

**EXPLORING THE EFFECTS OF PRIMING VALUES ON
PERFECTIONISM, CONSIDERING VALUE DISCREPANCY AND
DISTRESS**

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May 2015

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**This thesis is submitted as partial fulfilment of the requirement for the
degree of Doctor of Clinical Psychology at Cardiff University and the South
Wales Doctoral Course in Clinical Psychology**

ACKNOWLEDGEMENTS

Firstly, I would like to thank the participants who took the time to take part in the study. I would also like to say thank you to my supervisor Andrew, for patience when the study was developing and enthusiasm along the way. I'm very grateful for your decision to support me to pursue the study despite the challenges we faced with geography and I really have appreciated your flexibility and creativity in making our meetings and the overall study a success.

To my friends, thank you for providing me with constant encouragement and great distractions when I needed them. Thank you for understanding when I couldn't give you the time I should have and when I've had to re-arrange or cancel our plans. I also want to say thank you to the twelve new friends that I've made over the past three years, thank you all for your support and antics.

To my family, who I know would say 'there's no need to say thank you!' Well, I want to thank you and there really is a need. You always believe that I can do anything, so thank you for giving me the confidence to go for what I've wanted.

Finally, I would like to say thank you to my partner Mike. After juggling and making sacrifices over the last ten years, we finally were able to move in together - just as the study was in full swing – I bet you were chuffed with that timing! Thank you for being there and offering to do anything you could to help, for keeping me on track on days when it all felt a bit overwhelming and reminding me why I'd actually chosen to pursue a doctorate. Thank you for always offering reassurance that the end was in sight and for making sure I was still smiling when I got there.

ABSTRACT

Introduction: Since the start of the 20th Century, the conceptualisation of values has been evolving, with values being suggested to be amongst our most important evaluative beliefs (Allport, *et al.*, 1951; Rokeach, 1973; Spranger, 1928). Whilst values have received a lot of research attention within the social psychology arena, in comparison there appears to be a lack of research on values applied within a mental health context.

Aims: The current study aimed to add to the existing research on values applied within a mental health context by exploring values, perfectionism and psychological distress; specifically the effects of priming the social value of Achievement on behaviour associated with perfectionism and self-reported anxiety and depression. To achieve these aims, the study utilised Schwartz (1992) and Schwartz, *et al.* (2012) cognitive models of basic values and Maio, *et al.* (2009) and Maio (2010) research on priming values to motivate behaviour change. The study also utilised Higgins (1987) theory of self-discrepancy, to consider value discrepancy and emotional distress.

Methods: The study made use of a between subjects analogue design, with a sample of 90 non-clinical participants aged between 18- 65 years old. Participants were randomly allocated to one of three group conditions (Experimental Group 1 (n=30), Experimental Group 2 (n=30), or Control Group 3 (n=30)). All participants completed the HADS, MCUP and adapted PVQ measures, before receiving a priming or neutral task. All participants then completed an experimental behavioural task.

Results: Higher perfectionism was related to Self-Enhancement and Conservation value priorities, with strongest relations to Achievement based values. These findings suggest that perfectionism was related to value priorities that promote the self and the existing status quo, whilst being self-protective and serving to cope with anxiety. Perfectionism was found to have both a 'healthy/positive' and 'unhealthy/negative' aspect. This appears to support Achievement being related to perfectionism, as Achievement values have an overlapping position on the self-protection/self-growth dimension of Schwartz, *et al.* (2012) model. Priming Achievement based values increased perfectionist behaviour associated with more 'healthy or positive' behaviour. Results indicated that higher perfectionism was related to higher self-reported levels of anxiety and depression. 'Unhealthy/negative' perfectionism was related with higher *actual/ought* discrepancy in Achievement values, suggesting that perfectionism was associated with the actual pursuit of Achievement value priorities (i.e. success, ambition, capability, and influence) not meeting the perceived expectations of others.

Conclusions: The current study provided empirical support for the inclusion of a theory and model of values and value discrepancy to further understand perfectionism and distress. The results are discussed in relation to the existing literature, applied to a mental health context and clinical implications. The study is then critiqued and recommendations for future research are offered.

TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION

1.1 OVERVIEW OF THE CURRENT STUDY.....	15
1.2 INTRODUCTION TO THE CURRENT STUDY.....	16
1.3 VALUES.....	18
1.3.1 Early Conceptualisations of Values.....	18
1.3.2 Value Models.....	19
1.3.3 Schwartz (1992) Model of Basic Values.....	20
1.3.3.1 Defining Values.....	20
1.3.3.2 Differentiating Values.....	21
1.3.3.3 Mapping Value Relations.....	22
1.3.3.4 Hierarchy of Importance.....	24
1.3.3.5 Model Validity.....	25
1.3.4 Schwartz, <i>et al.</i> (2012) Revised Model of Basic Values.....	26
1.3.5 Measuring Values.....	30
1.3.5.1 The Schwartz Value Scale (SVS).....	30
1.3.5.2 The Portrait Value Questionnaire (PVQ).....	31
1.3.5.2.1 The Portrait Value Questionnaire – 40 item version (PVQ - 40)....	32
1.3.5.2.2 The Portrait Value Questionnaire – 21 item version (PVQ - 21)....	33
1.3.5.2.3 The Adapted PVQ-40 (Adapted PVQ - 40).....	34
1.3.6 Activating Values.....	34
1.3.6.1 A Cognitive Representation of Values.....	34
1.3.6.2 Activating Values by Priming.....	36
1.3.6.3 Typical Representations of Values and Value Congruent Behaviour.....	38
1.3.7 Summary of Values.....	39
1.4 SELF-DISCREPANCY.....	39
1.4.1 Model Validity.....	42
1.4.2 Summary of Self-Discrepancy.....	44
1.5 VALUES IN A MENTAL HEALTH CONTEXT.....	44

1.5.1 Value Motivations and Psychological Distress.....	44
1.5.2 Value Discrepancy and Psychological Distress.....	45
1.5.3 Values and Psychological Therapies.....	47
1.5.4 Summary of Values in a Mental Health Context.....	47
1.6 PERFECTIONISM.....	49
1.6.1 Achievement Values.....	49
1.6.2 Defining Perfectionism.....	50
1.6.3 Etiological Models of Perfectionism.....	53
1.6.4 Measuring Perfectionism.....	54
1.6.5 Perfectionism and Psychological Distress.....	55
1.6.6 'Clinical Perfectionism'	56
1.6.7 Perfectionism and Psychological Therapies	57
1.6.8 Summary of Perfectionism.....	58
1.7 PERFECTIONISM AND ANXIETY – A REVIEW OF THE EVIDENCE.....	59
1.7.1 The Current Systematic Literature Review.....	59
1.7.2 Systematic Literature Review Question.....	60
1.7.3 Systematic Literature Review Method.....	60
1.7.3.1 Search Strategy.....	60
1.7.3.2 Search Terms.....	60
1.7.3.3 Inclusion and Exclusion Criteria.....	61
1.7.3.3.1 Inclusion Criteria.....	61
1.7.3.3.2 Exclusion Criteria.....	62
1.7.4 Systematic Literature Review Process.....	62
1.7.5 Results of the Systematic Literature Review.....	63
1.7.5.1 Focus of Studies.....	63
1.7.5.2 Sample.....	65
1.7.5.2.1 Sample Size.....	65
1.7.5.2.2 Population Type.....	66
1.7.5.2.3 Age.....	66
1.7.5.2.4 Gender.....	66
1.7.5.2.5 Ethnicity.....	67

1.7.5.3 Research Methods.....	67
1.7.5.3.1 Perfectionism Measures.....	67
1.7.5.3.2 Anxiety Measures.....	69
1.7.5.3.3 Design.....	70
1.7.5.3.4 Manipulation Variables.....	71
1.7.5.3.4.1 Exposure to Feedback.....	71
1.7.5.3.4.2 Exposure to and Anticipation of Speech Tasks.....	72
1.7.5.3.4.3 Exposure to Computer Task.....	72
1.7.5.3.4.4 Exposure to Behaviour Task.....	73
1.7.5.4 Key Findings.....	73
1.7.5.5 Quality Review.....	76
1.7.5.6 Strengths.....	77
1.7.5.6.1 Measures.....	77
1.7.5.6.2 Design.....	78
1.7.5.6.3 Manipulation Variables.....	78
1.7.5.6.4 Data Analysis.....	79
1.7.5.7 Limitations.....	79
1.7.5.7.1 Measures.....	80
1.7.5.7.2 Design.....	81
1.7.5.7.3 Manipulation Variables.....	82
1.7.5.7.4 Data.....	84
1.8 THE CURRENT STUDY.....	84
1.8.1 Rationale for the Current Study.....	84
1.8.2 Hypotheses.....	87
1.9 SUMMARY OF CHAPTER 1.....	90

CHAPTER 2: METHODS

2.1 INTRODUCTION.....	93
2.2 ETHICAL APPROVAL.....	93
2.2.1 Informed Consent.....	93

2.2.2 Wellbeing.....	94
2.2.3 Confidentiality and Anonymity.....	95
2.2.4 Revealing Deception.....	95
2.3 POWER ANALYSIS.....	96
2.4 INCLUSION AND EXCLUSION CRITERIA.....	96
2.5 RECRUITMENT, PAYMENT AND LOCATION.....	97
2.6 PARTICIPANT SAMPLE.....	98
2.7 DEMOGRAPHIC QUESTIONNAIRE.....	99
2.8 QUESTIONNAIRE MEASURES.....	99
2.8.1 Adapted Portrait Values Questionnaire 40-Item Version (PVQ-40).....	99
2.8.2 Measure of Constructs Underlying Perfectionism (M-CUP).....	102
2.8.3 Hospital Anxiety and Depression Scale (HADS).....	105
2.9 EXPERIMENTAL TASKS.....	107
2.9.1 Priming Tasks.....	107
2.9.2 Behaviour Task.....	109
2.10 BEHAVIOURAL MEASURES.....	109
2.10.1 Task Completion Time.....	110
2.10.2 Taking up the Offer of Checking.....	110
2.10.3 Checking Time.....	110
2.10.4 Task Accuracy.....	111
2.10.5. Checking Accuracy	111
2.11 PROCEDURE.....	111
2.12 DESIGN.....	114

CHAPTER 3: RESULTS

3.1 INTRODUCTION.....	116
3.2 DATA HANDLING.....	116
3.3 DATA MANAGEMENT.....	116
3.3.1 Excluded Data.....	116
3.3.2 Missing Data.....	117

3.3.3 Outliers.....	117
3.3.3.1 Questionnaire Measures.....	117
3.3.3.2 Behavioural Measures.....	118
3.4 DATA ASSUMPTIONS.....	119
3.4.1 Dependant Variables are Measured at Interval or Ratio Level.....	119
3.4.2 Independent Variables Consist of Two or More Categorical, Independent Groups.....	120
3.4.3 Independence of Observations	120
3.4.4 Adequate Sample Size.....	120
3.4.5 Data Multivariate Outliers.....	120
3.4.6 Data Multivariate Normality and Linearity.....	121
3.4.7 Data Homoscedasticity of Covariate Matrices.....	121
3.4.8 Data Multicollinearity.....	122
3.4.9 Bivariate Relationships.....	122
3.4.10 Summary of Data Assumptions.....	122
3.5 DESCRIPTIVE DATA ANALYSIS.....	124
3.5.1. Sample.....	124
3.5.2. Questionnaire Measures.....	126
3.5.2.1 Hospital Anxiety and Depression Scale (HADS).....	126
3.5.2.2 Measure of Constructs Underlying Perfectionism (M-CUP).....	127
3.5.2.3 Adapted Portrait Value Questionnaire (A-PVQ).....	129
3.5.2.3.1 Value Means.....	129
3.5.2.3.2 Value Priorities.....	132
3.5.2.3.3 Value Discrepancy.....	136
3.5.3. Behaviour Measures.....	139
3.5.3.1 Task Completion Time and Accuracy.....	139
3.5.3.2 Checking Option.....	140
3.5.3.3 Checking Time and Accuracy.....	140
3.6 INFERENCE DATA ANALYSIS.....	141
3.6.1 Hypothesis 1.....	141
3.6.2 Hypothesis 2.....	147

3.6.3 Hypothesis 3.....	149
3.6.4 Hypothesis 4.....	152
3.7 SUMMARY OF CHAPTER 3.....	154

CHAPTER 4: DISCUSSION

4.1 INTRODUCTION.....	158
4.2 STUDY RESULTS.....	158
4.2.1 Hypothesis 1.....	161
4.2.2 Hypothesis 2.....	163
4.2.3 Hypothesis 3.....	163
4.2.4 Hypothesis 4.....	164
4.3 CLINICAL IMPLICATIONS IN A MENTAL HEALTH CONTEXT.....	165
4.4 STUDY CRITIQUE.....	166
4.4.1 Strengths.....	166
4.4.1.1 Literature Review.....	166
4.4.1.2 Empirical Research.....	166
4.4.1.3 Design.....	167
4.4.1.3.1 Sample Size.....	167
4.4.1.3.2 Comparison Group.....	167
4.4.1.3.3 Randomisation.....	167
4.4.1.3.4 Measures.....	167
4.4.2 Limitations.....	168
4.4.2.1 Literature Review.....	168
4.4.2.2 Design.....	169
4.4.2.2.1 Sample.....	169
4.4.2.2.2 Procedure.....	170
4.4.2.2.3 Measures.....	170
4.4.2.3 Results.....	172
4.5 RECOMMENDATIONS FOR FUTURE RESEARCH.....	174
4.6 CONFLICTS OF INTEREST.....	175

4.7 SPONSORSHIP.....	175
4.8 FINANCES.....	175
4.9 SUMMARY OF CHAPTER 4.....	175
<u>REFERENCES.....</u>	177

LIST OF FIGURES

Figure 1.1	A model of basic values (Schwartz, 1992, pp. 45, Schwartz 1994, pp. 24, Schwartz, <i>et al.</i> , 2012, pp. 9).
Figure 1.2	A revised model of values (Schwartz, <i>et al.</i> , 2012, pp. 669).
Figure 1.3	A schematic diagram of the levels of mental representation of values (Maio, 2010, pp.10)
Figure 1.4	The revised cognitive-behavioural model of clinical perfectionism (Shafran, <i>et al.</i> , 2010, pp. 282)
Figure 2.1	Adapted PVQ 40 item measure: adapted instructions and rating scale (Rees & Maio, 2009; Parsons, 2014).
Figure 2.2	The study procedure sequence.

LIST OF TABLES

Table 1.1	Schwartz (1992, 1994) basic social values; their central motivational goals and single values (adapted from Schwartz, 1996, in Seligman, <i>et al.</i> , 1996, pp.3).
Table 1.2	Schwartz (1992) basic social values and their shared motivational goals (adapted from Schwartz 1996, in Seligman, <i>et al.</i> , 1996, pp. 4; Schwartz, <i>et al.</i> , 2012, pp. 9-10).
Table 1.3	Schwartz (1992) original ten values alongside Schwartz, <i>et al.</i> (2012) revised nineteen basic social values and their motivational goals (Schwartz, 1992, in Schwartz, 1996, Seligman, <i>et al.</i> , 1996; Schwartz, <i>et al.</i> , 2012, pp.669).
Table 1.4	Six self-state representations (adapted from Higgins, 1987, pp. 320-321).
Table 1.5	Higgins (1997) motivational systems and behavioural strategies to achieve goals.
Table 1.6	Motivational systems and reward structures (adapted from Higgins, 2000, pp 1223-1225).
Table 2.1	Participant demographic information across group conditions.
Table 3.1	Participant descriptive demographic information.

- Table 3.2 Descriptive data for the HADS measure for the total sample and each group (range, mean & standard deviation (sd)).
- Table 3.3 Descriptive data for the MCUP measure for each group (range, mean & standard deviation (sd)).
- Table 3.4 Descriptive data for the adapted PVQ measure *actual* scores for each group (range, mean & standard deviation (sd)).
- Table 3.5: Descriptive data for the adapted PVQ measure *ideal* scores for each group (range, mean & standard deviation (sd)).
- Table 3.6: Descriptive data for the adapted PVQ measure *ought* scores for each group (range, mean & standard deviation (sd)).
- Table 3.7: Descriptive data for the adapted PVQ measure *actual* value priorities for the total sample and each group (Mean).
- Table 3.8: Descriptive data for the adapted PVQ measure *ideal* value priorities for the total sample and each group (Mean)
- Table 3.9: Descriptive data for the adapted PVQ measure *ought* value priorities for the total sample and each group (Mean).
- Table 3.10: Descriptive data for the adapted PVQ measure *actual* quadrant priorities for the total sample and each group (Mean).
- Table 3.11: Descriptive data for the adapted PVQ measure *ideal* quadrant priorities for the total sample and each group (Mean).
- Table 3.12: Descriptive data for the adapted PVQ measure *ought* quadrant priorities for the total sample and each group (Mean).
- Table 3.13: Descriptive data for the adapted PVQ measure AI and AO discrepancy value scores (Mean), ranked largest to smallest for the total sample and each group.
- Table 3.14: Descriptive data for the adapted PVQ measure AI and AO discrepancy quadrant score (Mean) ranked largest to smallest for the total sample and each group.
- Table 3.15: Descriptive data for the Task Completion and Task Accuracy measure for each group (range, mean & standard deviation (sd)).
- Table 3.16: Descriptive data for the Checking Option measure for each group (%).
- Table 3.17: Descriptive data for the Checking Time Accuracy measure for each group (range, mean & standard deviation (sd)).
- Table 3.18: MCUP perfectionism scores correlated with quadrant mean scores (Schwartz, 1992; Schwartz, *et al.*, 2012).
- Table 3.19: MCUP perfectionism scores correlated with value priority mean scores (Schwartz, 1992; Schwartz, *et al.*, 2012).

