\_\_ / \_\_\_\_ / \_\_\_\_

Date of birth: \_\_\_\_ / \_\_\_\_ / \_\_\_\_

Gender (please tick):  Male  Female

Country of residence: \_\_\_\_\_.

Marital status (please tick):  Single  Partnered  Married

**E.2 CDQ - 120****Instructions:**

On the following pages are statements that describe peoples' perception of time, how tasks are undertaken, how personal standards impact behaviour, and how people think, feel, and act in general. These questions ask about your personal beliefs and experience so there are no right or wrong answers. Regardless of how you answer each question, you can be sure that many other people will answer in the same way.

For each statement, please indicate your level of agreement or disagreement. To do this, circle one and only one box on the right hand side of the statement that best represents your opinion. The response options you are able to choose from include strongly disagree, moderately disagree, mildly disagree, mildly agree, moderately agree, and strongly agree. Please read and answer every statement carefully. There is no time limit.

1	My focus of attention is on the immediate present.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
2	I do not think about the long term implications of my behaviour.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
3	I find it difficult to get going.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
4	My thinking is uncreative.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
5	The way I act is always changing.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
6	My behaviour doesn't match with my moral principles.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
7	I am not in tune with my feelings.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
8	I catch myself thinking irrationally.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
9	I do not limit my focus to the immediate present.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

10	I think about the long term consequences of my behaviour.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
11	It is easy for me to get going.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
12	The way I think is creative.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
13	My behaviour is constant.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
14	I don't compare my actions to my personal standards.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
15	I am in tune with my feelings.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
16	I don't catch myself thinking irrationally.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
17	I center my awareness in the here and now.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
18	I get carried away with doing things.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
19	It is difficult for me to make decisions.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
20	I avoid interpreting new ideas and concepts.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
21	I tend to act inconsistently.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
22	I compare and match my actions to my personal standards.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
23	I currently do not feel emotion.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
24	My thoughts are filled with fantasy.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

25	I place my attention on what occurs right now.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
26	I don't think about outcomes when I'm involved in the action.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
27	I find it difficult to commit myself to things.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
28	I embrace interpreting new ideas and concepts.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
29	I tend to act consistently.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
30	I quickly notice when my behaviour violates my personal standards.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
31	I currently am experiencing emotion.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
32	I don't fill my thoughts with fantasy.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
33	My awareness extends past what happens right now.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
34	I am interested in the details of how things are done.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
35	I can commit myself easily to things.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
36	I enjoy problem solving.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
37	I do not compare my behaviour in the here and now to my behaviour in the past.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
38	I find myself behaving in a way that does not align with my values and beliefs.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

39	I avoid emotion arousing situations.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
40	I escape to fantasy.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
41	I feel that I restrict my attention to what happens in the short term.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
42	I am not interested in the details of how things are done.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
43	I would describe myself as indifferent.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
44	I find it difficult to incorporate new ideas into my thinking and beliefs.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
45	I compare my behaviour now to the way I have behaved in the past.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
46	My behaviour aligns with my values and beliefs.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
47	I do not avoid emotion arousing situations.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
48	I do not use fantasy as an escape.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
49	I prefer to only focus on the here and now.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
50	I avoid focusing my attention on the broader meaning of my actions.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
51	I fail to think things through.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
52	I do not find it difficult to incorporate new ideas into my thinking and beliefs.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
53	I act in the same way across time.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

54	I act outside my personal rules and restrictions.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
55	I wish to escape emotive situations.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
56	My imagination takes over in my thoughts.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
57	I prefer not to focus on the here and now.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
58	I focus my attention on the broader meaning of my actions.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
59	I think things through.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
60	I would avoid integrating new ideas into my belief system at this moment.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
61	I don't behave the same today as I have in the past.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
62	I act within my personal rules and restrictions.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
63	I have no need to escape emotive situations.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
64	My imagination does not take over in my thoughts.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
65	I am not placing attention on future goals.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
66	I feel threatened when I think about the wider implications of my behaviour.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
67	I don't often engage in pointless activity.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

68	I avoid playing with new ideas.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
69	My present actions contradict the way I have acted in the past.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
70	I ignore my personal moral principles.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
71	I am feeling less emotional than normal.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
72	I am susceptible to letting my thinking become irrational.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
73	Time appears to pass slowly.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
74	I feel calm when I think about the wider implications of my behaviour.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
75	I act without any specific intentions.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
76	I embrace playing with new ideas.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
77	My present actions correspond with the way I have acted in the past.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
78	I do not ignore my personal moral principles.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
79	I am feeling more emotional than normal.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
80	I am not susceptible to letting my thinking become irrational.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
81	Time appears to pass quickly.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
82	When I pay attention to the broader meanings of my actions I feel	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree



	overwhelmed.						
83	I act with intent.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
84	I avoid thinking up alternative solutions to a problem.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
85	I find it difficult to behave consistently across time.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
86	Although I am unaware of it at the time, I engage in acts that violate my personal standards.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
87	I currently feel nothing.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
88	Irrational thought patterns occur easily in my mind.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
89	Each day seems to last a long time.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
90	I do not feel overwhelmed when I pay attention to the broader meanings of my actions.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
91	My behaviour could be described as hasty and rash.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
92	I enjoy thinking up alternative solutions to a problem.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
93	I have no trouble behaving consistently across time.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
94	My actions reflect what I believe is right.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
95	I am not experiencing emotional distress.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

96	It is rare that irrational thought patterns occur in my mind.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
97	Each day seems to pass quickly.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
98	I find thinking about future endeavours appealing.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
99	My behaviour could be described as purposeful and deliberate.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
100	I avoid the challenge of problem solving.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
101	My present behaviour compliments my past behaviour.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
102	I break the rules.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
103	I am currently experiencing emotional distress.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
104	I create pleasing alternatives to reality in my mind.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
105	I feel as though my days drag by.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
106	The future implications of my actions concern me.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
107	I make decisions spontaneously.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
108	I enjoy the challenge of problem solving.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
109	I say one thing and do another.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
110	I think about my values before I act.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

111	I feel less emotion than usual.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
112	I do not create alternatives to reality in my mind.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
113	I feel as though my days race by.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
114	I am not concerned about the future implications of my actions.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
115	I spend time making decisions.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
116	I cannot think outside the square.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
117	I do what I say.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
118	My actions fail to reflect what I believe is right.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
119	I feel the same amount of emotion as usual.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
120	I am not in control of my thoughts.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

### **E.3 Friendship Scale**

Please complete the following questions by selecting one and only one box that best describes your experience over the past four weeks.

**During the last four weeks:**

**1. It has been easy to relate to others:**

- Almost always
- Most of the time
- About half the time
- Occasionally
- Not at all

**3. I had someone to share my feelings with:**

- Almost always
- Most of the time
- About half the time
- Occasionally
- Not at all

**5. When with other people, I separate from them:**

- Almost always
- Most of the time
- About half the time
- Occasionally
- Not at all

**2. I feel isolated from other people:**

- Almost always
- Most of the time
- About half the time
- Occasionally
- Not at all

**4. I found it easy to get in touch with others when I needed to:**

- Almost always
- Most of the time
- About half the time
- Occasionally
- Not at all

**6. I felt alone and friendless:**

- Almost always
- Most of the time
- About half the time
- Occasionally
- Not at all

*Appendix F*

## ACU Human Research Ethics Committee Approval Form (Studies One and Two)

Australian Catholic University  
Brisbane Sydney Canberra Ballarat Melbourne



## Human Research Ethics Committee

Committee Approval Form

**Principal Investigator/Supervisor:** Dr Terry Bowles Melbourne Campus

**Co-Investigators:** Dr Lisa Eisen Melbourne Campus

**Student Researcher:** Zoe Hornsby Melbourne Campus

**Ethics approval has been granted for the following project:**  
Developing and validating a measure of cognitive deconstruction.

**for the period:** 128th May 2008 - 30th April 2009

**Human Research Ethics Committee (HREC) Register Number:** V200708 75

The following standard conditions as stipulated in the *National Statement on Ethical Conduct in Research Involving Humans* (2007) apply:

- (i) that Principal Investigators / Supervisors provide, on the form supplied by the Human Research Ethics Committee, annual reports on matters such as:
  - security of records
  - compliance with approved consent procedures and documentation
  - compliance with special conditions, and
- (ii) that researchers report to the HREC immediately any matter that might affect the ethical acceptability of the protocol, such as:
  - proposed changes to the protocol
  - unforeseen circumstances or events
  - adverse effects on participants

The HREC will conduct an audit each year of all projects deemed to be of more than low risk. There will also be random audits of a sample of projects considered to be of negligible risk and low risk on all campuses each year.

Within one month of the conclusion of the project, researchers are required to complete a *Final Report Form* and submit it to the local Research Services Officer.

If the project continues for more than one year, researchers are required to complete an *Annual Progress Report Form* and submit it to the local Research Services Officer within one month of the anniversary date of the ethics approval.

Signed: ..... Date: .....  
(Research Services Officer, Melbourne Campus)

*Appendix G*

## Studies One, Two and Four Information Letter to Participants

TITLE OF PROJECT: Investigating the Effects of Social Exclusion

PRINCIPAL INVESTIGATOR: Dr Terry Bowles

STUDENT RESEARCHER: Zoë Hornsby

PROGRAMME IN WHICH ENROLLED: MPsych/PhD

Dear Participant,

You are invited to participate in a study that aims to develop a questionnaire that effectively measures an individual's response to being socially excluded. The research will be conducted by Zoë Hornsby, an MPsych/PhD student, and supervised by Dr Terry Bowles from the School of Psychology at the Australian Catholic University. The purpose of the study is to explore and create a questionnaire that measures what an individual experiences when they have been excluded by others and feel like they do not belong.

There are no foreseen risks to participating in the current study and it is anticipated that you will not experience any inconvenience or discomfort. **If you feel distressed about anything as a result of participating in this research, however, please contact Lisa Eisen for assistance, advice, or direction on (03) 9953 3119 or email on [l.eisen@patrick.acu.edu.au](mailto:l.eisen@patrick.acu.edu.au)**

Participation involves completing a brief questionnaire that will take approximately 15 minutes to complete.

Participation in this research will be personally beneficial as it will provide you with an opportunity to reflect on and gain insight into your personal experience of social exclusion. It is also likely that this research will be published and so will be beneficial to practitioners in developing therapeutic interventions and for other researchers in understanding the experience of social exclusion and the subsequent outcomes.

You are free to refuse consent altogether without having to justify that decision, or to withdraw consent and discontinue participation in the study at any time without giving a reason.

The results of this research will be kept confidential and will form part of the Masters/PhD thesis of the student investigator and ongoing research. The results from the study may also be presented at conferences and as mentioned above, will be published. All reports will be about average (group) findings and no individuals will be identifiable. Public record standards require that we store consent forms and data separately for at least 5 years following completion of the project. All information obtained from you will be securely stored in the store room of the School of Psychology located on the university campus.