Table 3.20: MCUP perfectionism scores correlated with behavioural measures: Task Time, Task Accuracy, Checking Option, Checking Time, and Checking Accuracy.

Table 3.21: MCUP perfectionism scores correlated with HADS anxiety and depression scores.

LIST OF APPENDICES

- Appendix 1 Systematic Review Process
- Appendix 2 Systematic Review Results
- Appendix 3 SURE Quality Framework
- Appendix 4 Quality Review
- Appendix 5 Ethical Approval Application
- Appendix 6 Ethical Approval Granted (include amendments)
- Appendix 7 Participant Information Sheet
- Appendix 8 Participant Consent Form
- Appendix 9 Participant Debrief Sheet
- Appendix 10 Demographic Questionnaire
- Appendix 11 Adapted Portrait Values Questionnaire 40 Item Version (PVQ-40)
- Appendix 12 Measure of Constructs Underlying Perfectionism (M-CUP)
- Appendix 13 Hospital Anxiety and Depression Scale (HADS)
- Appendix 14 Priming Task A
- Appendix 15 Priming Task B
- Appendix 16 Neutral Task
- Appendix 17 Behavioural Task
- Appendix 18 Behavioural Form
- Appendix 19 Box Plots for Outliers (HADS, MCUP, and PVQ)
- Appendix 20 Box Plots for Outliers (Behaviour Measures)
- Appendix 21 Tests of Normality
- Appendix 22 Tests of Homogeneity
- Appendix 23 One way ANOVA's (Age, gender)
- Appendix 24 Chi Square (Ethnicity)
- Appendix 25 One way ANOVA's (Anxiety, depression)

Appendix 26 One way ANOVA's (Perfectionism)

Appendix 27 One way ANOVA's (Values)

Appendix 28 Independent T-Tests

Appendix 29 MANOVA's

CHAPTER 1: INTRODUCTION

1.1 OVERVIEW OF THE CURRENT STUDY

The current study aimed to add to the existing research on values applied within a mental health context by exploring values, perfectionism and psychological distress; specifically the effects of priming the social value of Achievement on behaviour associated with perfectionism and self-reported anxiety and depression. Chapter one begins by introducing the key concept of values, how values have been operationalised and measured, before focusing on a cognitive model of basic social values developed by Schwartz (1992). It goes on to discuss how values have been suggested to influence and motivate behaviour, discussing research on priming social values and behavioural change (Maio, *et al.*, 2009; Maio, 2010). Higgins (1987) model of self-discrepancy will be introduced as a framework for exploring value discrepancy and emotional distress. The chapter then moves on to focus on Achievement based values and the construct of perfectionism in relation to psychological distress and clinical interventions. A systematic review aims to review current literature on perfectionism and experiences of anxiety. The chapter ends by outlining the rationale for the current study and main hypotheses. In chapter two, the methodology used in the current study is detailed including the sample, design, measures and procedures. Chapter three discusses the data management, before outlining the descriptive and inferential statistical analyses and results of the study relative to the hypotheses. Lastly, chapter four offers a summary of the study results relative to the literature on priming social values, value discrepancy, perfectionism and experiences of anxiety and depression. The implication and clinical relevance of the current study is considered before the study is critiqued by a consideration of strengths and limitations. The chapter concludes by regarding implications for future studies.

1.2 INTRODUCTION TO THE CURRENT STUDY

‘The value concept, more than any other, should occupy a central position . . . able to unify the apparently diverse interests of all the sciences concerned with human behaviour.’ (Rokeach, 1973, in Schwartz, 1992, pp. 1)

Since the start of the 20th Century, the conceptualisation of values has been evolving, with values being suggested to be amongst our most important evaluative beliefs (Allport, *et al.*, 1951; Rokeach, 1973; Spranger, 1928). Governments have also indicated the importance of values, including them as concepts in the Universal Declaration of Human Rights (1948), the European Convention on Human Rights (1950), and the Human Rights Act (1998). Within these documents, in their most basic form, human rights are suggested to come from our ‘shared values’.

More recently, the Department for Education published guidance on ‘promoting British values’ in schools to support young people to leave school prepared for life in Britain (Department for Education, 2014). This guidance stated that as well as the previously required respect for British values, all schools had a ‘duty to actively promote’ the ‘fundamental’ British values of: democracy, the rule of law, individual liberty, mutual respect and tolerance of those with different faiths and beliefs. These values were initially set out by the British government in the ‘Prevent Strategy’ (HM Government, 2011).

Despite researchers, governments, and the Department for Education promoting the importance of values, studies on the application of values appear to have been limited by: a lack of a clear and robust definition of values; limited evidence for their contents, structures, relations; and a lack of empirical tools to capture and measure them.

The concept of values has been investigated in several areas of social psychology, for example moral reasoning and development (Kristiansen & Hotte, 1996), self-affirmation theory (Steele & Liu, 1988), and decision making (Tanner, *et al.*, 2008). Values have also

been explored in sociology (Inglehart, 1997) and economics (Ben-Ner & Putterman, 1998). Whilst values have received a lot of research attention within the social psychology arena, in comparison there appears to be a lack of empirical research on values applied within a mental health context. Despite this lack of research, conceptualisations of values have been integrated in to several psychological therapies, including Person Centred Therapy (Rogers, 1951, 1961), Cognitive Behaviour Therapy (CBT; Beck, 1979), Narrative Therapy (White & Epston, 1990), Positive Psychology (Seligman & Csikszentimihalyi, 2000) and more recently Acceptance and Commitment Therapy (ACT; Hayes, *et al.*, 2003, 2012; Hayes, *et al.*, 2006; Hayes & Smith, 2005).

The current study aimed to add to the existing research on values in a mental health context, by exploring the effects of priming specific social values on behaviour and psychological distress in a non-clinical population. Specifically, the study aimed to explore the effects of priming the social value of Achievement on behaviour associated with perfectionism and self-reported anxiety and depression. To achieve these aims, the study utilised Schwartz (1992) and Schwartz, *et al.* (2012) empirically researched cognitive models of basic values and Maio, *et al.* (2009) and Maio (2010) research on priming values to motivate behaviour change. The study also utilised Higgins (1987) theory of self-discrepancy, to consider value discrepancy and psychological distress. The study outcomes aimed to inform further research exploring the application and efficacy of empirically researched models of values (Maio, 2010; Schwartz, 1992; Schwartz, *et al.*, 2012) applied to clinical populations and psychological therapies.

Chapter one will begin by introducing social values; focusing on how they have been defined, conceptualised, measured and empirically researched. Cognitive models of basic social values developed by Schwartz (1992) and Schwartz, *et al.* (2012) will be discussed with regard to how social values may motivate behaviour and relate to one another. A model of value activation developed by Maio (2010) will be presented along with research in to activating social values by priming and consequent behavioural change will also be explored. The application of Higgins (1987) theory of self-discrepancy will be applied to

values and the impact of value discrepancy on anxiety and depression will be discussed. The chapter will then move on to focus on the Self-Enhancement based Achievement value priorities, and the construct of perfectionism. The construct of perfectionism will be discussed, including definitions, measurement, and relevance within a mental health context. A systematic review will review the current evidence on perfectionism and anxiety in adults.

Schwartz (1992) basic model of social values will be discussed as a framework for the current study and priming social values to motivate behaviour change will be discussed as a methodology for exploring the effect of the social value of Achievement on perfectionist behaviour whilst considering value discrepancy, anxiety and depression. The chapter will conclude by declaring the specific hypotheses of the current study.

1.3 VALUES

1.3.1 Early Conceptualisations of Values

Rokeach (1973) published a culmination of over two decades of research on the conceptualisation of values in his book titled 'The Nature of Human Values'. In this work, he criticised previous research by Allport, *et al.* (1951, 1960) for reducing the concept of a value to the level of a preference and for not considering the relationships between values. Instead, Rokeach (1973) proposed that a value was more similar to an idealised standard and it was not a value considered alone that was important but the priority of one value in relation to another value (In Schwartz, 1996, in Seligman, *et al.*, 1996)

Rokeach (1973) suggested that values were standards that guided several processes including: action, attitude, attribution of causality, argument, judgment, choice, evaluation, exhortation, and rationalisation. He proposed 36 values that could be placed in to a

hierarchy of importance for each individual. The values given highest importance were termed 'central' values and were suggested to be connected to an individual's 'core self', acting as internal 'standards'. Whilst the values given least importance were termed 'peripheral' values and were suggested to be connected to the values shared with other individuals in society, acting as 'ought's'. Central values were described as being stronger in guiding an individual's thoughts and behaviours compared to peripheral values. Rokeach (1973) also introduced the constructs of 'instrumental' and 'terminal' values. 'Instrumental' values were suggested to motivate preferable behaviours that enable an individual to achieve their 'terminal' values. 'Terminal' values were described as values an individual may want to achieve during life to accomplish a desired end of life position.

Rokeach (1973) suggested that it was value conflict and resolution over time that developed an individual's value hierarchy i.e. if two values were in conflict, one needed to be chosen over the other to resolve the conflict. He proposed that it was possible to predict an individual's behaviour using their value hierarchy by measuring the 'relative ranking' of their values. These ideas consequently led to an interest in empirical research regarding the concept of values, the development of models of values and their application to behaviour.

1.3.2 Value Models

The role of values on subsequent behaviour has attracted research attention, with early research suggesting values guide all behaviour (Allport, *et al.*, 1960; Rokeach, 1973), and later research suggesting values rarely guide behaviour and not for most people (McClelland, 1985; Kristiansen & Hotte, 1996). Whilst Allport *et al.* (1960) and Rokeach (1973, 1979) offered definitions of values that differentiated between values and hypothesised on their relevance to motivating behaviour, neither definition offered a description of how values may relate to one another. To further understand values and their role in behavioural phenomenon, researchers have proposed models of values.

1.3.3 Schwartz (1992) Model of Basic Values

Schwartz (1992) set out to overcome the limitations he had identified in prior research including previous research having focused on one culture, a single value, an absence of a comprehensive set of values within a broader theory, and research having neglected value relations (Schwartz, 1996, in Seligman, *et al.*, 1996). Schwartz (1992) initiated the development of a model of basic human values to build a cross cultural theory of multiple values considering their motivations and relations. Initially, Schwartz (1992) reviewed empirical research that had been collated using a value survey with forty sample groups (students, teachers, general and factory workers) diverse in culture and language, from each of the inhabited continents – using 20 different countries in total. The data was then analysed using correlations and Small Space Analysis (SSA) to identify the relations and distances between values. This method produced a basic model of values with cross cultural consensus of values similarly understood across cultures in terms of their features and compatibility. The identified values were arranged so that conceptually similar values were positioned closest to one another and opposing values were positioned furthest away. This positioning created a circular model of values that not only differentiated values but also organised them according to their relative position to other values; Schwartz (1992) titled this model a Model of Basic Values.

1.3.3.1 Defining Values

Schwartz (1992, 1994) developed a definition of values as desirable ‘trans-situational goals, varying in importance, that serve as guiding principles in the life of a person or other social entity’ (Schwartz, 1992, pp. 17, 1994, pp. 21). Schwartz, *et al.* (2012) discusses how values are different to concepts of attitudes, beliefs, traits, or norms, as these concepts vary on another scale and are consequently measured differently, e.g. attitudes evaluate things on a positive or negative scale. Schwartz, *et al.* (2012) considered values to have six main defining features: 1) Values are beliefs linked inextricably to affect; 2) Values refer to

desirable goals that motivate action; 3) Values transcend specific actions and situations; 4) Values serve as standards or criteria; 5) Values are ordered by importance; and 6) the relative importance of multiple values guides action (Schwartz, *et al.*, 2012, pp. 3-4). As well as defining values by their shared features, Schwartz (1992) defined values by their motivational drives. These drives included values functioning to meet the needs of: individuals as biological organisms; the conditions of coordinated social interaction; and the survival and welfare needs of groups (Schwartz, 1992, 1994).

1.3.3.2 Differentiating Values

Utilising his definition of value features and motivations (as detailed above), Schwartz (1992, 1994) collated data from across 41 different countries and conducted an exploratory factor analysis and multidimensional scaling of the values recognised across cultures. The values collated were found to be related, there were values that appeared to often be prioritised at the same time, and there were values that were found to not be prioritised at the same time. The values were mapped according to these relationships; values were placed close together if it was likely that they would both be of similar importance to the same individual. In contrast, values were placed furthest from one another if it was less likely that they both would be seen as important to the same individual. Schwartz (1992) suggested that it was not that individuals could not hold opposing values, or hold one value and not another, but that individuals are motivated by all 10 values to differing extents and generally tend to prioritise one value over another. This process produced 10 motivationally distinct value priority groups: Self-Direction, Stimulation, Hedonism, Achievement, Power, Security, Conformity, Tradition, Benevolence, and Universalism. Table 1.1 presents each of the 10 values, defined by their central motivational goal and the single values that represent them.

Table 1.1: Schwartz (1992, 1994) basic social values; their central motivational goals and single values (adapted from Schwartz 1996, in Seligman, *et al.*, 1996, pp.3).

Value	Motivational goal, single values that represent these goals
Power	Social status and prestige, control or dominance over people and resources. <i>Social power, Authority, and Wealth.</i>
Achievement	Personal success through demonstrating competence according to social standards. <i>Successful, Capable, Ambitious, and Influential.</i>
Hedonism	Pleasure and sensuous gratification for oneself. <i>Pleasure and Enjoying Life.</i>
Stimulation	Excitement, novelty, and challenge in life. <i>Daring, a Varied Life, and an Exciting Life</i>
Self-Direction	Independent thought and action choosing, creating, exploring. <i>Creativity, Freedom, Independent, Curious, and Choosing own Goals.</i>
Universalism	Understanding, appreciation, tolerance and protection for the welfare of all people and for nature. <i>Broadminded, Wisdom, Social Justice, Equality, a World at Peace, a World of Beauty, Unity with Nature and Protecting the Environment.</i>
Benevolence	Preservation and enhancement of the welfare of people with whom one is frequent personal contact. <i>Helpful, Honest, Forgiving, Loyal, and Responsible.</i>
Tradition	Respect, commitment and acceptance of the customs and ideas that traditional culture or religion provide the self. <i>Humble, Accepting my Portion in Life, Devout, Respect for Tradition and Moderate.</i>
Conformity	Restraint of actions, inclinations, and impulses likely to upset or harm others and violate social expectations or norms. <i>Politeness, Obedient, Self-Discipline, Honouring Parents and Elders.</i>
Security	Safety, harmony and stability of society, of relationships and of self. <i>Family, Security, National Security, Social Order, Clean, and Reciprocation of Favours.</i>

1.3.3.3 Mapping Value Relations

Schwartz (1992, 1994) proposed that the 10 values were related to one another in terms of shared underlying motivations (see Table 1.2) and did not occur randomly.

Table 1.2: Schwartz (1992) basic social values and their shared motivational goals (adapted from Schwartz 1996, in Seligman, *et al.*, 1996, pp. 4; Schwartz, *et al.*, 2012, pp. 9-10).

Values	Shared Motivational Orientations
Power and Achievement	Both emphasise social superiority and esteem.
Achievement and Hedonism	Both emphasise self-centeredness.
Hedonism and Stimulation	Both emphasise a desire for affectively pleasant arousal.
Stimulation and Self-Direction	Both involve intrinsic motivation for mastery and openness to change.
Self-Direction and Universalism	Both express reliance upon one's own judgement and comfort with the diversity of existence.
Universalism and Benevolence	Both involve concern for enhancement of other and transcendence of selfish interests.
Benevolence and Tradition/Conformity	Each promotes devotion to one's in group.
Tradition/Conformity and Security	Each emphasise conservation of order and harmony in relations.
Security and Power	Both involve avoiding or overcoming the threat of uncertainties by controlling relationships and resources.

When the 10 values are positioned in terms of their shared motivational orientations they form a motivational continuum arranged as a 'circumplex' structure, with the positioning of a value representing its relation to the other values in the model. When represented on the circle, values adjacent to one another are most similar and share similar motivational goals. Values furthest away from one another at opposing ends are least similar and have conflicting motivational goals.