Any questions regarding this project should be directed to the Principal Investigator/Supervisor:

Dr Terry Bowles PhD MAPS  
(03) 9953 3117  
School of Psychology  
St Patrick’s Campus, Locked Bag 4115,  
Fitzroy, Victoria, 3056

Once data collection has completed and the results are analysed, appropriate feedback is available should you wish to be informed of the findings from the study. In order to do this, please contact the principal investigator or the student researcher on the details provided above.

This study has been approved by the Human Research Ethics Committee at Australian Catholic University.

In the event that you have any complaint or concern about the way you have been treated during the study, or if you have any query that the Investigator or Supervisor and Student Researcher have not been able to satisfy, you may write to the Chair of the Human Research Ethics Committee care of the nearest branch of the Research Services Unit.

Chair, HREC  
C/o Research Services  
Australian Catholic University  
Melbourne Campus  
Locked Bag 4115  
FITZROY VIC 3065  
Tel: 03 9953 3158  
Fax: 03 9953 3315

Any complaint or concern will be treated in confidence and fully investigated. The participant will be informed of the outcome.

If you agree to participate in this project, you may proceed to complete the accompanying questionnaire and then return in to the principal investigator or the student researcher.

.....

.....

Principal Investigator

Student Researcher

*Appendix H*

## Study Two Questionnaires

**H.1 CDQ-18**

## Instructions:

On the following pages are statements that describe peoples' perception of time, how tasks are undertaken, how personal standards impact behaviour, and how people think, feel, and act in general. These questions ask about your personal beliefs and experience so there are no right or wrong answers. Regardless of how you answer each question, you can be sure that many other people will answer in the same way. For each statement, please indicate your level of agreement or disagreement. To do this, circle one and only one box on the right hand side of the statement that best represents your opinion. The response options you are able to choose from include strongly disagree, moderately disagree, mildly disagree, mildly agree, moderately agree, and strongly agree. Please read and answer every statement carefully. There is no time limit.

1	My thoughts are filled with fantasy.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
2	Time appears to pass slowly.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
3	I embrace interpreting new ideas and concepts.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
4	I currently do not feel emotion.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
5	I act in the same way across time.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
6	My focus of attention is on the immediate present.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree



7	I escape to fantasy.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
8	Each day seems to last a long time.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
9	I avoid playing with new ideas.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
10	I currently am experiencing emotion.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
11	I have no trouble behaving consistently across time.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
12	I center my awareness in the here and now.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
13	I do not use fantasy as an escape.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
14	Each day seems to pass quickly.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
15	I enjoy thinking up alternative solutions to a problem.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
16	I feel less emotion than usual.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
17	I find myself behaving in a way that does not align with my values and beliefs.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
18	I place my attention on what occurs right now.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

## H.2 Positive and Negative Affect Scale

Instructions:

This scale consists of a number of words that describe different feelings and emotions. Read each item and then circle the appropriate answer next to that word. Indicate to what extent you have felt this way during the past week.

Use the following scale to record your answers.

1. Interested	Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
2. Distressed	Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
3. Excited	Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
4. Upset	Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
5. Strong	Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
6. Guilty	Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
7. Scared	Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
8. Hostile	Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
9. Enthusiastic	Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
10. Proud	Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
11. Irritable	Very slightly or not at all	A little	Moderately	Quite a bit	Extremely

12. Alert	Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
13. Ashamed	Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
14. Inspired	Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
15. Nervous	Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
16. Determined	Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
17. Attentive	Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
18. Jittery	Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
19. Active	Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
20. Afraid	Very slightly or not at all	A little	Moderately	Quite a bit	Extremely

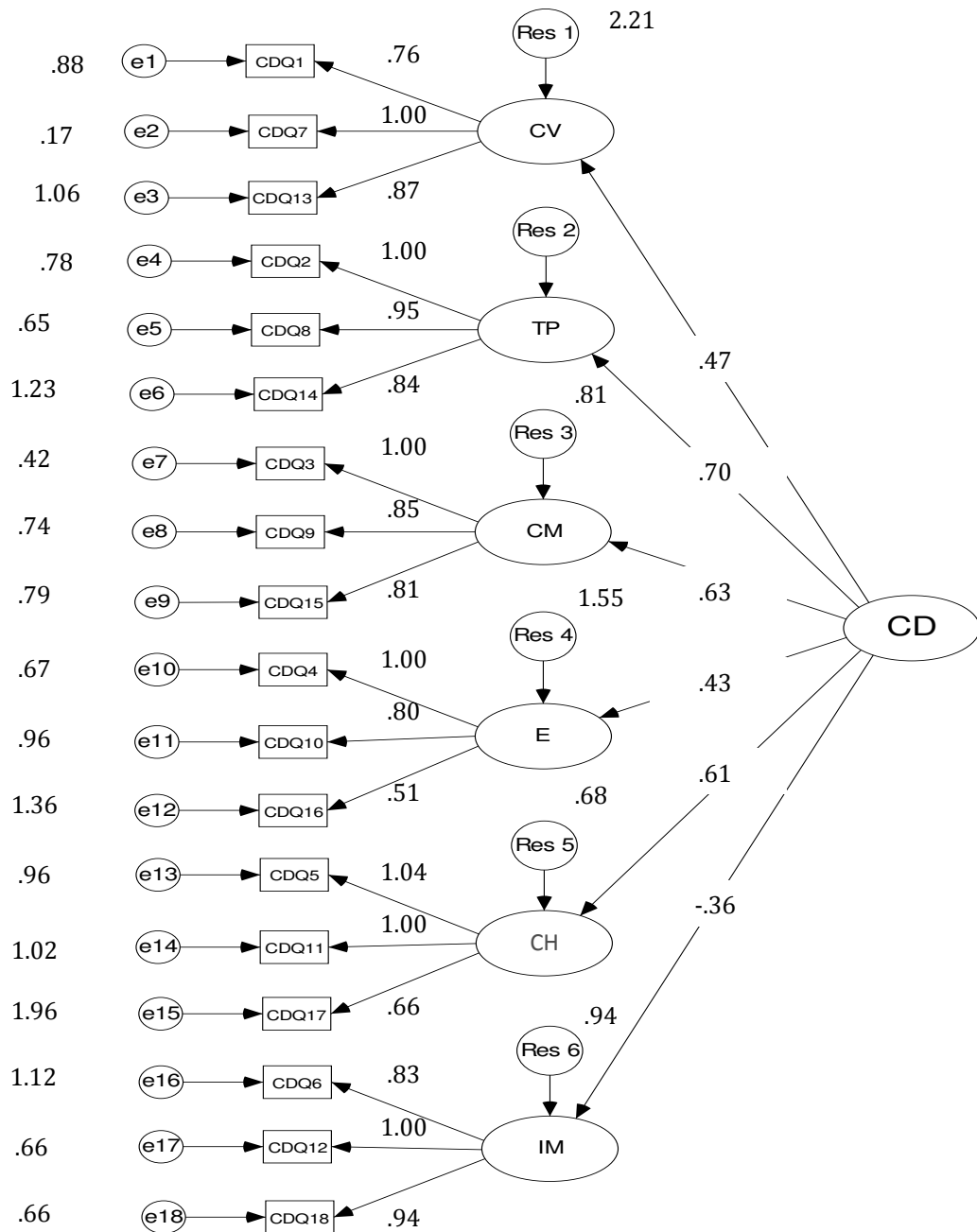
### H.3 Saucier's Big Five Mini-Markers

Please use this list of common human traits to describe yourself as accurately as possible. Describe yourself as you see yourself at the present time, not as you wish to be in the future. Describe yourself as you are generally or typically, as compared with other persons you know of the same sex and of roughly your same age. Before each trait, please write a number indicating how accurately that trait describes you, using the following rating scale:

1	2	3	4	5	6	7	8	9
Extremely Inaccurate	Very Inaccurate	Moderately Inaccurate	Slightly Inaccurate	Neither Inaccurate or Accurate	Slightly Accurate	Moderately Accurate	Very Accurate	Extremely Accurate
___ Bashful		___ Energetic		___ Moody		___ Systematic		
___ Bold		___ Envious		___ Organized		___ Talkative		
___ Careless		___ Extraverted		___ Philosophical		___ Temperamental		
___ Cold		___ Fretful		___ Practical		___ Touchy		
___ Complex		___ Harsh		___ Quiet		___ Uncreative		
___ Cooperative		___ Imaginative		___ Relaxed		___ Unenvious		
___ Creative		___ Inefficient		___ Rude		___ Unintellectual		
___ Deep		___ Intellectual		___ Shy		___ Unsympathetic		
___ Disorganized		___ Jealous		___ Sloppy		___ Warm		
___ Efficient		___ Kind		___ Sympathetic		___ Withdrawn		

Appendix I

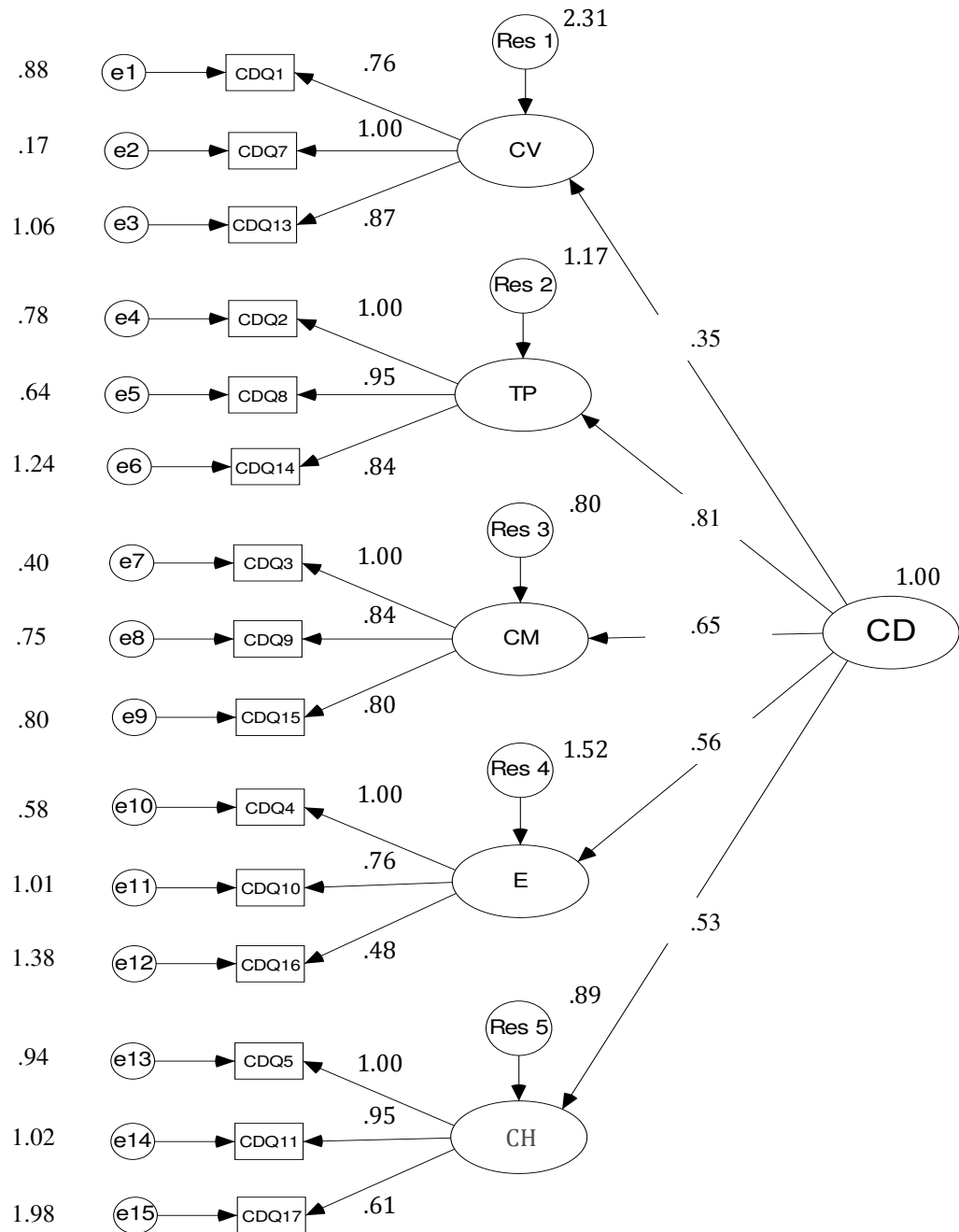
Unstandardised parameter estimates in the six-factor, second-order confirmatory factor analysis model of the CDQ-18