Figure 1.1 presents Schwartz (1992, 1994) circular model of values with the two dimensions positioned on the circumference. These dimensions are referred to as being four 'quadrants' within the model with motivations organised across two dimensions. The first dimension has Self-Enhancement at one end and Self-Transcendence at the opposing end. Values positioned at the Self-Enhancement end promote the self i.e. Achievement and Power, whilst values positioned at the Self-Transcendence end promote transcendence of the self to promote others i.e. Benevolence and Universalism. Self-Transcendence and Self-Enhancement value priorities may be considered to be alike the concepts of 'extrinsic

values' centred on external approval or rewards (Self-Enhancement) and 'intrinsic values' centred on inherent rewards (Self-Transcendent). The second dimension has Conservation at one end and Openness to Change at the opposing end. Values at the Conservation end promote the existing non changing status quo i.e. Tradition, Security and Conformity, whilst values positioned at the Openness to Change end promote change and potential uncertainty i.e. Self-Direction and Stimulation.

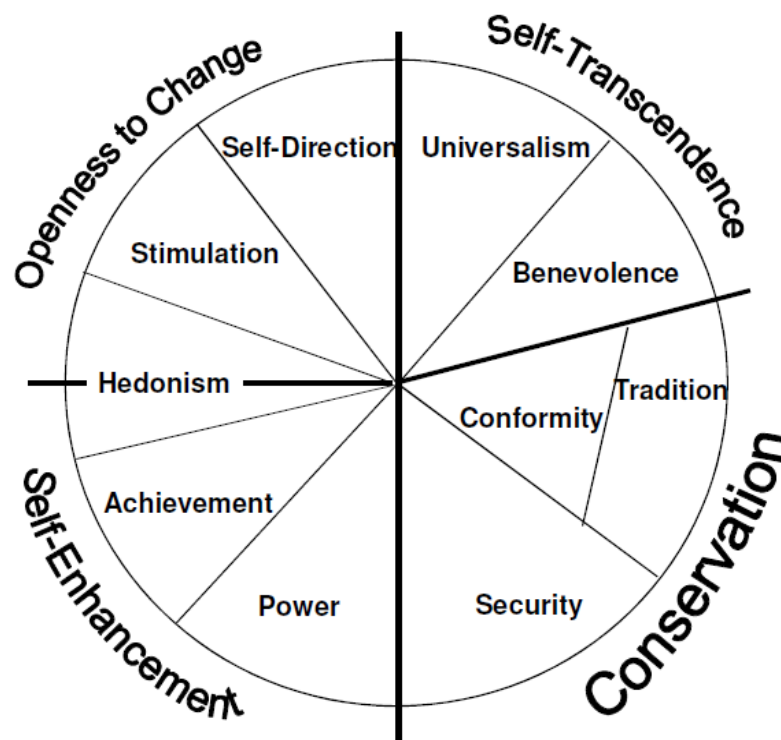


Figure 1.1: A model of basic values (Schwartz, 1992, pp. 45, 1994, pp.24; Schwartz *et al.*, 2012, pp. 9).

1.3.3.4 Hierarchy of Importance

Although some research has indicated that there are individual differences in value priorities (Schwartz & Bardi, 2001; Schwartz, *et al.*, 2012), and that value priorities are capable of change as individuals pursue value priorities that are open to them whilst casting aside and downgrading values when their pursuit is blocked (Schwartz & Bardi, 1997), more generally across cultures there appears to be a consensus for value priorities (Schwartz, *et*

al., 2012). Value priorities appear to be similar across cultures, with values being organised in the following way: high priority - Benevolence, Self-Direction and Universalism; medium priority - Achievement, Conformity, Hedonism, Security and Tradition; low priority - Stimulation and Power. This cross cultural consensus enables a baseline 'norm' to which other hierarchies may be compared. Schwartz, *et al.*, (2012) suggested such a cross cultural consensus may exist due to the shared importance individuals place on maintaining societies. Consequently, values which promote behaviours that maintain a society are considered to be more important than values that promote behaviour that may compromise society.

1.3.3.5 Model Validity

Schwartz (1992, 1994) model has been utilised to analyse data collated from numerous cross culture samples (Schwartz, 1996; 2006; Schwartz, *et al.*, 2001; Schwartz, & Bardi, 2001) and has been validated for use across such diverse demographic samples (Bilsky, *et al.*, 2011; Davidov, 2008; Peng, *et al.*, 1997). Research has found some differences in value priorities across cultures; however the core structure underlying value priorities appears to be consistent (Schwartz, 1994; 1999). The circular structure of motivational orientations has also been supported in a number of studies (Cieciuch & Schwartz, 2012; Schwartz, 1994; Schwartz & Boehnke, 2004; Vecchione, *et al.*, 2009). Researchers have also applied the model in empirical studies exploring value priming effects (Maio, *et al.*, 2009), value change (Bardi & Goodwin, 2011), and psychological distress (Sortheix, *et al.*, 2013). As well as having construct (Cieciuch & Schwartz, 2012; Schwartz, 1994; Schwartz & Boehnke, 2004; Sortheix, *et al.*, 2013; Vecchione, *et al.*, 2009) and cross cultural (Schwartz, 1996, 2006; Schwartz, *et al.*, 2001; Schwartz, & Bardi, 2001) validity, the model offers a framework on which research may form and test predications about values and behaviour such as predicting the effects of value relations (Maio, 2010; Maio *et al.*, 2009), value discrepancy (Parsons, 2013; Rees & Maio, 2009), priming values and behaviour (Maio, 2010; Maio, *et al.*, 2009; Woodfield, 2014) and impacts on emotional distress (Sortheix, *et al.*, 2013).

1.3.4 Schwartz, *et al.* (2012) Revised Model of Basic Values

Research utilising Schwartz (1992; 1994) model of values suggested that some of the values proposed were conceptually broad and were constituted from a number of distinct value aspects (Caprara, *et al.*, 2006; Vecchione, *et al.*, 2012). In order to increase the explanatory power of the original model, Schwartz, *et al.* (2012) utilised a values survey to gather data from 15 samples (6059 participants in total) across 10 countries. The factor structure of the data was then analysed using a confirmatory factor analysis. This process produced a revised model that had 12 overarching values: Self-Direction, Stimulation, Hedonism, Achievement, Power, Face, Security, Tradition, Conformity, Humility, Universalism and Benevolence. Six of these values were considered to be conceptually broad and were further subdivided in to distinct value aspects: Self-Direction was split in to two aspects (Thought and Action); Power was split in to two aspects (Dominance and Resources); Security was split in to two aspects (Societal and Personal); Conformity was split in to two aspects (Interpersonal and Rules), Universalism was split in to three aspects (Nature, Concern and Tolerance); and Benevolence was split in to two aspects (Caring and Dependability). The 19 values identified have motivational goals compatible with those of the 10 values from the original model. Therefore, the circular continuum formed by shared motivational orientations is maintained in the revised model. Table 1.3 presents the original 10 values alongside the revised 19 values and their motivational goals.

Table 1.3: Schwartz (1992) original 10 values alongside Schwartz, *et al.* (2012) revised 19 basic social values and their motivational goals (Schwartz 1992, in Schwartz 1996, Seligman, *et al.*, 1996; Schwartz, *et al.* 2012, pp. 669).

Schwartz (1992)	Schwartz, <i>et al.</i> (2012)	
Original Value	Revised Value	Motivational Goal
Self-Direction	Self-Direction – thought	Freedom to cultivate one’s own ideas and abilities.
	Self-Direction – action	Freedom to determine one’s own actions.
Stimulation	Stimulation	Excitement, novelty and change.
Hedonism	Hedonism	Pleasure and sensuous gratification.
Achievement	Achievement	Success according to social standards.
Power	Power – Dominance	Power through exercising control over people.
	Power – Resources	Power through control of material and social resources.
	Face	Security and power though maintaining one's public image and avoiding humiliation.
Security	Security - Personal	Safety in one's immediate environment.
	Security - Societal	Safety and stability in the wider society.
Tradition	Tradition	Maintaining and preserving cultural, family or religious traditions.
Conformity	Conformity – Rules	Compliance with rules, laws and formal obligations.
	Conformity - Interpersonal	Avoidance of upsetting or harming other people.
	Humility	Recognising one's insignificance in the larger scheme of things.
Benevolence	Benevolence - Dependability	Being a reliable and trustworthy member of the in-group.
	Benevolence – Caring	Devotion of the welfare of in-group members.
Universalism	Universalism – Concern	Commitment to equality, justice and protection for all people.
	Universalism - Nature	Preservation of the natural environment.
	Universalism – Tolerance	Acceptance and understanding of those who are different from oneself.

The revised model included the original dimensions of value motivations relating to one another across the dimensions of Self-Enhancement/Self-Transcendence and Conservation/ Openness to Change. The revised model also included two additional dimensions of value motivations. The first additional dimension has societal social focus motivations at one end

and individual personal focus motivations at the opposing end. The second additional dimension has self-expansion and growth – anxiety free motivations at one end and self-protection - anxiety avoidance motivations at the opposing end. The revised model suggests that the values placed within the Self-Transcendence and Conservation quadrants serve to regulate an individual with regard to socially focused issues. Whilst values placed within the Self-Enhancement and Openness to Change quadrants serve to regulate an individual with regard to personally focused issues. The revised model also suggests that the pursuit of values within the Self-Enhancement and Conservation quadrants are self-protective and serve to cope with anxiety. In contrast, the values within the Self-Transcendence and Openness to Change quadrants are self-expansive and serve to express Anxiety-Free motivations. This configuration of value priorities suggests that people who prioritise values associated with Conservation and Self-Enhancement may be motivated to pursue behaviours associated with self-protection and trying to cope with life. The three dimensions arranged by motivational orientations can be seen in Schwartz, *et al.* (2012) revised model in Figure 1.2 below.



Figure 1.2: A revised model of values (Schwartz, *et al.*, 2012, pp.669).

In this model, the values of Humility and Achievement overlap in their motivations with regard to the additional dimension of self-growth/self-protection. The value of Achievement is of particular interest in the current study and its overlapping position on the self-protection/self-growth dimension suggests that meeting standards may serve to self-protect and cope with anxiety or to promote self-growth by expressing ones competence and anxiety free motivations.

Schwartz, *et al.* (2012) proposed that the revised model provides increased explanatory power compared to the original 1992 model, and that the revised model can be converted to and add to the original 1992 model without invalidating it. These proposals have not yet been evidenced by research.

Research has explored the two additional dimensions proposed. Schwartz, *et al.* (2000) explored the dimension of socially and personally focused motivations. In their study, value priorities and worry related to seven societal issues were measured. The study reported that worry about issues such as hunger, destruction of the environment and poverty, were positively correlated to the values positioned on the social focus end of the dimension. In contrast, values positioned on the personal focus end were negatively correlated with the social worries. These authors also reported that worries related to personal issues that may serve to self-protect from anxiety such as concern about own health, safety, success and finances, were positively correlated to the values positioned on the Self-Enhancement quadrant. In contrast, values positioned on the Self-Transcendence quadrant were negatively correlated. These findings offer support for Schwartz, *et al.* (2012) revised model and the additional dimensions of social/personal focused motivations and anxiety free/anxiety protection motivations. Research has also investigated the social/personal dimension and how this relates to anxiety motivations utilising the values positioned on the quadrant dimensions of the model.

Bilsky, *et al.* (2011) analysed data collected from the European Social Survey (ESS), focusing on values and mood. The study reported that positive answers on mood questions were positively correlated with values positioned on the Self-Transcendence and Openness to Change quadrants and negatively correlated with values positioned on the Conservation and Self-Enhancement quadrants. These findings offer support for the additional dimension of anxiety free/anxiety protection motivations, supporting the assumption that values positioned on the Conservation and Self-Enhancement quadrants relate to increased anxiety compared to values positioned on the Self-Transcendence and Openness to Change quadrants.

The current study utilised Schwartz (1992) model of basic values due to the model's ability to define, differentiate and understand how values relate to one another and impact on behavioural motivations. The model has also been used in empirical research with diverse cross cultural samples and so was considered to have a good level of validity. The original 1992 model was chosen due to the current lack of empirical research on Schwartz, *et al.* (2012) revised model. However, the revised model was also considered with regard to how values relate to social and personal motivations and self-expansion/anxiety free and self-protection/anxiety avoidance motivations as previous research has supported the validity of these dimensions (Bilsky, *et al.*, 2011; Schwartz, *et al.*, 2000). The current study also utilised the Portrait Value Questionnaire (PVQ) developed by Schwartz, *et al.* (2001).

1.3.5 Measuring Values

1.3.5.1 The Schwartz Value Scale (SVS)

The Schwartz Value Scale (SVS; Schwartz 1992) was developed to measure the values identified in Schwartz (1992) basic values model. It was regarded as a measure of explicit values and utilises abstract, context free thinking. The SVS has been utilised in research and has provided support for construct and structural validity of Schwartz (1992) model

(Fontaine & Schwartz, 1996; Schwartz, 1994; Schwartz & Bardi, 2001; Schwartz & Sagiv, 1995). This research also reported that samples from non-western populations were deviating from the theorised baseline pattern of value priorities proposed by Schwartz (1992, 1994). Deviations were reported to occur most frequently and be more pronounced in samples from non-western and rural areas of less developed countries. Such deviations may have suggested that the model was not applicable to non-western, rural areas of less developed countries; however it was also plausible that the non-western samples may have differed to western samples on their use of context-free, abstract thinking on which the SVS was based. In light of this, the SVS was criticised for measuring values based on a lack of specific concepts and a reliance on abstract thought concepts without concrete examples.

1.3.5.2 The Portrait Value Questionnaire (PVQ)

The Portrait Value Questionnaire (PVQ) was developed by Schwartz, *et al.* (2001) as an alternative to the SVS, to measure the values identified in Schwartz (1992) basic values model. The PVQ is a self-reported implicit measure of social value priorities. The PVQ was designed to be appropriate for individuals aged from eleven years old to elderly and for people with non-western backgrounds and education. It was regarded to measure implicit values and to be more concrete than the previous SVS with an easier to use rating scale. There are two versions of the PVQ available, a 40-item version and a shorter 21-item version.

The PVQ has been utilised in research and found to have good internal reliabilities and convergence with the SVS (Schwartz & Rubel, 2005). The PVQ has also been reported to produce the baseline pattern of value priorities proposed by Schwartz (1992, 1994) in non-western samples (Schwartz, *et al.*, 2001), and so confirms the limitations in using the SVS in non-Western samples.

1.3.5.2.1 The Portrait Value Questionnaire – 40 item version (PVQ - 40)

The PVQ-40 questionnaire includes 40 portraits of individuals; the portraits are presented in two versions, as male or female (Schwartz, *et al.*, 2001; Schwartz & Rubel, 2005). The gender of the portraits is matched to the participant completing the measure. Each portrait implicitly describes a social value held by an individual by describing what they regard as an important goal in life. For example, item 1 for the male portraits implicitly describes the social value of 'Self-Direction' from Schwartz (1992, 1994) by describing the following male portrait: 'thinking up new ideas and being creative is important to him. He likes to do things in his own original way'. Participants are asked to decide how much the individual described is like them by choosing from one of six options: 'very much like me', 'like me', 'somewhat like me', 'a little like me', 'not like me', and 'not like me at all'. The participants social values are then inferred from their similarity to the social values implied in each of the 40 portrait items. The number of portrait items for each implied social value ranges from three (Hedonism, Power and Stimulation) to six (Universalism). The number of portrait items for each implied social value is considered to reflect the conceptual breadth of the value i.e. universalism has the widest conceptual breadth (Schwartz, 1992, 1994).

The PVQ-40 questionnaire is scored by calculating the mean score for the portrait items related to each of the social values. In total 10 scores are calculated, one for each of the 10 social values (Schwartz, 1992, 1994). The 10 values are then ranked in terms of importance with the highest scoring value to lowest scoring value. These scores can be used to give an indication of social value priorities. Mean scores for each of the four value quadrants (Schwartz, 1992, 1994) can also be calculated. The four quadrants can then be ranked by priority from lowest score (highest priority) to highest score (lowest priority).

The PVQ-40 questionnaire has been suggested to have good internal consistency (Schwartz, *et al.*, 2001; Schwartz & Rubel, 2005), construct validity (Cieciuch & Schwartz, 2012; Vecchione, *et al.*, 2009), with the quadrant structure being supported (Hinz, *et al.*, 2005).

The measure has also been demonstrated to have similar meaning across cultures (Schwartz, 2006) and across cultures has produced the core pattern of value priorities proposed by Schwartz (1992, 1994) and (Schwartz, *et al.*, 2001).

1.3.5.2.2 The Portrait Value Questionnaire – 21 Item Version (PVQ - 21)

The PVQ-21 questionnaire was developed specifically for the European Social Survey (ESS). The ESS is an academically driven survey that is now funded by the European Research Infrastructure Consortium (ERIC). The survey commenced in 2001 and is conducted once every two years across Europe. The aim of the survey is to measure the attitudes, beliefs and behaviour patterns of people living across Europe.