Note. CD = cognitive deconstruction; CV = cognitive vulnerability; TP = time perception; CM = close-mindedness; E = emotion; CH = changeability; IM = immediacy; CDQ1 to CDQ18 = CDQ items; Res1 to Res6 = residual error of latent variables; e = measurement error..

Appendix J

Unstandardised parameter estimates in the five-factor, second-order confirmatory factor analysis model of the CDQ-15



Note. CD = cognitive deconstruction; CV = cognitive vulnerability; TP = time perception; CM = close-mindedness; E = emotion; CH = changeability; IM = immediacy; CDQ1 to CDQ18 = CDQ items; Res1 to Res6 = residual error of latent variables; e = measurement error..

*Appendix K*

## The Fifteen-Item Cognitive Deconstruction Questionnaire (CDQ-15)

## Instructions:

On the following pages are statements that describe peoples' perception of time, how tasks are undertaken, how personal standards impact behaviour, and how people think, feel, and act in general. These questions ask about your personal beliefs and experience so there are no right or wrong answers. Regardless of how you answer each question, you can be sure that many other people will answer in the same way. For each statement, please indicate your level of agreement or disagreement. To do this, circle one and only one box on the right hand side of the statement that best represents your opinion. The response options you are able to choose from include strongly disagree, moderately disagree, mildly disagree, mildly agree, moderately agree, and strongly agree. Please read and answer every statement carefully. There is no time limit.

1	My thoughts are filled with fantasy.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
2	Time appears to pass slowly.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
3	I embrace interpreting new ideas and concepts.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
4	I currently do not feel emotion.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
5	I act in the same way across time.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
6	I escape to fantasy.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
7	Each day seems to last a long time.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

8	I avoid playing with new ideas.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
9	I currently am experiencing emotion.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
10	I have no trouble behaving consistently across time.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
11	I do not use fantasy as an escape.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
12	Each day seems to pass quickly.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
13	I enjoy thinking up alternative solutions to a problem.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
14	I feel less emotion than usual.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
15	I find myself behaving in a way that does not align with my values and beliefs.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree



*Appendix L*

## ACU Human Research Ethics Committee Approval Form (Study Three)

Australian Catholic University  
Brisbane Sydney Canberra Ballarat Melbourne



## Human Research Ethics Committee

Committee Approval Form

**Principal Investigator/Supervisor:** Dr Terry Bowles Melbourne Campus

**Co-Investigators:** Dr Lisa Eisen Melbourne Campus

**Student Researcher:** Zoe Hornsby Melbourne Campus

**Ethics approval has been granted for the following project:**

Anxiety, Depression, and Relating to Others

**for the period:** 15.08.06 to 15.08.07

**Human Research Ethics Committee (HREC) Register Number:** V200607 8

The following **standard** conditions as stipulated in the *National Statement on Ethical Conduct in Research Involving Humans (1999)* apply:

- (i) that Principal Investigators / Supervisors provide, on the form supplied by the Human Research Ethics Committee, annual reports on matters such as:
  - security of records
  - compliance with approved consent procedures and documentation
  - compliance with special conditions, and
- (ii) that researchers report to the HREC immediately any matter that might affect the ethical acceptability of the protocol, such as:
  - proposed changes to the protocol
  - unforeseen circumstances or events
  - adverse effects on participants

The HREC will conduct an audit each year of all projects deemed to be of more than low risk. There will also be random audits of a sample of projects considered to be of negligible risk and low risk on all campuses each year.

Within one month of the conclusion of the project, researchers are required to complete a *Final Report Form* and submit it to the local Research Services Officer.

If the project continues for more than one year, researchers are required to complete an *Annual Progress Report Form* and submit it to the local Research Services Officer within one month of the anniversary date of the ethics approval.

Signed: .....

(Research Services Officer, Melbourne Campus)

Date: .....

*Appendix M*

## Study Three Participants Information and Consent Forms

**M.1 Participant Information Form**

## INFORMATION LETTER TO PARTICIPANTS

TITLE OF PROJECT: Depression, anxiety and relating to others

RESEARCHER: Dr Terry Bowles

STUDENT RESEARCHER: Zoë Hornsby.

Dear Participant,

You are invited to participate in research on depression. The research will be conducted by a PhD student Zoë Hornsby, supervised by Dr Terry Bowles from the School of Psychology at the Australian Catholic University. The purpose of this study is to investigate factors, which contribute to depression. You are asked to participate in a group activity and complete a set of questionnaires, which will provide information on depression, anxiety and how you relate to others. Given the complex nature of the research questions, the specific aims of the study will not be disclosed in detail. Following completion of participation additional information will be provided. This will take approximately 45 minutes.

The results of this research will be kept confidential and will form part of the PhD thesis of the student investigator and ongoing research. The results from the study may also be presented at conferences and be published. All reports will be about average (group) findings and no individuals will be identifiable. Public record standards require that we store consent forms and data separately for at least 5 years following completion of the project. All information obtained from you will be securely stored in the store room of the School of Psychology located on the university campus.

You are free to withdraw from the study at any stage without supplying a reason. Questions regarding this project should be directed to **Dr Terry Bowles, on (03) 9953 3117 in the School of Psychology, St. Patrick's Campus, Locked Bag 4115, Fitzroy VIC 3065, t.bowles@patrick.acu.edu.au.**

This study has been approved by the Human Research Ethics Committee at the Australian Catholic University. **If you feel distressed about anything as a result of participating in this research, please contact Dr Lisa Eisen for assistance, advice, or direction on 9953 3119.** We anticipate that the majority of respondents will be reassured by reflecting upon their feelings and how they relate to others through completing the questionnaires. However, if you feel distressed as a result of this reflection, please contact Lisa Eisen for independent advice about how you can seek counselling regarding improving your situation. Additionally, in the event that you have any complaint or concern about the way you have been treated during the study, or if you have any query that the researcher and student researchers have not been able to satisfy, you may write to **The Chair of the Human Research Ethics Committee, c/o Research Services, Australian Catholic University, Melbourne Campus, Locked Bag 4115, Fitzroy VIC 3065 (telephone 043 9953 3157, fax 03 9953 3305).** Any complaint or concern will be treated in confidence and fully investigated. The participant will be informed of the outcome.

If you agree to participate in this project, please sign both copies of the Consent Form, retain one copy for your records and return the other copy to the researchers. Should you choose to participate in the project your support will be most appreciated.

Yours sincerely, Dr Terry Bowles and Zoë Hornsby.



*Appendix N*

Study Four Questionnaire Booklet

**N.1 Demographic Information**

**Please fill in the information below as accurately as possible.**

Today's date: \_\_\_\_ / \_\_\_\_ / \_\_\_\_

Date of birth: \_\_\_\_ / \_\_\_\_ / \_\_\_\_

Gender (please tick):  Male†  Female†

Country of residence: \_\_\_\_\_.

Marital status (please tick): Single† Partnered† Married†

**N.2 Exclusion Exposure Measure**

**Have you experienced any of the below events in the past month (please tick either 'yes' or 'no')?**

- |    |  |                                |                               |
|----|--|--------------------------------|-------------------------------|
| 1. | A break up of a relationship:  | <input type="checkbox"/> Yes † | <input type="checkbox"/> No † |
| 2. | Not been invited to a social event by a close friend or family member: | <input type="checkbox"/> Yes † | <input type="checkbox"/> No † |
| 3. | Been left out or ignored in a social setting:                          | <input type="checkbox"/> Yes † | <input type="checkbox"/> No † |
| 4. | Been rejected when you asked someone out on a date:                    | <input type="checkbox"/> Yes † | <input type="checkbox"/> No † |
| 5. | Has a job application rejected:  | <input type="checkbox"/> Yes † | <input type="checkbox"/> No † |
| 6. | Not received any personal phone calls, texts, or emails:               | <input type="checkbox"/> Yes † | <input type="checkbox"/> No † |
| 7. | Felt invisible when out in public:                                     | <input type="checkbox"/> Yes † | <input type="checkbox"/> No † |
| 8. | Felt as though you did not fit in:                                     | <input type="checkbox"/> Yes † | <input type="checkbox"/> No † |

**N.3 CDQ-15**

On the following pages are statements that describe peoples' perception of time, how tasks are undertaken, how personal standards impact behaviour, and how people think, feel, and act in general. These questions ask about your personal beliefs and experience so there are no right or wrong answers. Regardless of how you answer each question, you can be sure that many other people will answer in the same way.

**For each statement, please indicate your level of agreement or disagreement. To do this, circle one and only one box on the right hand side of the statement that best represents your opinion.** The response options you are able to choose from include strongly disagree, moderately disagree, mildly disagree, mildly agree, moderately agree, and strongly agree. Please read and answer every statement carefully. There is no time limit.