The PVQ-21 includes short verbal portraits of 21 different individuals; the portraits are presented in two versions, as male or female (Schwartz, *et al.*, 2001; Schwartz & Rubel, 2005). As in the PVQ-40, each portrait implicitly describes a social value held by an individual by describing what they regard as an important goal in life. Participant's value priorities are inferred from their self-reported similarity to other individuals being described implicitly in terms of their values. The PVQ-21 has fewer portrait items compared to the PVQ-40 and so there are fewer items corresponding to each social value. There are two portrait items related to each social value, with the exception of the social value of 'universalism', which has three items to represent its wider conceptual breadth compared to the other values. The PVQ-21 questionnaire uses the same scoring methods as the PVQ-40. Davidov (2010) expressed limitations with regards to the internal consistency of the PVQ-21, however the construct validity and quadrant structure has been supported (Bilsky, *et al.*, 2011; Verkasalo, *et al.*, 2012)

1.3.5.2.3 The Adapted Portrait Value Questionnaire - 40 Item Version (Adapted PVQ - 40)

The PVQ-40 has been adapted for use in studies exploring social value discrepancy (Parsons, 2013; Rees & Maio, 2009). This adaption aimed to incorporate Higgins (1987) model of self-discrepancy into the measure. The PVQ-40 instructions and rating scales were adapted to incorporate *actual/own*, *ideal/own* and *ought/own* self-state representations. These adaptations aimed to measure *actual/ideal* discrepancies or *actual/ought* discrepancies between social value priorities. Instructions were adapted and participants were asked to think about how much each portrait described a person that 'is actually like you', 'is ideally like you', and 'is what you should be like'. The rating scale was adapted so that participants answered these three questions for each portrait item: 'How much are you like this person?', 'Ideally, how much would you be like this person?', and 'How much should you be like this person?'. The rating scale was also adapted to: 'Not at all (1)', '2', 'somewhat (3)', '4', and 'very much (5)'. The current study utilised the Adapted PVQ-40 (Parsons, 2013; Rees & Maio, 2009) as a measure of social values due to its ability to measure values relative to Schwartz (1992, 1994) model, whilst also measuring value discrepancy.

1.3.6 Activating Values

1.3.6.1 A Cognitive Representation of Values

Schwartz and Bilsky (1987) suggested that values were organised as unconscious cognitive structures that can be retrieved from memory when needed. This conceptualisation of values as cognitive structures that can be activated appeared to be congruent with earlier theorised concepts of cognitive structures that could be activated via a process of 'spreading activation' (Collins & Loftus, 1975). This process suggests that the activation of one concept then cognitively spreads to activate other related concepts.

Later, Maio and Olson (1998) suggested that often values operate as ‘truisms’; they are often assumed to be self-evident and not questioned. They proposed that individuals do not tend to consider their reasoning behind a value and often do not have evidence for a particular value being important. Consequently, they also suggested that values are so widely accepted and deeply held without query that individuals may not be conscious of them. Maio (2010) proposed that values may be considered as mental representations that are available to us under certain circumstances, such as when we think about them or when they are activated. These value mental representations were suggested to operate at a system level, a value level, and an instantiation level (see Figure 1.3). Schwartz (1992) model of basic values would fit within the system level of this representation.

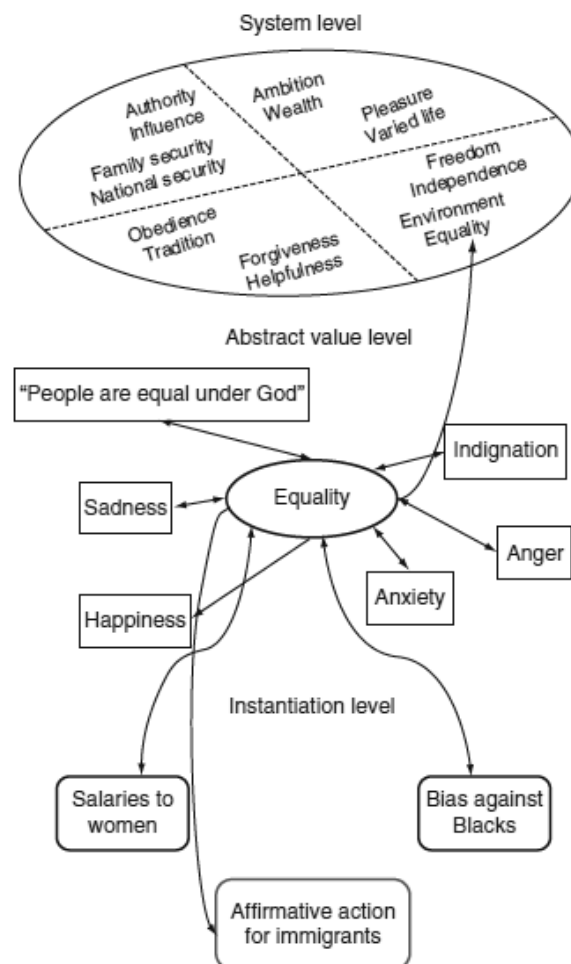


Figure 1.3: A schematic diagram of the levels of mental representation of values (Maio, 2010, pp. 10).

Using this mental representation of values, Maio (2010) related each level to understanding the concept of values and how they function. Motivational relations between values at the proposed 'system level' are suggested to have implications for understanding six processes including: relations between values; the accessibility of values; judgements of value relations in rhetoric; feelings of ambivalence; effects of value priming on behaviour; and value change. At the proposed 'value level', values are suggested to be connected to emotions and the type of emotion experienced is thought to be dependent on value discrepancy i.e. value-*ideal* self-guides versus value-*ought* self-guides. At the proposed 'instantiation level', values are suggested to be accessed, contemplated and applied through value directed behaviour. It is at the 'instantiation level' that research has based the exploration of priming values and influences on subsequent behaviour.

1.3.6.2 Activating Values by Priming

Schwartz and Bardi (2001) report that further research investigating values and their influence on behaviour before there can be research on establishing and changing values to consequently change behaviour e.g. via media campaigns, education programmes, or health interventions. Whilst existing research has investigated values and behaviour (Bond & Chi, 1997; Rokeach, 1973; Schwartz, 1996), this research has been criticised for focusing on single values and their relationship with a single factor, for example exploring how one value priority relates to one behaviour, attitude, or socio-cultural factor e.g. social class, ethnicity (Bardi & Schwartz, 2003; Schwartz, 1997). The research has also received criticism for having low reliability, lacking a broader theoretical model of a comprehensive set of values, and ignoring the more widely held assumption that it is competing values relating to one another and not one single value that impacts on behaviours (Schwartz, 1992).

Three main levels of activating values have been put forward by researchers; these include priming values using conscious, unconscious or subliminal methods (Bardi & Goodwin, 2011; Maio & Thomas, 2007; Petty & Cacioppo, 1986). Conscious methods include processes that

use persuasion or ask people to consider reasons for or against a value they hold (Karremans, 2007; Maio, *et al.*, 2009). Unconscious methods include processes that involve implicit priming tasks where an individual is asked to complete puzzles or word tasks themed around a specific value (Bargh, *et al.*, 2001; Hart & Albarracin, 2009; Verplanken & Holland, 2002; Maio, *et al.*, 2009). Lastly, subliminal methods involve asking people to complete a task on a computer with subliminal primes flashed onto the screen (Neuberg, 1988; Smeesters, *et al.*, 2009). Each of these method levels have been supported to not only to activate values but also result in value congruent behaviours. When a conscious, unconscious, or subliminal process has occurred to attempt to cognitively bring the value to mind, the value may be considered to have been activated through priming.

Maio, *et al.* (2001) tested the process of activating values to investigate whether priming methods that involve making reasoning for values salient (e.g. asking individuals to list reasons for and against a value) are more effective than priming methods that do not make reasoning for values salient (e.g. solving anagrams of value related words and rating importance of the value, or rating feelings towards a value). The study found that when participants considered reasons for their values, their value congruent behaviour changed more than those who had not considered their reasoning. The study supported Maio and Olsen (1998) previous work suggesting individuals tend to hold values as truisms and behave congruently with their values. However, suggested that values can be activated more effectively by using priming methods that make them available for consideration. This process of consideration was suggested to have an impact on subsequent behaviour i.e. if an individual considers a value, subsequent value congruent behaviour increases.

In a series of five experiments Maio, *et al.* (2009) further explored whether priming values influences behaviour, specifically whether priming a value increased behaviour that supported the value motivation whilst decreasing behaviour that supported an opposing value motivation. For example, in experiment number five, 112 undergraduate participants, were primed to either Achievement or Benevolence values utilising a sorting task (participants asked to sort either Achievement values or Benevolence values from items and

adjectives) and consequent behaviours were investigated. Participants in the Achievement condition showed more Achievement motivated behaviour (completing puzzles) than participants in the Benevolence condition. In contrast, participants in the Benevolence condition showed more Benevolence motivated behaviour (volunteering for another experiment without payment) than participants in the Achievement condition. Therefore, the study found that priming values increased behaviour that was relevant to the values, while it decreased behaviour that was relevant to opposing values. Maio, *et al.* (2009) discussed what has been referred to as 'the see saw effect', in that values on opposite sides of Schwartz (1992) model circumplex are rarely held strongly by the same person i.e. when a value is primed, opposing values and their associated value-congruent behaviours tend to be suppressed. Other researchers have also reported that priming values increases behaviour relevant to the values, while decreasing behaviour relevant to opposing values (Bargh, *et al.*, 2001; Karremans, 2007; Verplanken & Holland, 2002).

1.3.6.3 Typical Representations of Values and Value Congruent Behaviour

A number of studies have found that typical instantiations of values i.e. more widely recognised examples are more likely to lead to value congruent behaviour than atypical instantiations. Maio, *et al.* (2009) primed participants with a typical instantiation or an atypical instantiation of the value equality and reported participants primed with a typical instantiation were more likely to engage in value congruent behaviour i.e. allocating points fairly between groups, than participants primed with an atypical instantiation. Maio, *et al.* (2009) concluded that priming typical instantiations may have led to higher levels of value congruent behaviour because the instantiation concept had previously been considered in relation to equality and therefore 'spreading activation' to other related concepts of equality may have occurred more readily. In contrast, the atypical instantiation may not be an instantiation concept that the participant had previously considered in relation to equality and therefore 'spreading activation' to other related concepts occurred less readily. As well as value accessibility being linked to typical instantiations, research has suggested

accessibility to be linked to centrality (Verplanken & Holland, 2002) and importance (Bardi, 2000).

The current study utilised priming methods aimed to elicit salient consideration of a value (Maio, *et al.*, 2001) to activate values at the system level (Maio, 2010) in order to further explore the effect of priming social values on behaviour.

1.3.7 Summary of Values

In summary, values have been conceptualised in many ways. Schwartz (1992) offers a model of basic social values that defines and differentiates values, mapping value relations. Schwartz, *et al.* (2012) has revised this model, adding further value motivational dimensions. Schwartz (1992) and Schwartz, *et al.* (2012) have also developed the PVQ tool to measure value priorities. Research has suggested that values act as truisms unless activated, and various priming strategies have been explored (Maio, *et al.*, 2009). Maio (2010) proposed a mental representation of value activation that maps on to Schwartz (1992) model of values. Using this model, Maio, *et al.* (2009) and Maio (2010) have proposed that priming social values impacts on behaviour, increasing value congruent behaviour.

1.4 SELF-DISCREPANCY

Higgins' (1987) theory of self-discrepancy proposes a framework to support the understanding of different types of emotional distress experienced by people who hold discrepant self-guides. Within this theory there are three types of evaluations of self: *actual* self, *ideal* self, and *ought* self. There are also two perspectives on these types of self: the *own* and the *other*. These six self-state representations are presented in Table 1.4.

Table 1.4: Six self-state representations (adapted from Higgins, 1987, pp. 320-321).

	Actual	Ideal	Ought
Own	Self-Concept	Self-Guide	Self-Guide
Other	Self-Concept	Self-Guide	Self-Guide

Higgins (1987) proposed that a person’s self-concept is composed of the *actual/own* and the *actual/other*, and that the other four representations are considered self-guides. These self-guides are suggested to be internal standards that an individual is motivated to reach i.e. being in a position where a self-concept matches a self-guide. Individuals may evaluate their self based on their perception of discrepancy between their self and self-guide. Higgins suggested that it was the discrepancy between these state representations would result in an individual experiencing distress and that the distress would differ depending on the type of discrepancy. Discrepancy between *actual/ideal* self representations were thought to increase emotional distress associated with low mood whilst discrepancy between *actual/ought* self representations were thought to increase emotional distress associated with anxiety. Higgins, *et al.* (1986) developed the self-discrepancy questionnaire to measure self-discrepancies. In this measure, individuals are asked to list up to ten qualities that they believe they *actually* have, would *ideally* like to have or believe they *ought* to have. Discrepancies are scored by subtracting the total number of matching qualities across the three lists from the mismatching qualities.

Higgins (1997) Regulation Focus Theory (RFT) proposed that the motivation of an individual impacts on the way that they behave to pursue goals (see Table 1.5). The pursuit of a goal may be positive or negative, with individuals being either motivated to pursue goals through a promotion system focused on gains (e.g. gain of hopes, accomplishments) or a prevention system focused on losses (e.g. loss of safety, security, responsibility). Higgins suggested these motivational orientations were not fixed and could be primed.

Table 1.5: Higgins (1997) motivational systems and behavioural strategies to achieve goals.

		Motivation Focus	
		Promotion	Prevention
Behaviour Strategy	Approach	Advancement Growth "Gain"	Safety Security "Non loss"
	Avoidance	Deprivation Stagnation "No-gain"	Danger Threat "Loss"

Later, Higgins (1998) suggested that when an ideal self-guide motivates a promotion 'gain/no gain' focus an individual may be more sensitive to positive outcomes, and when an *ought* self-guide motivates a prevention 'loss/no loss' focus an individual may be more sensitive to negative outcomes. Higgins (1999) also proposed four factors that impact on how discrepancy relates to emotions, these included: the magnitude of a self-discrepancy; the accessibility of a self-discrepancy; the applicability and relevance of a self-discrepancy in context; and the importance of a discrepancy to an individual.

RFT lead to the development of Regulatory fit theory (Higgins, 2000) (see Table 1.6) that suggested that when the motivation to pursue a goal, the behaviour to pursue the goal and the reward matched, this resulted in an individual experiencing 'rightness' about the motivation, increasing engagement in the behaviour. This experience of regulatory fit is suggested to maintain the individuals own values. When individuals experience the 'rightness' of fit, they will be satisfied about what they are doing, and the way they are doing it. If an individual experiences a 'non fit', they will not experience satisfaction and what they are doing and the way they are doing it will not 'feel right' (Higgins, 2005). Higgins, *et al.* (2001) developed the Regulatory focus questionnaire to measure these concepts.

Table 1.6: Motivational systems and reward structures (adapted from Higgins, 2000, pp. 1223-1225).

		Motivation Focus	
		Promotion	Prevention
Reward Structure	Gain	Regulatory 'fit'	Mismatch 'non fit'
	Loss	Mismatch 'non fit'	Regulatory 'fit'

1.4.1 Model Validity

Higgins (1987) theory of self-discrepancy has been researched and supported by several research studies, with many studies being conducted with populations with physical health (e.g. cancer, Heidrich, *et al.*, 1994; chronic back pain, Kinderman, *et al.*, 2011) and mental health diagnoses (depression, Vergara-Lopez & Roberts, 2012; social phobia, Strauman, 1989; eating disorders, Wonderlich, *et al.*, 2008).

Research has supported the concept of self-discrepancies applied to values, reporting that when an individual's values do not match the values perceived as being dominant in their environment, this discrepancy can result in emotional experiences of anxiety and low mood (Savig & Schwartz, 2000; Lonqvist, *et al.*, 2009).

Rees and Maio (2009) investigated values and self-discrepancies in an undergraduate population, reporting that value with high priority were associated with *ideals* rather than *ought's*, whereas the least prioritised values were associated with *ought's* rather than *ideals*. The study also investigated violation of values and the impact on emotional distress.

The study reported that when participants were required to violate a highly prioritised value in a public and private context they reported experiencing more dejection than when violating a least prioritised value in the same contexts. When participants were required to violate a least prioritised value in a public context they reported experiencing more agitation than when violating a highly prioritised value in the same context. Maio (2010) considers this research in support of the 'value level' of his mental representation of values, and the role of prioritised and more peripheral values on discrepancy and emotional experiences.

Parsons (2013) investigated values and self-discrepancies in a clinical population. The study reported that the largest value discrepancies were found in values of Hedonism, Stimulation, Achievement, Security, Self-Direction, and Power. The clinical population with experiences of mental health difficulties were reported to have larger value discrepancies in these values than the non-clinical population sample. The study also reported that *actual/ought* value discrepancies were found to be greater than *actual/ideal* value discrepancies when looking at the clinical groups. The study also aimed to investigate whether value discrepancies were related to distinct experiences of emotional distress i.e. anxiety and depression. *Actual/ideal* value discrepancies were not specifically associated with depression, and *actual/ought* value discrepancies were not specifically associated with anxiety. However, correlations were found between value discrepancies and both anxiety and depression. This study appears to support the value motivational structure of Schwartz (1992) and Schwartz, *et al.* (2012) model of values and aspects of Higgins (1987) theory of self-discrepancy, supporting the concept of self-discrepancy but not that discrepancy between *actual/ideal* self representations increase emotional distress associated with low mood whilst discrepancy between *actual/ought* self representations increase emotional distress associated with anxiety.