1	I escape to fantasy.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
2	Time appears to pass slowly.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
3	I currently am experiencing emotion.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
4	I avoid playing with new ideas.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
5	I have no trouble behaving consistently across time.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
6	My thoughts are filled with fantasy.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
7	Each day seems to last a long time.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
8	I currently do not feel emotion.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
9	I embrace interpreting new ideas and concepts.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

<b>10</b>	I act in the same way across time.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
<b>11</b>	I do not use fantasy as an escape.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
<b>12</b>	Each day seems to pass quickly.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
<b>13</b>	I feel less emotion than usual.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
<b>14</b>	I enjoy thinking up alternative solutions to a problem.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
<b>15</b>	I find myself behaving in a way that does not align with my values and beliefs.	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

**N.4 UCLA Loneliness Scale**

Indicate how often you feel the way described in each of the following statements. Circle one description for each:

1	How often do you feel as if you are 'in tune' with the people around you?	never	rarely	sometimes	often
2	How often do you feel that you lack companionship?	never	rarely	sometimes	often
3	How often do you feel as if there is no one you can turn to?	never	rarely	sometimes	often
4	How often do you feel alone?	never	rarely	sometimes	often
5	How often do you feel part of a group of friends?	never	rarely	sometimes	often
6	How often do you feel that you have a lot in common with the people around you?	never	rarely	sometimes	often
7	How often do you feel that you are no longer close to anyone?	never	rarely	sometimes	often
8	How often do you feel that your interests and ideas are not shared by those around you?	never	rarely	sometimes	often
9	How often do you feel outgoing and friendly?	never	rarely	sometimes	often
10	How often do you feel close to people?	never	rarely	sometimes	often
11	How often do you feel left out?	never	rarely	sometimes	often
12	How often do you feel that your relationships with others are not meaningful?	never	rarely	sometimes	often
13	How often do you feel that no one really knows you well?	never	rarely	sometimes	often
14	How often do you feel isolated from others?	never	rarely	sometimes	often
15	How often do you feel you can find companionship when you want it?	never	rarely	sometimes	often
16	How often do you feel that there are people who really understand you?	never	rarely	sometimes	often
17	How often do you feel shy?	never	rarely	sometimes	often



<b>18</b>	How often do you feel that people are around you but not with you?	never	rarely	sometimes	often
<b>19</b>	How often do you feel that there are people you can talk to?	never	rarely	sometimes	often
<b>20</b>	How often do you feel that there are people you can turn to?	never	rarely	sometimes	often

### N.5 Behavior Identification Form

Any behavior can be identified in many ways. For example, one person might describe a behavior as "typing a paper," while another might describe the behavior as "pushing keys", yet another person might describe the behavior as "expressing thoughts." We are interested in your personal preferences for how a number of different behaviours should be described. On the following pages you will find several different behaviours listed. After each behavior will be two choices of different ways in which the behavior might be identified.

Here is an example:

1. Attending class

\_\_\_\_\_ a. sitting in a chair

\_\_\_\_\_ b. looking at the blackboard

Your task is to choose the identification, a or b, that best describes the behavior for you. **Simply place a check mark in the space beside the identification statement that you pick. Please mark only one alternative for each pair.** Of course, there are no 'right' or 'wrong' answers. People simply differ in their preferences for the different behavior descriptions, and we are interested in your personal preferences. Be sure to mark your choice for each behavior. Remember choose the description that *you personally believe* is more appropriate in each pair.

#### 1. Making a list

\_\_\_\_\_ a. Getting organized

\_\_\_\_\_ b. Writing things down

#### 2. Reading

\_\_\_\_\_ a. Following lines of print

\_\_\_\_\_ b. Gaining knowledge

#### 3. Joining the Army

\_\_\_\_\_ a. Helping the Nation's defense

\_\_\_\_\_ b. Signing up

#### 4. Washing clothes

\_\_\_\_\_ a. Removing odours from clothes

\_\_\_\_\_ b. Putting clothes into the machine

#### 5. Picking an apple

\_\_\_\_\_ a. Getting something to eat

\_\_\_\_\_ b. Pulling an apple off a branch

#### 6. Chopping down a tree

\_\_\_\_\_ a. Wielding an axe

\_\_\_\_\_ b. Getting firewood

#### 7. Measuring a room for carpeting

\_\_\_\_\_ a. Getting ready to remodel

\_\_\_\_\_ b. Using a yardstick

#### 8. Cleaning the house

\_\_\_\_\_ a. Showing one's cleanliness

\_\_\_\_\_ b. Vacuuming the floor

#### 9. Painting a room

\_\_\_\_\_ a. Applying brush strokes

\_\_\_\_\_ b. Making the room look fresh

**10. Paying the rent**

- \_\_\_\_\_ a. Maintaining a place to live  
\_\_\_\_\_ b. Writing a check

**13. Voting**

- \_\_\_\_\_ a. Influencing the election  
\_\_\_\_\_ b. Marking a ballot

**16. Tooth-brushing**

- \_\_\_\_\_ a. Preventing tooth decay  
\_\_\_\_\_ b. Moving a brush around in one's mouth

**19. Resisting temptation**

- \_\_\_\_\_ a. Saying 'no'  
\_\_\_\_\_ b. Showing moral courage

**22. Travelling by car**

- \_\_\_\_\_ a. Following a map  
\_\_\_\_\_ b. Seeing countryside

**25. Pushing a doorbell**

- \_\_\_\_\_ a. Moving a finger  
\_\_\_\_\_ b. Seeing if someone's home

**11. Caring for houseplants**

- \_\_\_\_\_ a. Watering plants  
\_\_\_\_\_ b. Making the room look nice

**14. Climbing a tree**

- \_\_\_\_\_ a. Getting a good view  
\_\_\_\_\_ b. Holding onto branches

**17. Taking a test**

- \_\_\_\_\_ a. Answering questions  
\_\_\_\_\_ b. Showing one's knowledge

**20. Eating**

- \_\_\_\_\_ a. Getting nutrition  
\_\_\_\_\_ b. Chewing and swallowing

**23. Having a cavity filled**

- \_\_\_\_\_ a. Protecting your teeth  
\_\_\_\_\_ b. Going to the dentist

**12. Locking a door**

- \_\_\_\_\_ a. Putting a key in the lock  
\_\_\_\_\_ b. Securing the house

**15. Filling out a personality test**

- \_\_\_\_\_ a. Answering questions  
\_\_\_\_\_ b. Revealing what you're like

**18. Greeting someone**

- \_\_\_\_\_ a. Saying hello  
\_\_\_\_\_ b. Showing friendliness

**21. Growing a garden**

- \_\_\_\_\_ a. Planting seeds  
\_\_\_\_\_ b. Getting fresh vegetables

**24. Talking to a child**

- \_\_\_\_\_ a. Teaching a child something  
\_\_\_\_\_ b. Using simple words

**N.6 Situational Self-Awareness Scale**

Please respond to each statement based on how you feel right now, at this instant – not how you feel in general, or at this point in your life. Please circle the number that corresponds to your answer. There are no ‘right’ or ‘wrong’ answers – just be honest.