1.4.2 Summary of Self-Discrepancy

In summary, Higgins (1987) model of self-discrepancy has been used to understand value discrepancy and experiences of psychological distress (Parsons, 2013; Rees & Maio, 2009). This research has proposed that value-discrepancy may be associated with increased levels of psychological distress.

1.5 VALUES IN A MENTAL HEALTH CONTEXT

This section will explore the previously discussed conceptualisations of values (Maio, 2010; Schwartz, 1992; Schwartz, *et al.*, 2012) and value discrepancy (Higgins, 1987) applied to psychological distress and interventions within a mental health context. Research has proposed that there are links between values and psychological distress (Maio, 2010; Maio, *et al.*, 2009; Schwartz, 1992, 1994; Schwartz, *et al.*, 2012), suggesting that values and emotional experiences are linked more strongly than values, cognitions and behaviours (Maio, *et al.*, 2009). This section will consider how further research on empirically grounded conceptualisations of values and value discrepancy may further develop our understanding of psychological distress and inform clinical interventions.

1.5.1 Value Motivations and Psychological Distress

Schwartz, *et al.* (2012) further proposed that value priorities may motivate individuals to avoid anxiety promoting behaviour to attain self-protection, or values may motivate individuals to be 'anxiety free' promoting behaviour to attain self-growth. Within this framework, Schwartz suggests that an ongoing motivation to avoid anxiety when this experience is inevitable may have a negative impact on wellbeing. Schwartz, *et al.* (2000) investigated value priorities and experiences of personal and societal anxiety. The study reported that value priorities positioned on the Self-Transcendence quadrant were

positively correlated to societal worries as individuals were more likely to be focused on others. Value priorities positioned on the Self-Enhancement quadrant were positively related to personal worries, as individuals are more likely to be focused on the self. Value priorities positioned on the Openness to Change quadrant were negatively correlated to personal worries as individuals were less concerned about uncertain personal consequences. With regards to values on the Conservation quadrant, security values were positively correlated to personal and societal worries about safety and health, as individuals were concerned about these issues for the self and others. This research supported the value quadrants and motivational dimensions of Schwartz (1992) value model.

Using Schwartz (1992) theory of values, Silfver, *et al.* (2008) proposed that the values Universalism, Benevolence, Tradition and Conformity were positively correlated to emotional experience of guilt and empathy, whilst the values of Power, Hedonism, Stimulation and Self-Direction were negatively correlated to experiences of guilt and empathy. The study concluded that value priorities positioned on the Self-Transcendence and Conservation quadrants were associated with pro-social emotional experiences, whilst value priorities on the Self-Enhancement and Openness to Change quadrants were not. Lonnqvist, *et al.* (2009) reported that values positioned on the Openness to Change and Self-Enhancement quadrants were positively related to self-esteem, whilst values positioned on the Conservation and Self-Transcendence quadrants were negatively related to self-esteem. More generally, values positioned on the Self-Transcendence quadrant, concepts of acceptance and connection have been reported to enhance well-being whilst values associated with Self-Enhancement and concepts of success have been reported to have a negative impact on well-being (Kasser & Ahuvia, 2002; Vansteenkiste, *et al.*, 2006).

1.5.2 Value Discrepancy and Psychological Distress

In the theory of self-discrepancy, Higgins (1987) suggested that it was discrepancy between self state representations that may result in an individual experiencing distress and that the

distress may differ depending on the type of discrepancy. Discrepancy between *actual/ideal* state representations were suggested to increase distress associated with low mood whilst discrepancy between *actual/ought* state representations were suggested to increase distress associated with anxiety. Research has investigated discrepancies in relation to values, supporting Higgins (1987) theory. Maio (2010) proposed that values are connected to emotions and the type of emotion experienced is dependent on value discrepancy i.e. value *actual/ideal* self guides versus value *actual/ought* self guides. Schwartz, *et al.* (2000) defined the whole experience of worry as being defined by the experience of discrepancies in values. In this research, worry was defined as an 'emotionally disturbing cognition' regarding whether a personal or societal focused goal in life will start, remain, or become increasingly discrepant from its 'desired' status. It has also been suggested that when an individual's values are perceived to be consistent with the dominant values in their environment, individuals experience positive well-being (Lonnqvist, *et al.*, 2009; Sortheix, *et al.*, 2013). These studies appear to support Higgins (1987) value discrepancies hypothesis regarding the relationship between value discrepancy and distress.

Higgins (2005) suggested that the experience of 'regulatory fit' between values and behaviour led to an individual experiencing satisfaction. In contrast, experiences of 'non fit' between values and behaviour were suggested to lead to an individual experiencing a lack of satisfaction. Research has investigated discrepancies and reported that the experience of value discrepancies is uncomfortable for an individual and may cause an adverse affective response (Rees & Maio, 2009). Specifically, when researchers provided false feedback to individuals regarding the presence of discrepancies between the values the individual thought were important to them and the values the researchers reported were important to the individual, individuals were reported to experience feelings of sadness or agitation (Rees & Maio, 2009).

1.5.3 Values and Psychological Therapies

There are a several psychological therapies that incorporate a conceptualisation of values in their understanding of psychological distress, including: Acceptance and Commitment Therapy (ACT; Hayes, *et al.*, 2003), Cognitive Behavioural Therapy (CBT; Festinger, 1957; Beck, 1979), Narrative Therapy (White & Epston, 1990), Person Centred Therapy (Rogers, 1951, 1961), and Positive Psychology (Seligman & Csikszentmihalyi, 2000). These approaches all appear to be motivated to support individuals to identify values so that they can be utilised to reduce psychological distress and enhance wellbeing.

Whilst there are several therapeutic models that utilise a concept of values to support people experiencing psychological distress, these models all lack a theoretical and empirically researched model of values. Each approach utilises differing conceptualisations of values, differing processes of identifying values and different ways of utilising values in interventions. Further research exploring empirically grounded conceptualisations of values and value discrepancy in relation to psychological distress may further develop an understanding of how values relate to psychological distress and inform the application of value concepts in clinical interventions.

1.5.4 Summary of Values in a Mental Health Context

In line with Schwartz (1992) and Schwartz, *et al.* (2012) proposal that values may be associated to psychological distress, several psychological therapies appear to identify and utilise concepts of values to reduce psychological distress. Schwartz (1992), Schwartz, *et al.* (2012), and Maio (2010) conceptualisations of values as motivational orientations appear to be consistent with the conceptualisation of values in ACT and Positive Psychology. Both ACT and Positive Psychology utilise values and 'character strengths' to motivate individuals to set behavioural goals to work towards initiating change and living life in a meaningful way (Hayes, 1994; Hayes, *et al.*, 1999; Seligman & Csikszentmihalyi, 2000). Person Centred Therapy also proposes several values that an individual may pursue in an ongoing process of

self-development (Rogers, 1951, 1961). Whilst narrative therapies utilise conceptions of values generated by the individual, values also appear to be used in this therapy to motivate change through alternative perspectives (White & Epston, 1990).

Utilising Higgins (1987) theory of self-discrepancy, research has suggested that value discrepancies result in an individual experiencing psychological distress (Parsons, 2013; Maio & Rees, 2009). In line with this research, CBT suggests that discrepancies in thoughts, beliefs and values result in a person experiencing psychological distress termed as cognitive dissonance. Individuals are suggested to be motivated to reduce any cognitive dissonance and to pursue cognitive consistency (Beck, 1979). Person Centred Therapy also suggests that discrepancy between values, self-concepts and experiences may result in psychological distress and individuals are motivated to pursue an internal consistency. (Rogers, 1951, 1961). Whilst Positive Psychology (Seligman & Csikszentmihalyi, 2000) encourages the pursuit of value congruent behaviours.

The research literature and several psychological therapies in practise appear to have common links in how values are being conceptualised. Despite these commonalities, there are discrepancies in how research and practise are conceptualising and utilising values. In practise, it was suggested that there was no 'good science' that could inform how practitioners could access the relative importance of values and utilise them within interventions (Wilson & Murrell, 2004). Consequently, it appears that understandings of values have developed from practise and there is a lack of joining these developments with empirical research.

The current study will aim to utilise the existing empirical research on values to explore the application of a specific conceptualisation of values within a mental health context. Research on specific conceptualisations of values applied to psychological distress may further develop an understanding of how specific value conceptualisations relate to psychological distress and inform clinical interventions. The current study will begin to explore Schwartz (1992), Schwartz, *et al.* (2012), and Maio (2010) conceptualisation of

values applied to behaviour and distress in a non-clinical sample. Specifically, the study will explore the effects of priming values on behaviour and distress, considering value discrepancies (type and size). The research outcomes will then be discussed and used to inform future research exploring the application of these specific value conceptualisations in clinical samples and practise – i.e. future research looking at the effects of priming different clinical samples to think about different values and identifying value discrepancies in therapy.

1.6 PERFECTIONISM

Achievement value priorities appear to share similar characteristics with conceptualisations of perfectionism. Achievement value priorities have been defined in terms of their central motivational goal of personal success through demonstrating competence according to social standards, emphasising success as being judged by the standards of an individual's culture (Schwartz, 1992, 1994). Perfectionism has been defined as comprising a cognitive aspect of high standards for personal performance and a behavioural aspect of striving to meet these standards (Frost, *et al.*, 1990). In addition to cognitive high standards and behavioural striving, Stoeber and Childs (2010) added the aspect of overly critical self-evaluations and concerns regarding others' evaluations. It appears that existing definitions of Achievement value priorities and perfectionism have both been suggested to include the pursuit of standards and being judged as successful by others.

1.6.1 Achievement Values

Schwartz (1992; 1994) defines the Achievement value priorities in terms of the central motivational goal of personal success through demonstrating competence according to social standards, emphasising success as being judged by the normative standards of an individual's culture. Achievement value priorities are suggested to encompass several single values including being: successful, capable, ambitious and influential. These value priorities were also proposed to be positioned within the self enhancement quadrant of Schwartz

(1992) model, suggesting these value priorities are associated with the pursuit of personal status and success.

In Schwartz, *et al.* (2012) Achievement value priorities were considered for revision in terms of whether Achievement value priorities were comprised of two separate aspects: personal success (mastery) and demonstrating competence (performance motivation). This consideration occurred due to individuals completing the SVS expressing that some items appeared to refer to mastery. On the SVS, three items do not indicate whether success is to be judged internally or externally (e.g. successful/achieving goals, ambitious/aspiring, capable/ competent) and one item appears to be closer to the definition of power value priorities (e.g. influential/having an impact on people and events). In contrast, all five portrait items related to Achievement on the PVQ appear to refer to an external judgment of success. Through the factorial analysis, Achievement did not appear to have two sub factors, and a reanalysis of SVS data produced one factor on which all items loaded. These findings reinforced the impression from the original analyses that Achievement value priorities can be defined as a single value priority (Schwartz & Boehnke, 2004). However, Schwartz, *et al.* (2012) narrowed the definition of Achievement to the pursuit of being judged as successful according to social standards, dropping the concept of competence.

1.6.2 Defining Perfectionism

Over the past 20 years there has been an increased interest in research focused on defining perfectionism, the development of perfectionism scales and perfectionism's adaptive and maladaptive function and impact on wellbeing (Frost, *et al.*, 1997). The definition of perfectionism has developed to consider perfectionism as a multidimensional concept. Frost, *et al.* (1990) proposed perfectionism consisted of six distinct concepts: concern over mistakes, doubts about actions, parental criticism, parental expectations, personal standards, and organization. Hewitt and Flett (1991) also proposed a multidimensional concept of perfectionism, suggesting three distinct concepts: self-orientated perfectionism, other orientated perfectionism and socially prescribed perfectionism. A self-orientated

motivation to strive to meet high standards of success may be useful for directing an individual's behaviour in such a way that they achieve their goals. However, this motivation may also be problematic when the individual sets high standards of success that are unrealistic and less useful for directing their behaviour as they will never be able to achieve their goals. An individual may also have other orientated motivations, setting high standards for others and there may be consequences when others do not achieve these goals. Lastly, individuals may have socially prescribed motivations, perceiving that others expect high standards for them and that there are consequences for not achieving the expected goals. Perfectionism has also been suggested to have stable trait like characteristics (Rice & Aldea, 2006).

Sedikides and Luke (2007) have suggested that the characteristic tendency to self-enhance and self-criticise can be either adaptive or maladaptive depending on the function of the tendency. Self-enhancement and self-criticism are suggested to be adaptive when they function symbiotically i.e. when they have a mutually beneficial relationship resulting in self-improvement, adaptive outcomes, sense of control, self-efficacy, higher optimism, self-esteem, or life satisfaction. Self-enhancement and self-criticism are suggested to be maladaptive when they function either parasitically (one undermining the other) or antisymbiotically (one preventing the other e.g. in perfectionism self-criticism may prevent self-enhancement), resulting in lower self-esteem, pessimism, and lower life satisfaction.

Research has suggested that differing aspects of perfectionism differentially related to intrinsic–extrinsic motivation (Mills & Blankstein, 2000), however studies have been criticised for being ambiguous (Stoeber, *et al.*, 2009). Stoeber, *et al.* (2009) re-investigated how perfectionism related to intrinsic and extrinsic motivation and aspects of multidimensional test anxiety: emotionality, interference, lack of confidence, total anxiety, and worry. The study reported that self-oriented perfectionism was positively related to intrinsic motivations, and also positively related to worry, but negatively related to interference and lack of confidence. Socially prescribed perfectionism was positively related with extrinsic motivations, and also positively related to total anxiety, interference and lack of confidence. The study concludes that self-oriented perfectionism may be considered to

be an ambivalent form of perfectionism associated with intrinsic motivation and both higher and lower anxiety, whereas socially prescribed perfectionism may be considered to be a maladaptive form of perfectionism associated with extrinsic motivation and higher anxiety. These studies have focused on anxiety in an academic context and there is a lack of research in to anxiety in a mental health context.

Periasamy and Ashby (2002) investigated the relationship between perfectionism and locus of control. The researchers found that adaptive perfectionists and maladaptive perfectionists had significantly higher internal locus of control scores than non-perfectionists and that maladaptive perfectionists had significantly higher external locus of control than both adaptive perfectionists and non-perfectionists. Applied to Stoeber, *et al.* (2009) study an internal locus of control may be associated with intrinsic motivations and an external locus of control may be associated with extrinsic motivations, suggesting maladaptive perfectionists may higher external locus of control and so be motivated by extrinsic factors. Mathew, *et al.* (2014) supported the notion that maladaptive perfectionists demonstrate overall higher levels of agency than non-perfectionists.

There is an increasing body of research exploring perfectionism and interpersonal orientations and attachment (Ainsworth, 1973). Flett, *et al.* (2003) investigated perfectionism and unconditional self-acceptance, reporting that perfectionists evaluate themselves in terms of conditional sense of self-worth, and so are vulnerable to psychological distress if they experience conditions that do not reinforce their self-worth. Later, Flett, *et al.* (2012) explored perfectionism and feelings of not mattering to others to further understanding interpersonal pressures to be perfect. The study reported that perfectionists may be at risk of perceiving that they don't matter to others and an interpersonal pressure to be perfect. Research has proposed that perfectionism is related to interpersonal orientations in self-presentation as perfectionists seek validation as a means of proving themselves, and are hypersensitive to interpersonal cues indicating failure and lack of acceptance from others (Flett, *et al.*, 2014). Greenspon (2014) utilised clinical observations of thirty-five years in clinical practice to develop an understanding of perfectionism, attachment relationships, affect regulation and the meanings ascribed to

mistakes. Greenspon (2014) proposed that perfectionism occurs when an individual experiences low self-esteem and a desire to achieve perfection. An intense anxiety of imperfection may develop and mistakes may be perceived as evidence of personal defects that make an individual unacceptable. Because perfectionism develops in the context of conditional acceptance, Greenspon (2014) suggests that recovery from perfectionism may be supported by creating a context of unconditional acceptance.

1.6.3 Etiological Models of Perfectionism

Several researchers have proposed that perfection develops from parent-child interactions (Barrow & Moore, 1983; Hollender, 1965; Hamacheck, 1978; Slade & Owens, 1998). This research has referred to either Freud's (1923) theory of ego development, Rogers (1951, 1961) theory of conditions of self-worth, or Bandura's (1986) theory of social learning. Flett, *et al.* (2002) proposed that perfectionism develops from an interaction of parental, temperament and environmental factors. Maloney, *et al.* (2014) criticised Flett, *et al.* (2002) etiological model of perfectionism for being untested and conducted a survey of the existing research literature to identify and collate the relevant factors that had been associated with the development of perfectionism. Following this process, Maloney, *et al.* (2014) assessed the identified factors using a sample of individuals seeking support for perfectionism and a structural equation modelling analysis was used to propose a new etiological model of perfectionism. The study reported a direct relationship between perfectionism, high Parental Expectations and Criticism. There was an indirect mediated relationship between perfectionism and Parental Bonding. Perfectionism and Neuroticism had both a direct relationship and an indirect mediated relationship. The study concluded that the process had produced the first etiological model of perfectionism that had been empirically tested. However, etiological model has not been researched with regard to its application to further understanding and reducing psychological distress associated with perfectionism psychological therapies in a mental health context.

Research has also started to explore the role of temperament (Kobori, *et al.*, 1993) and genetics in perfectionism. Moser, *et al.* (2012) investigated the genetic and environmental factors in anxiety and perfectionism. In a sample of 292 young adult female twins' anxiety and maladaptive perfectionism were both reported to be moderately genetic. Further multivariate analyses reported that genetic factors were primarily responsible for associations between anxiety and maladaptive perfectionism. This appears to be first study reporting to demonstrate how genetic factors relate to anxiety and perfectionism.

1.6.4 Measuring Perfectionism

Since the late 1970's, several different conceptualisations of perfectionism have been proposed. These differing conceptualisations have resulted in the development of several perfectionism measurement tools. Stairs (2009) used the term 'jingle jangle' derived from Block (1995) to describe the issues that have arisen with the existing perfectionism measures, i.e. there may be instances where two constructs with the same label actually refer to different constructs (jingle) and instances where two constructs with two different labels may actually refer to the same construct (jangle). To overcome these issues with existing measures, Stairs (2009) and Stairs, *et al.* (2012) developed the Measure of Constructs Underlying Perfectionism. Prior to the MCUP, at least 15 different measurement scales were available which reported to measure perfectionism. In a pilot study, items from the existing measures of perfectionism were sorted onto the nine hypothesised underlying constructs of perfectionism. To examine whether items from the existing scales of perfectionism were reliably sorted onto the nine hypothesised constructs, intra-class correlations used to examine agreement between raters. Intra-class correlations for the nine hypothesized dimensions had a mean of .86 and ranged from .78 (Dissatisfaction construct) to .95 (Order). The items were rewritten to maximize unidimensionality and representativeness of the items belonging to one of the nine hypothesised construct scales. The resulting 86 items were used in an exploratory factor analysis. Following this, items which did not load highly on any construct scale, loaded highly on more than one scale, or detracted from the internal consistency of a scale were deleted. This resulted in a 61-item pool that was used in a confirmatory factor analysis.

The current study utilised the freely available MCUP as a measure of perfectionism due to its availability and its ability to differentiate constructs of perfectionism, potentially overcoming limitations of previous perfectionism measures.

1.6.5 Perfectionism and Psychological Distress

In its more negative/passive/maladaptive form, perfectionism has been associated with a constant pressure to meet high standards, and when these standards are perceived to not be met, discrepancy and psychological distress may occur and research has proposed that perfectionism can be associated with several mental health difficulties including depression (Bimanand, *et al.*, 2013; Egan, *et al.*, 2011; McGrath, *et al.*, 2012), social anxiety (Al-Naggar, *et al.*, 2013; Frost, *et al.*, 2010; Levinson, *et al.*, 2015; Mackinnon, *et al.*, 2014), generalised anxiety (Egan, *et al.*, 2011; Flett, *et al.*, 2004; Handley, *et al.*, 2014; Klibert, *et al.*, 2005); social physique anxiety (Haase, *et al.*, 2002), obsessive-compulsive disorder (OCD) (Frost & Steketee, 1997), body dissatisfaction (Graziano & Sikorski, 2014); the development of eating disorders (Egan, *et al.*, 2011; Fairburn, *et al.*, 1999; Ferreira, *et al.*, 2014; Lilenfeld, *et al.*, 2006), anorexia nervosa (Lloyd, *et al.*, 2014), and bulimia nervosa (Silgado, *et al.*, 2010).

Bieling, *et al.* (2004) suggest a comorbidity of perfectionism and the axis I disorders in the Diagnostic and Statistical Manual of Mental Disorders (DSM-V, American Psychiatric Association, 2013). Kawamura, *et al.* (2001) further explored the relationship between perfectionism, depression to determine whether anxiety and depression related to perfectionism independently. The study reported that there appears to be an aspect of perfectionism that is related to anxiety independent of depression and a separate aspect of perfectionism that is related to depression independent of anxiety. Rice and Aldea (2006) reported that perfectionist discrepancy in particular is a clear vulnerability factor for depression.

1.6.6 'Clinical Perfectionism'

Shafran, *et al.* (2002) proposed a cognitive behavioural construct of 'clinical perfectionism'. This construct includes a core aspect of 'overdependence of self-evaluation on the determined pursuit of personally demanding, self-imposed, standards in at least one highly salient domain, despite adverse consequences' (pp. 778). It is suggested that this core aspect is associated with three distinct characteristics: self-imposed dysfunctional standards; continual striving; significant adverse consequences as a result of such striving. Shafran, *et al.* (2002) also proposed that clinical perfectionism may be maintained by six mechanisms: failure will be reacted to with self-criticism; an absence of a positive emotional reaction to success; cognitive biases; the setting of strict rules and adhering to them stringently; avoiding challenging tasks for fear of failure; and escape from situations where failure may be imminent.

Shafran, *et al.* (2003) noted that individuals rarely had a primary complaint of 'clinical perfectionism', however, often individuals presented with co-morbid diagnoses of Axis I disorders and clinical perfectionism. For many of these individuals, their interventions were often complicated by clinical perfectionism, for example, individuals diagnosed with anorexia nervosa pursued rigid and extreme standards for controlling their shape and weight, despite significant adverse consequences. In their review of the existing literature, Egan, *et al.* (2011) demonstrated increased levels of perfectionism across individuals diagnosed with anxiety, depression, and eating disorders. The study suggested that perfectionism increased vulnerability for eating disorders, and maintained obsessive-compulsive disorder, social anxiety and depression. The study concluded the importance of assessment and formulation using a revised cognitive-behavioural conceptualisation of clinical perfectionism (see Figure 1.4) and an intervention focused on perfectionism. More recently, Egan, *et al.* (2014) published a Cognitive Behavioural intervention for Perfectionism.

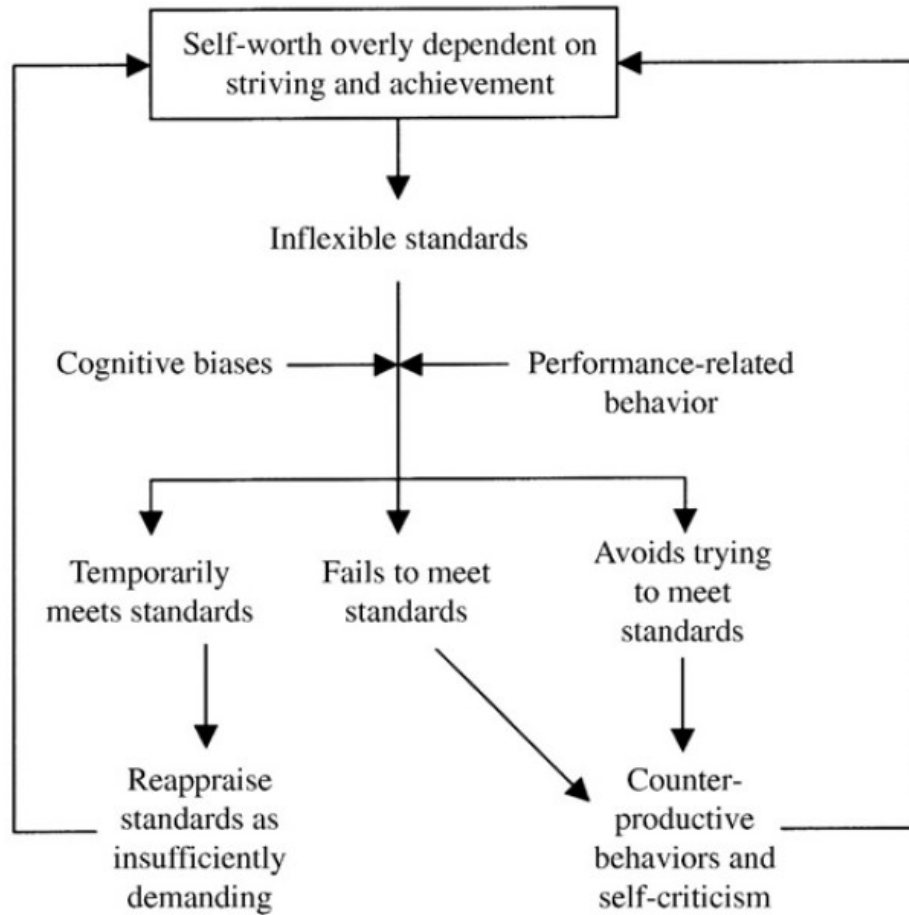


Figure 1.4: The revised cognitive-behavioural model of clinical perfectionism (Shafran, *et al.*, 2010, pp. 282).

Research has suggested that perfectionism is related to psychological distress; both increasing vulnerability to and maintaining psychological difficulties. Despite Achievement values and perfectionism sharing conceptual similarities, research in to clinical perfectionism appears to not have incorporated values in to a clinical understanding of perfectionism. The current study aimed to further explore Achievement values, perfectionism and psychological distress.

1.6.7 Perfectionism and Psychological Therapies

Research has suggested that psychological therapies should consider perfectionism as a comorbid transdiagnostic process (Egan, *et al.*, 2011; Shafran, *et al.*, 2003) and that not

focusing on perfectionism early on in psychological interventions may hinder the progress of the intervention as individuals may set high standards for change and are excessively self-critical (Békés, *et al.*, in press; Blatt, *et al.*, 1995; Egan, *et al.*, 2011). Several psychological interventions have been developed focusing on reducing perfectionism associated with psychological distress, including: guided and pure self-help (Pleva, & Wade, 2007; Shafran, *et al.*, 2010), cognitive behavioural coaching (Kearns, *et al.*, 2007), cognitive-behaviour therapy (Glover, *et al.*, 2007; Riley, *et al.*, 2007), psycho-education and group cognitive-behavioural therapy (Ashbaugh, *et al.*, 2007; Handley, *et al.*, 2014; Steele, *et al.*, 2013), transcendental meditation (Burns, *et al.*, 2011); web-based CBT (Arpin-Cribbie, *et al.*, 2008; Arpin-Cribbie, *et al.*, 2012; Egan, *et al.*, 2014; Radhu, *et al.*, 2012) and Radically Open Dialectical Behaviour Therapy (RO-DBT) (Lynch, *et al.*, 2013).

There is some evidence in the literature that psychological interventions focused on reducing perfectionism may reduce associated anxiety, depression, eating difficulties and obsessive compulsive behaviours (Lloyd, *et al.*, 2014). Despite Achievement values and perfectionism sharing conceptual similarities, research in to clinical perfectionism appears to not have incorporated values in to psychological interventions focused on perfectionism. The current study aimed to further explore Achievement values, perfectionism and psychological distress.

1.6.8 Summary of Perfectionism

Several researchers have suggested that there is a need for improved clarity in the conceptualisation of perfectionism as current conceptualisations fail to distinguish between perfectionism and its associated features (Shafran, *et al.*, 2002; Shafran & Mansell, 2001; Tozzi, *et al.*, 2004). Shafran, *et al.* (2002) suggested that the lack of clarity concerning the conceptualisation of perfectionism to date has resulted in a lack of research in to the application of perfectionism in psychological therapies and a mental health context.

Perfectionism associated with higher levels of anxiety has been suggested to relate to perfectionism that is socially prescribed (Hewitt & Flett, 1991), with a higher external locus

of control (Periasamy & Ashby, 2002), motivated by extrinsic factors (Mills & Blainstein, 2000). The concept of perfectionism relating to external/extrinsic and internal/intrinsic motivations appears to support the notion that perfectionism may relate to the Achievement value priorities as defined by Schwartz, *et al.* (2012). In Schwartz, *et al.* (2012) revised model of values, Achievement value priorities are actually positioned in the personally orientated motivational dimension.

The concept of perfectionism having both a positive and negative function appears to support the notion that perfectionism may relate to the Achievement value priorities as defined by Schwartz, *et al.* (2012). In Schwartz, *et al.* (2012) revised model of values, the value of Achievement overlap in regard to its motivational goal with regard to the dimension of self-growth/self-protection. Its overlapping position suggests that meeting standards may serve to self-protect and cope with anxiety or to promote self-growth by expressing ones competence and anxiety free motivations. Therefore, if perfectionism is motivated by Achievement value priorities, one may predict that perfectionism may serve to self-protect and cope with anxiety or to promote self-growth by expressing ones competence and anxiety free motivations. The current study conducted a review of the evidence regarding perfectionism and anxiety in adults.

1.7. PERFECTIONISM AND ANXIETY – A REVIEW OF THE EVIDENCE

1.7.1. The Current Systematic Literature Review

A systematic literature review was conducted to further explore the relationship between perfectionism and Achievement value priorities. More specifically, whether perfectionism is accordant to Achievement value motivations that serve to self-protect and cope with anxiety or to promote self-growth by expressing ones competence and anxiety free motivations. The current systematic literature aimed to collate and critique the empirical

research literature base exploring the perfectionism and experiences of anxiety in an adult population.

1.7.2. Systematic Literature Review Question

What role does perfectionism have in anxiety in adults?

1.7.3. Systematic Literature Review Method

1.7.3.1. Search Strategy

To find the relevant studies from the research literature base, several electronic databases were searched, these included: PsychInfo, The Cochrane Library, PubMed, CINAHL, Medline, EMBASE, Web of Science, Scopus, and Science Direct.

1.7.3.2. Search Terms

To retrieve studies relevant to the review question, the following search terms were entered in to each of the above databases:

Perfect* AND Anxi*

Perfect* AND Mood

Perfect* AND Affect

Perfect* AND Emotion*

Perfect* AND Feeling

Perfect* AND Distress*

Perfect* AND Worry

Perfect* AND Fear

Perfect* AND Phobia

Perfect* AND Mental Health

1.7.3.3. Inclusion and Exclusion Criteria

To select the studies relevant to the review question, the following inclusion and exclusion criteria were applied:

1.7.3.3.1. Inclusion Criteria

- The study must be written in English.
- The study must be published in a peer reviewed journal.
- Participants must be adults aged over 18 years old.
- The study must be empirical (gaining empirical evidence by means of direct and/or indirect observation or by experience)
- The aims of the study must be relevant to reviewing the relationship between perfectionism and anxiety.*
- The study must have been published in the last 10 years (after 2004 until 2015)
- The study must have utilised a measure of perfectionism
- The study must have utilised a measure of anxiety
- The study must have utilised an experimental design

1.7.3.3.2. Exclusion Criteria

- The study must not be based on review or opinion
- The study must not be a book chapter, conference poster or political address
- The study must not be a dissertation paper
- The aims of the study must not be relevant to only reviewing the relationship between perfectionism and depression.*

* There were two main factors that contributed to the rationale for choosing to include anxiety and not include depression in the review. The scope and timescale of the current study did not allow for the number of studies relevant to reviewing the relationship between perfectionism and depression to be reviewed. Reviewing anxiety also appeared more relevant to the current study as anxiety driven motivations are included in the revised cognitive model of social values proposed by Schwartz, *et al.* (2012). In light of these reasons, the current study reviewed the relationship between perfectionism and anxiety.

1.7.4. Systematic Literature Review Process

In total, 392 studies were identified using the initial review question, databases and search terms described above. These studies were then checked against the inclusion criteria, leaving 270 relevant studies.

Next, study titles and abstracts were checked by the researcher and a sample checked by the research supervisor for relevance to the initial review question. This process excluded 31 studies, leaving 239 relevant studies. These studies were limited to those published in the last 10 years. This excluded a further 70 studies, leaving 169 relevant studies.

At this point the initial review question, inclusion and exclusion criteria were amended. Studies that were relevant to only reviewing the relationship between perfectionism and depression were excluded, leaving 76 relevant studies. Posters, conference papers, and presidential addresses were excluded, leaving 67 studies. Next, full papers were retrieved and examined in more detail. Studies were checked by the researcher and a sample checked by the supervisor for measuring perfectionism and anxiety, this excluded 8 studies, leaving 59 relevant studies. These were further checked by the researcher and a sample was checked by the supervisor for experimental design. 44 studies were excluded, with 15 relevant studies remaining. The references of these 15 studies were reviewed for any further studies that met the inclusion criteria, with two studies being identified. These final 17 studies were eligible to be included in the systematic review. The process of identifying and collating the relevant studies for the systematic review is available in Appendix 1.

1.7.5. Results of the Systematic Literature Review

The 17 studies identified and collated using the search methods described above were critiqued with key aspects of each study being reviewed, including: study focus, samples, methods, designs, outcomes, strengths, limitations and overall quality. The systematic review has been presented in a narrative format below. A summary table of the results of the review is available in Appendix 2.