		1	2	3	4	5	6	7	
		Strongly Disagree							Strongly Agree
1	Right now, I am keenly aware of everything in my environment.	1	2	3	4	5	6	7	
2	Right now, I am conscious of my inner feelings.	1	2	3	4	5	6	7	
3	Right now, I am concerned about the way I present myself.	1	2	3	4	5	6	7	
4	Right now, I am self-conscious about the way that I look.	1	2	3	4	5	6	7	
5	Right now, I am conscious of what is going on around me.	1	2	3	4	5	6	7	
6	Right now, I am reflective about my life.	1	2	3	4	5	6	7	
7	Right now, I am concerned about what other people think of me.	1	2	3	4	5	6	7	
8	Right now, I am aware of my innermost thoughts.	1	2	3	4	5	6	7	
9	Right now, I am conscious of all objects around me.	1	2	3	4	5	6	7	

**N.7 Meaning in Life Questionnaire**

**Please take a moment to think about what makes your life feel important to you. Please respond to the following statements as truthfully and accurately as you can, and also please remember that these are very subjective questions and that there are no right or wrong answers. Please answer according to the scale below:**

1	I understand my life's meaning.	Absolutely Untrue	Mostly Untrue	Somewhat Untrue	Can't Say True or False	Somewhat True	Mostly True	Absolutely True
2	I am looking for something that makes my life feel meaningful.	Absolutely Untrue	Mostly Untrue	Somewhat Untrue	Can't Say True or False	Somewhat True	Mostly True	Absolutely True
3	I am always looking to find my life's purpose.	Absolutely Untrue	Mostly Untrue	Somewhat Untrue	Can't Say True or False	Somewhat True	Mostly True	Absolutely True
4	My life has a clear sense of purpose.	Absolutely Untrue	Mostly Untrue	Somewhat Untrue	Can't Say True or False	Somewhat True	Mostly True	Absolutely True
5	I have a good sense of what makes my life meaningful.	Absolutely Untrue	Mostly Untrue	Somewhat Untrue	Can't Say True or False	Somewhat True	Mostly True	Absolutely True
6	I have discovered a satisfying life purpose.	Absolutely Untrue	Mostly Untrue	Somewhat Untrue	Can't Say True or False	Somewhat True	Mostly True	Absolutely True
7	I am always searching for something that makes my life feel significant.	Absolutely Untrue	Mostly Untrue	Somewhat Untrue	Can't Say True or False	Somewhat True	Mostly True	Absolutely True
8	I am seeking a purpose or mission for my life.	Absolutely Untrue	Mostly Untrue	Somewhat Untrue	Can't Say True or False	Somewhat True	Mostly True	Absolutely True
9	My life has no clear purpose.	Absolutely Untrue	Mostly Untrue	Somewhat Untrue	Can't Say True or False	Somewhat True	Mostly True	Absolutely True
10	I am searching for meaning in my life.	Absolutely Untrue	Mostly Untrue	Somewhat Untrue	Can't Say True or False	Somewhat True	Mostly True	Absolutely True

*Appendix O*

## ACU Human Research Ethics Committee Approval Form (Study Four)

Australian Catholic University  
Brisbane Sydney Canberra Ballarat Melbourne



## Human Research Ethics Committee

Committee Approval Form

**Principal Investigator/Supervisor:** Dr Terry Bowles Melbourne Campus

**Co-Investigators:** Dr Lisa Eisen Melbourne Campus

**Student Researcher:** Zoc Hornsby Melbourne Campus

**Ethics approval has been granted for the following project:**  
Developing and validating a measure of cognitive deconstruction.

**for the period:** 128th May 2008 - 30th April 2009

**Human Research Ethics Committee (HREC) Register Number:** V200708 75

The following **standard** conditions as stipulated in the *National Statement on Ethical Conduct in Research Involving Humans* (2007) apply:

- (i) that Principal Investigators / Supervisors provide, on the form supplied by the Human Research Ethics Committee, annual reports on matters such as:
  - security of records
  - compliance with approved consent procedures and documentation
  - compliance with special conditions, and
- (ii) that researchers report to the HREC immediately any matter that might affect the ethical acceptability of the protocol, such as:
  - proposed changes to the protocol
  - unforeseen circumstances or events
  - adverse effects on participants

The HREC will conduct an audit each year of all projects deemed to be of more than low risk. There will also be random audits of a sample of projects considered to be of negligible risk and low risk on all campuses each year.

Within one month of the conclusion of the project, researchers are required to complete a *Final Report Form* and submit it to the local Research Services Officer.

If the project continues for more than one year, researchers are required to complete an *Annual Progress Report Form* and submit it to the local Research Services Officer within one month of the anniversary date of the ethics approval.

Signed: ..... Date: .....  
(Research Services Officer, Melbourne Campus)