1.7.5.1 Focus of Studies

There were seven studies focused on the impact of intervention protocols relative to perfection and anxiety. Interventions explored included: the effects of transcendental meditation on experiences of stress, anxiety, depression and perfectionist thoughts (Burns, *et al.*, 2011); the effect of participating in a 12-session CBT group treatment for social phobia on perfectionism (Ashbaugh, *et al.*, 2007); comparing psycho-education materials and subsequent 8-week group CBT to a baseline waitlist in an outpatient community

psychiatry sample (Steele, *et al.*, 2013); assessing a Web-based CBT for maladaptive perfectionism, investigating perfectionism, anxiety, depression, negative automatic thoughts, and perceived stress (Radhu, *et al.* 2012); exploring the effectiveness of a web based CBT intervention for perfectionism and psychological distress (Arpin-Cribbie, *et al.*, 2008; Arpin-Cribbie, *et al.*, 2012); investigating the efficacy of two formats of CBT for perfectionism (CBT-P), face-to-face and web based, in reducing perfectionism and associated psychological symptoms (Egan, *et al.*, 2014).

Four studies focused on the role of feedback relative to perfectionism and anxiety. Aldea, *et al.* (2010) aimed to explore the therapeutic benefits of providing perfectionism feedback to participants who scored highly on maladaptive perfectionism measures. Besser, *et al.* (2004) explored the association between trait perfectionism and cognitive and affective reactions in response to either positive or negative performance feedback after completing tasks that varied in level of difficulty. Besser, *et al.* (2008) also explored the association between trait perfectionism and cognitive and affective reactions in response to either positive or negative performance feedback after completing tasks that varied in level of difficulty. Compared to Besser, *et al.* (2004), Besser, *et al.* (2008) also had additional aims to examine levels of state affect, state self-esteem, state automatic thoughts, heart rate and blood pressure. Stoeber, *et al.* (2014) explored the effects of self-oriented and socially prescribed perfectionism on reactions to repeated negative or positive feedback, examining three emotions: anxiety, depression, and anger.

There were two studies focused on the role of perfectionism and anxiety in a socially evaluated situation. Richardson, *et al.* (2014) aimed to explore perfectionists' emotion regulation patterns and physiological reactivity in a social-evaluative stress experience. Laurenti, *et al.* (2008) explored the joint role of socially prescribed perfectionism and social anxiety relative to appraisal of an interpersonal situation.

Four studies aimed to focus on the role of perfectionism and anxiety as predictors of other cognitive processes and behaviours. Brown and Kocovski (2014) explored perfectionism, in both state and trait forms, as a predictor of post-event rumination. Cox and Chen (2014) explored how perfectionism contributes to social anxiety, self-perception and cognitive processes of post-event rumination. Schrivjers, *et al.* (2010) explored the impact of perfectionism and anxiety traits on action monitoring in major depressive disorder. Lastly, Chaubaud, *et al.* (2010) explored the impact of perfectionism and anxiety on perception of procrastination behaviours.

1.7.5.2 Sample

The 17 studies were reviewed with regard to their sample, including: sample size, population type, age, gender and ethnicity.

1.7.5.2.1. Sample Size

The total sample sizes for the 17 studies at baseline ranged from 21 (Steele, *et al.*, 2013) to 200 (Besser, *et al.*, 2004; Besser, *et al.*, 2008). The mean sample size at baseline was 82.41. The total sample sizes for the 17 studies on ending ranged from 19 (Steele, *et al.*, 2013) to 200 (Besser, *et al.*, 2004; Besser, *et al.*, 2008). The mean sample size on ending a study was 77.94. In total, nine studies retained 100% of their sample size from start to ending (Arpin-Cribbie, *et al.*, 2008; Ashbaugh, *et al.*, 2007; Besser, *et al.*, 2004; Besser, *et al.*, 2008; Chabaud, *et al.*, 2010; Cox & Chen, 2014; Laurenti, *et al.*, 2008; Schrivjers, *et al.*, 2010; Stoeber, *et al.*, 2014). Eight studies did not retain their sample sizes and this resulted in the differing starting and ending sample sizes. The number of people not completing a study ranged from 2 (Steele, *et al.*, 2013) to 14 (Aldea, *et al.*, 2010). The mean number of people not completing a study was 9.5. In total, there were five studies with more than 9.5 people not completing (Aldea, *et al.*, 2010; Burns, *et al.*, 2011; Brown & Kocovski, 2014; Egan, *et al.*, 2014; Radhu, *et al.*, 2012). The sample size of the studies was examined at baseline and

ending because the sample size within each study will have an impact on the conclusions that have been drawn from the outcome data on perfectionism and anxiety.

1.7.5.2.2. Population Type

In total, 14 studies utilised a student sample, four utilised college student populations (Besser, *et al.*, 2004; Besser, *et al.*, 2008; Burns, *et al.*, 2011), nine utilised undergraduate populations (Aldea, *et al.*, 2010; Arpin-Cribbie, *et al.*, 2008, Arpin-Cribbie, *et al.*, 2012; Chabaud, *et al.*, 2010; Cox & Chen, 2014; , Radhu, *et al.* 2012; Richardson, *et al.*, 2014; Stoeber, *et al.*, 2014), and one did not specify the type of student population utilised (Brown & Kocovski, 2014). In total, four studies utilised a clinical sample; three utilised an outpatient sample (Ashbaugh, *et al.*, 2007; Egan, *et al.*, 2014; Steele, *et al.*, 2013), and one study utilised an inpatient sample (Schrijvers, *et al.*, 2010).

1.7.5.2.3. Age

All 17 studies provided the age of their recruited sample. 16 studies recruited adult participants between the ages of 18-65 years old. One study recruited people aged between 18 - 67 years old (Steele, *et al.*, 2013), mean age 35.77. For all 17 studies, the mean ages reported ranged from 18.58 years old (Brown & Kocovski, 2014) to 39.88 years (Egan, *et al.*, 2014).

1.7.5.2.4. Gender

16 studies reported the gender of the participants in their final study sample. One study (Chabaud, *et al.*, 2010) did recruit both male and female participants initially but failed to report the gender of the final study sample. All 16 studies reporting gender recruited both female and male participants. 13 studies recruited more females than males, ranging from

78% female (Aldea, *et al.*, 2010) to 52% female (Richardson, *et al.*, 2014). Three studies had an even split of both female and male participants (Besser, *et al.*, 2004; Besser, *et al.*, 2008; Stoeber, *et al.*, 2014).

1.7.5.2.5. Ethnicity

Seven studies reported the ethnicity of the participants in their final study sample (Aldea, *et al.*, 2010; Ashbaugh, *et al.*, 2007; Brown & Kocovski, 2014; Burns, *et al.*, 2011; Laurenti, *et al.*, 2008; Radhu, *et al.*, 2012; Richardson, *et al.*, 2014). Of these, all seven recruited a majority of White or European American/Caucasian ranging from 95 % (Ashbaugh, *et al.*, 2007) to 34% (Radhu, *et al.*, 2012). Ten studies did not report the ethnicity of their final sample (Arpin-Cribbie, *et al.*, 2008; Arpin-Cribbie, *et al.*, 2012; Besser, *et al.*, 2004; Besser, *et al.*, 2008; Chabaud, *et al.*, 2010; Cox & Chen, 2014; Egan, *et al.*, 2014; Schrijvers, *et al.*, 2010; Steele, *et al.*, 2013; Stoeber, *et al.*, 2014).

1.7.5.3. Research Methods

The 17 studies were reviewed with regard to their research methods, including: measurements of perfectionism and anxiety, design, manipulation variables, focus, key findings, strengths, and limitations.

1.7.5.3.1. Perfectionism Measures

All 17 studies utilised at least one measure of perfectionism. Nine studies utilised one measure (Aldea, *et al.*, 2010; Ashbaugh, *et al.*, 2007; Besser, *et al.*, 2004; Burns, *et al.*, 2011; Chabaud, *et al.*, 2010; Laurenti, *et al.*, 2008; Richardson, *et al.*, 2014; Schrijvers, *et al.*, 2010; Stoeber, *et al.*, 2014), four studies utilised two measures (Besser, *et al.*, 2008; Brown &

Kocovski, 2014; Cox & Chen, 2014; Steele, *et al.*, 2013), two studies utilised three measures (Arpin-Cribbie, *et al.*, 2008; Egan, *et al.*, 2014), and two studies utilised four measures (Arpin-Cribbie, *et al.*, 2012; Radhu, *et al.*, 2012).

A total of nine different measures were utilised by the studies, these included:

- The Almost Perfect Scale-Revised (APS-R; Slaney, *et al.*, 1996; Slaney, *et al.*, 2001)
- The Short version of the Almost Perfect Scale–Revised (SAPS; Rice, *et al.*, 2014; Slaney, *et al.*, 2001)
- The Dutch version of the Multidimensional Perfectionism Scale (MPS; Soenens, *et al.*, 2005)
- The Multidimensional Perfectionism Scale (MPS; Frost, *et al.*, 1990)
 - The Concern over Mistakes (CM) subscale
 - The doubt about actions (DAA) subscale
 - The Personal Standards (PS) subscale
 - Altered version of the concern over mistakes (CM) subscale (trait) (Brown & Kocovski, 2014).
 - Altered version of the doubts about actions (DA) subscale (trait) (Brown & Kocovski, 2014).
- The Multidimensional Perfectionism Scale (MPS; Hewitt & Flett, 1991, 2004)
 - The socially prescribed perfectionism (SPP) subscale
 - The socially prescribed perfectionism (SPP) subscale (state) (Brown & Kocovski, 2014).
 - The self-oriented perfectionism (SOP) subscale
- The 12-item Clinical Perfectionism Questionnaire (CPQ; Fairburn, *et al.*, 2003)
- The Dysfunctional Attitude Scale (DAS; Weissman & Beck, 1978).
 - The Self Criticism (SC) subscale
- The Perfectionism Cognitions Inventory (PCI; Flett, *et al.*, 1998)
- Adapted version of The Perfectionism Cognitions Inventory (PCI; Flett, *et al.*, 1998; Besser, *et al.*, 2008)

The use of nine different perfectionism measures across the studies limits the comparison of study findings. There are also several studies which utilised subscales of full measures and

so only sub constructs of perfectionism have been captured, potentially missing out other constructs. The measures utilised have also received criticism by Stairs (2009) for measuring different and overlapping constructs of perfectionism.

1.7.5.3.2. Anxiety Measures

All 17 studies utilised at least one measure of anxiety. 12 studies utilised one measure (Aldea, *et al.*, 2010; Arpin-Cribbie, *et al.*, 2008; Arpin-Cribbie, *et al.*, 2012; Besser, *et al.*, 2004; Besser, *et al.*, 2008; Burns, *et al.*, 2011; Chabaud, *et al.*, 2010; Egan, *et al.*, 2014; Laurenti, *et al.*, 2008; Richardson, *et al.*, 2014; Schrijvers, *et al.*, 2010; Steele, *et al.*, 2013; Stoeber, *et al.*, 2014), four studies utilised two measures (Arpin-Cribbie, *et al.*, 2012; Brown & Kocovski, 2014; Cox & Chen, 2014; Radhu, *et al.*, 2012), and one study utilised three measures (Ashbaugh, *et al.*, 2007).

A total of 15 different measures were utilised by the studies, these included:

- Brief Symptom Inventory (BSI; Derogatis, 1993)
 - Phobic Anxiety Subscale
- The Beck Anxiety Inventory (BAI; Beck, *et al.*, 1988)
- Adapted trait version of The beck anxiety inventory (BAI; Kohn, *et al.*, 2008)
- The Anxiety Sensitivity Index (ASI; Reiss, *et al.*, 1986)
- The Social Phobia Scale (SPS; Mattick & Clarke, 1998)
- The Social Interaction Anxiety Scale (SAIS; Mattick & Clarke, 1998)
- The Depression Anxiety Stress Scales – 21 item version (DASS-21; Lovibond and Lovibond, 1995)
- Subjective Units of Distress Scale (SUDS) (Wople, 1969)
- State-Trait Anxiety Inventory form Y2 (STAI; Spielberger, *et al.*, 1983)
- Short form of the state scale of the State-Trait Anxiety Inventory (S-STAI) (Spielberger, *et al.*, 1983; Marteau & Bekker, 1992)

- Trait form of the State-Trait Anxiety Inventory (STAI-T; Spielberger, *et al.*, 1970; Van der Ploeg, *et al.*, 1980)
- State Anxiety Rating (SAR; Rapee & Abbott, 2007)
- Brief fear of negative evaluation scale—straightforward items (BFNE-S; Rodebaugh, *et al.*, 2004; Weeks, *et al.*, 2005)
- The Sixteen Personality Factors' Questionnaire (16PF; Cattell, Cattell, & Cattell, 1993)
 - The Anxiety and Self-Control subscales
- Visual Analogue Scale (VAS) (Albersnagel, 1988)

The use of 15 different anxiety measures across the studies limits the comparison of study findings. There are also several studies which utilised subscales of full measures and so only sub constructs of anxiety have been captured, potentially missing out other constructs.

1.7.5.3.3 Design

In total, seven studies utilised a design to evaluate an intervention protocol. Three studies utilised a within design (Ashbaugh, *et al.*, 2007; Burns, *et al.*, 2011; Steele, *et al.*, 2013), one study utilised a mixed design (Radhu, *et al.*, 2012), and three studies utilised a mixed RCT design (Arpin-Cribbie, *et al.*, 2008; Arpin-Cribbie, *et al.*, 2012; Egan, *et al.*, 2014). There were 10 studies that utilised an experimental design. Seven studies utilised a mixed experimental design (Aldea, *et al.*, 2010; Besser, *et al.*, 2004; Besser, *et al.*, 2008; Chabaud, *et al.*, 2010; Richardson, *et al.*, 2014; Schrijvers, *et al.*, 2010; Stoeber, *et al.*, 2014), and three studies utilised a within-subjects experimental design (Brown & Kocovski, 2014; Cox & Chen, 2014; Laurenti, *et al.*, 2008).

1.7.5.3.4 Manipulation Variables

Seven studies manipulated intervention protocols: transcendental meditation (Burns, *et al.*, 2011), group cognitive behavioural therapy (CBT) (Ashbaugh, *et al.*, 2007), psycho-educational materials with subsequent group CBT (Steele, *et al.*, 2013), online CBT compared to no intervention (Radhu, *et al.*, 2012), online CBT compared with general stress management and no intervention (Arpin-Cribbie, *et al.*, 2008; Arpin-Cribbie, *et al.*, 2012), online CBT for perfectionism (CBT-P) compared with individual face to face CBT-P and no intervention (Egan, *et al.*, 2014). All interventions were investigated for efficacy in decreasing levels of perfectionism and psychological distress including experience of anxiety.

There were 10 studies that manipulated exposure to experimental variables. Four studies involved exposure to feedback manipulations (Aldea, *et al.*, 2010; Besser, *et al.*, 2004; Besser, *et al.*, 2008; Stoeber, *et al.*, 2014), four studies involved exposure to impromptu speech tasks (Brown & Kocovski, 2014; Cox & Chen, 2014; Richardson, *et al.*, 2014) or exposure to anticipation of a speech task (Laurenti, *et al.*, 2008), one study involved exposure to a computer task (Schrijvers, *et al.*, 2010) and one study exposure to an behavioural perception task (Chabaud, *et al.*, 2010).

1.7.5.3.4.1 Exposure to Feedback

In total, four studies used exposure to feedback as a manipulation variable. Aldea, *et al.* (2010) provided verbal feedback to participant during a conversation with an interviewer. Interviewers informed participants of their scores on emotional reactivity and psychological symptom measures and offered opportunity for questions. Stoeber, *et al.* (2014) asked participants to complete a mental rotation task, before they received repeated feedback on their performance (success or failure). Similarly, Besser, *et al.* (2004) asked participants to complete a computerized Choice Reaction Time (CRT) task. This attention demanding task

required participants to carry out the task as quickly and as accurately as possible. Task completion was followed by participants having either positive or negative feedback. The feedback received was independent of participants' objective performance, performance reactions and affective reactions. Besser, *et al.* (2008) asked participants to complete tasks varying in difficulty (high versus moderate level of difficulty) before giving participants feedback independent of their actual level of performance (positive or negative).

1.7.5.3.4.2 Exposure to and Anticipation of Speech Tasks

Four studies involved exposing participants to impromptu speech tasks or anticipated speech tasks. Richardson, *et al.* (2014) asked participants to complete the 'Trier Social Stress Test' (TSST; Kirschbaum, *et al.*, 1993). The TSST required participants to imagine they were participating in an interview in which they were giving a five-minute presentation speech about themselves to get a job. They were told they would be evaluated on personal characteristics, recorded and analysed by experts. The five-minute speech was completed in front of a small audience of three people before participants were asked to complete a five-minute maths task. Brown and Kocovski (2014) also required participants to deliver a three-minute impromptu speech, where they were asked to stand up and introduce themselves in front of the researcher. Cox and Chen (2014) required participants to deliver a three-minute impromptu speech about a chosen topic to a video camera (for example e.g. my favourite book, my first pet, or university life). The participants were told that the video of their speech would be evaluated by an audience after the session.

Laurenti, *et al.* (2008) exposed participants to anticipatory anxiety by asking them to prepare to be introduced and to have a conversation with a stranger of the other sex. After completing all of the studies measures, the participant was informed that the interaction would not occur.

1.7.5.3.4.3 Exposure to a Computer Task

Schrijvers, *et al.* (2010) asked participants to complete a computer task, pressing a button with either their left or their right index on a central letter (H or S) in a congruent (SSSSS or HHHHH) or incongruent (SSHSS or HSHHH) letter string. In the task instructions, equal emphasis was placed on speed and accuracy and the stimulus–response mappings were counterbalanced.

1.7.5.3.4.4 Exposure to Behaviour Task

Chabaud, *et al.* (2010) exposed participants to a behavioural task. Participants were required to place several hypothetical procrastination scenarios in to a hierarchy depending on which would interfere least to most with achieving a proposed goal.

1.7.5.4. Key Findings

The 17 studies focused on several key areas of perfectionism and anxiety, including discrepancy, intervention, biological responses, the effects of feedback, moderators, rumination and procrastination.

Laurenti, *et al.* (2008) reported that Socially Prescribed Perfectionism (SPP) and social anxiety were both related to larger discrepancy scores, with SPP moderating the relationship between social anxiety and discrepancy. Lower levels of social anxiety were associated with negative discrepancy scores i.e. others standards were rated lower than an individual's own efficacy, regardless of SPP and so individuals thought they could match or exceed others expectations. In contrast, higher levels of social anxiety were associated with positive discrepancy scores i.e. others standards were rated higher than an individual's own

self efficacy, increasing with SPP and so individuals thought they could not meet the expectations of others. Later, Aldea, *et al.* (2010) reported that individuals scoring highly on maladaptive perfectionism reported higher discrepancy and distress scores. Findings indicated that it was not how high individuals standards were but how much they believed they were failing to meet these standards that contributed to experiences of distress.

The efficacy of interventions for perfectionism and anxiety have been explored: CBT interventions have been associated with improvements in levels of self-reported perfectionism and anxiety (Arpin-Cribbie, *et al.*, 2008; Arpin-Cribbie, *et al.*, 2012; Ashbaugh, *et al.*, 2007; Egan, *et al.*, 2014; Steele, *et al.*, 2013) and changes were maintained at a three month (Steele, *et al.*, 2013) and six month follow up (Egan, *et al.*, 2014) . In all studies changes in perfectionism were associated with changes in anxiety. Radhu, *et al.* (2012) also found that a CBT intervention reduced anxiety and perfectionism scores in maladaptive perfectionists, however, waitlist group also reduced perfectionism scores. Aldea, *et al.* (2010) suggested that maladaptive perfectionists who received feedback about their perfectionism as an intervention were less distressed two weeks later than those who had not received feedback. Burns, *et al.* (2011) investigated a meditation based intervention, finding that this intervention may reduce trait anxiety but not perfectionism.

Biological responses to perfectionism and anxiety have been explored. Schrijvers, *et al.* (2010) suggested that increased perfectionist doubts about responses were associated with larger amplitudes than those who were less doubtful, however trait anxiety was not associated with amplitudes as expected – this was explained to be due to the measure not being valid tool to measure anxiety. Richardson, *et al.* (2014) reported that maladaptive perfectionism was associated with lower cortical response to multiple stress events that elicit anxiety, as self-criticism takes its toll on physiological reactivity to multiple stress events.

The impact of exposure to single and repeated failure on perfectionism and anxiety has been explored by several researchers. Stoeber, *et al.* (2014) reported that SPP associated with anxiety following single failure, however, Self-Orientated Perfectionism (SOP) predicted increased anxiety following multiple failures. The study concluded that SOP was associated with individuals being highly self-critical and that repeat failure may be perceived as a threat and so increase anxiety. Besser, *et al.* (2004) also found that SPP was associated with pre and post task anxiety, whilst SOP was associated with increased post task anxiety, regardless of feedback type (positive or negative), task difficulty (easy or hard) and actual performance.

Besser, *et al.* (2008) found that PCI and trait perfectionism were both associated with increased anxiety. Specifically, higher levels of SPP were associated with increased anxiety in individuals with lower confidence who received positive feedback and in individuals who had higher confidence but who received negative feedback. Whilst higher levels of SOP were associated with increased post task anxiety in individuals who had low performance level and low confidence, and lower levels of SOP were associated with post task anxiety in individuals who had high performance level and low confidence. The study concluded that confidence moderates the relationship between perfectionism and anxiety.

Several researchers have also looked the role of perfectionism and anxiety as impediments to self-development or learning through the processes of rumination and procrastination. Cox and Chen (2014) reported that SPP and DA perfectionism subscales directly influenced anxiety and indirectly influenced rumination and self-perception through anxiety. Brown and Kocovski (2014) also found that higher levels of social and state anxiety were related to post event rumination and that trait and state perfectionism predicted post event rumination two days after a speech. The study suggested that if a socially anxious individual was concerned about having made mistakes during a social event then the individual was more likely to dwell on the event at a later time, in contrast to an individual who did not think others were expecting perfection and so did not dwell. The study concluded that perfectionism may influence social anxiety and lead to increased post event rumination.

Investigating procrastination, Chabaud, *et al.* (2010) found that individuals who scored more highly on trait anxiety and perfectionism measures identified three groups of behaviour: non procrastinator, procrastination and self-handicapping, compared to individuals who scored lowly on measures identifying and two groups of behaviour: non procrastination and combined self-handicap and procrastination. Individuals scoring more highly on maladaptive perfectionism measures considered perfectionism behaviours to be more self-handicapping. The study concluded that maladaptive aspects of perfectionism were associated with increased procrastination.

1.7.5.5. Quality Review

All 17 studies were reviewed with regard to their quality using the Specialist Unit for Review Evidence (SURE) 2013 framework (see Appendix 3). This is a framework adapted and updated from the former Health Evidence Bulletins Wales (HEBW) checklist with reference to previous versions of the Critical Appraisals Skills Programme (CASP) and the NICE Public Health Methods Manual. Several review frameworks were considered by the researcher and research supervisor before the SURE framework was chosen due to its capacity to review qualitative studies with experimental designs, including intervention based designs, and its free availability via Cardiff University.

The SURE framework consists of 14 questions; one question has four reviewed aspects and 13 questions have one reviewed aspect, totalling 17 aspects. The questions review both design and reporting aspects of each study. Each study was reviewed with regard to whether it could be judged to meet each of the 17 aspects; if an aspect was judged to be met it was marked 'yes', if it was unclear that an aspect was met it was marked 'can't tell', or if the aspect was not met it was marked with a 'no'. Each study was then scored based on all 17 aspects; aspects that had been met were allocated a score of 2 points, aspects that were unclear were allocated a score of 1 point, and aspects that were not met were allocated a score of zero points. The maximum score one study could be allocated was 34 (17x2). This score was regarded as the studies quality score rating. A sample of the studies

was also reviewed by the supervisor for reliability regarding scoring. The quality review has been presented in a narrative format below. A summary table of the quality review is available in Appendix 4.

The median quality score of all 17 studies was 22, with a mean score of 21.71, ranging from 16 (Burns, *et al.*, 2011) to 27 (Egan, *et al.*, 2014). The nine studies scoring above the median appear to have several features in common – the majority had comparison or control groups, despite some randomisation the majority lacked description of the randomisation methods. The eight studies scoring below the median appear to also have several features in common –the majority lack of control or comparison groups, lack of randomised group allocation due to single group within subjects designs, despite transparency of sample demographics they lacked a comparison group. All 17 studies appeared to have features in common – they all lacked published trial protocols, the majority had small sample sizes, a lack of reported effect sizes and a lack of reported confidence intervals within data analysis.

1.7.5.6. Strengths

In total, 11 of the 17 studies explicitly reported strengths including aspects of the measures, designs, manipulation variables, and data analysis utilised. All 17 studies outlined their contribution to the existing literature base. These strengths are considered below, using the current studies quality review of each study.

1.7.5.6.1 Measures

Brown and Kocovski (2014).reported that a strength of their study included the attempted measurement of both state and trait perfectionism. These measures enabled a participant's typical (trait) perfectionism scores to be analysed with their temporarily changed (state) perfectionism scores, exploring a novel aspect of perfectionism. The quality review

identified that all studies appeared to utilise appropriate measures of anxiety and perfectionism.

1.7.5.6.2 Design

Eight studies fully reported their ethical approval process, suggesting these studies had followed approved ethical designs. Strengths identified with regard to the designs utilised in the studies included 11 studies reporting having utilised a control group, with eight of these studies reported utilising randomisation to allocate participants to group conditions. Two studies also reported utilising follow ups at three and six months (Steele, *et al.*, 2013; Egan, *et al.*, 2014, respectively). One study also reported using a mixed clinical sample design (Egan, *et al.*, 2014). These designs were considered to have increased internal validity and the reliability of the interpretations of causal influences suggested within the study findings.

1.7.5.6.3 Manipulation Variables

Several manipulation variables were identified as strengths, including having a task that examined a range of reactions to explicit manipulations of positive vs. negative task feedback (Besser, *et al.*, 2004), checking feedback manipulations for effectiveness (Besser, *et al.*, 2004), assessing not only cognitive and affective reactions, but also state changes in self-esteem and physiological responses (heart rate and blood pressure) (Besser, *et al.*, 2008) and exploring the impact of tasks that expose a person to repeated failure or repeated success (Stoeber, *et al.*, 2014). Steele identified exploring the efficacy of a group intervention to be a strength.

In the quality review, 15 studies were identified as having clearly outlined their manipulation variables that appeared appropriate, whilst two were considered to have unclear aspects and one was regarding to not have outlined the variables. Clarity regarding

manipulation variables was considered to increase transparency of the study and reliability of the interpretations of causal influences suggested within the study findings.

1.7.5.6.4 Data Analysis and Results

Arpin-Cribbie, *et al.* (2008) identified structural modelling as a data analysis method that has enabled evaluation of whether the level of therapeutic intervention provided to participants was predictive of the amount of improvement in perfectionism and psychological distress, as well as whether the amount of improvement in perfectionism was related to the amount of improvement in psychological distress. Egan, *et al.* (2014) reported to be the first RCT with the statistical power to compare face to face, online, and a no intervention control group.

All 17 studies reported their data analysis methodology, with seven studies providing increased levels of detail regarding data analysis, confidence limits and effects sizes. 16 studies also reported clear results, indicating any conflicts of interests that may have impacted on results and conclusions.

1.7.5.7 Limitations

There were 16 studies that explicitly reported limitations including aspects of the measures, designs, manipulation variables, and data analysis utilised. Besser, *et al.* (2008) did not explicitly report limitations; however, they did report recommendations that future research could take forward. These limitations will be used to further discuss limitations using the current studies quality review of each study.

1.7.5.7.1 Measures

Studies reported several limitations with regard to the measures used in the studies, these focused on the utilised measures' process of completion, content, and validity. The absence or lacking of relevant measures was also reported. Process of completion limitations included: the use of self-report measures with a lack of objectivity (Arpin-Cribbie, *et al.*, 2008; Arpin-Cribbie, *et al.*, 2012; Cox & Chen, 2014; Radhu, *et al.*, 2012; Schrijvers, *et al.*, 2010); the possible impact of desirability effects on how samples may have completed measures (Besser, *et al.*, 2004; Radhu, *et al.*, 2012); and some measures did not require participants to complete them with a specified time frame in mind and so the measured aspect may not reflect the level of the aspect during the actual study time frame (Ashbaugh, *et al.*, 2007). Content limitations included: measuring limited aspects of perfectionism (Cox & Chen, 2014; Besser, *et al.*, 2004; Stoeber, *et al.*, 2014) or anxiety (Cox & Chen, 2014; Schrijvers, *et al.*, 2010). Brown and Kocovski (2014) reported a lack of a well validated assessment tool for state perfectionism. Relevant measures noted to be absent or lacking included: direct measures for therapist and participant interactions (Aldea, *et al.*, 2010); measures for how samples and therapists utilised study materials and adhered to protocols (e.g. frequency, duration, use of specific aspects) due to limited assessment of protocol adherence (Radhu, *et al.*, 2012) or questionable adherence measure validity (Arpin-Cribbie, *et al.*, 2008; Arpin-Cribbie, *et al.*, 2012; Egan, *et al.*, 2014); and measures for perceived meaningfulness of the experimental situation (Besser, *et al.*, 2004).

Studies reported several recommendations for improving measures in future research, these focused on increased use of already utilised measures, use of additional measures that capture different aspects of perfectionism, anxiety or other experiences, and use of additional objective measures. Increased use of utilised measures included: to have baseline measures prior to any manipulation (Stoeber, *et al.*, 2014); multiple data collection points to measure the process of change (Arpin-Cribbie, *et al.*, 2012; Besser, *et al.*, 2008; Cox & Chen, 2014). Additional measures included: to measure other forms and dimensions of perfectionism (Stoeber, *et al.*, 2014); to measure the quality of the relationship between

experimenter/ therapist and participant (Aldea, *et al.*, 2010; Arpin-Cribbie, *et al.*, 2012); to measure maladaptive appraisal processes elicited by a social situation separate to anxiety or perfectionism (Laurenti, *et al.*, 2008); to measure credibility and effectiveness of feedback (Stoeber, *et al.*, 2014); to measure other emotional experiences (Schrijvers, *et al.*, 2010); and to measure and compare different perceptions of target 'others' e.g. persons of authority (Laurenti, *et al.*, 2008). Additional objective measures included: to have additional objective measures e.g. clinician rated measures (Cox & Chen, 2014; Schrijvers, *et al.*, 2010); to have multiple measures of physiological responses e.g. measuring blood pressure, to allow for further distinctions in physiological mechanisms (Richardson, *et al.*, 2014), to have continuous measures of physiological responses e.g. heart-rate and blood pressure (Besser, *et al.*, 2008); more refined monitoring technology (Besser, *et al.*, 2008); and to measure physiological responses in naturalistic contexts e.g. measuring ambulatory blood pressure (Besser, *et al.*, 2008).

In total, nine different perfectionism measures and fourteen different anxiety measures were utilised by the studies. This limits the comparison of findings between the studies as each may be considered to be measuring different constructs of anxiety and perfectionism.

1.7.5.7.2 Design

Studies reported several limitations with regard to the designs used in the studies, these focused on: recruitment; samples; control/comparison groups; allocation to groups; use of waiting list controls; and follow up. Recruitment limitations included a lack of random sample recruitment with samples often being selected based on baseline measures (Richardson, *et al.*, 2014) and a lack of neutral control groups as selected participants often self-reported high levels of perfectionism and this level was expected to improve, resulting in possible expectation effects (Radhu, *et al.*, 2012). Sample limitations included: small sample sizes (Aldea, *et al.*, 2010; Arpin-Cribbie, *et al.*, 2008; Burns, *et al.*, 2011; Chabaud, *et al.*, 2010; Cox & Chen, 2014; Radhu, *et al.*, 2012; Richardson, *et al.*, 2014); female

dominated samples (Aldea, *et al.*, 2010); student dominated samples (Aldea, *et al.*, 2010; Richardson, *et al.*, 2014); samples being recruited from single locations e.g. one university (Aldea, *et al.*, 2010); whole samples having high levels of perfectionism (Steele, *et al.*, 2013). Such limitations were discussed as resulting in restricted exploration of sub group variation (Richardson, *et al.*, 2014), a limited ability to generalise findings to 'pure' clinical sample (Egan, *et al.*, 2014; Steele, *et al.*, 2013) or to wider populations beyond the samples used (Aldea, *et al.*, 2010). Control/comparison group limitations included a lack of control and/or comparison groups (Ashbaugh, *et al.*, 2007; Brown & Kocovski, 2014; Burns, *et al.*, 2011; Laurenti, *et al.*, 2008; Steele, *et al.*, 2013). Allocation to group limitations included a lack of randomisation or limited randomisation details (Ashbaugh, *et al.*, 2007; Burns, *et al.*, 2011). Use of waiting list control limitations included: participants being aware that they were waiting for a future intervention and expectations for the future intervention possibly having an impact on change process and findings (Egan, *et al.*, 2014); and a lack of a control group at follow up due to participants having left the waiting list to commence intervention (Egan, *et al.*, 2014). Follow up limitations included: a lack of follow up opportunity (Ashbaugh, *et al.*, 2007, Burns, *et al.*, 2011); and follow up periods being too short (Arpin-Cribbie, *et al.*, 2012; Egan, *et al.*, 2014).

Six studies did not utilise a control group. In total nine studies did not report randomising participants to group conditions, and six of those that did failed to clearly define the randomisation methods used. 16 of the studies did not report clear concealment and all 17 failed to report any blinding of allocation to groups.

1.7.5.7.3 Manipulation Variables

Studies reported several limitations with regard to the manipulation variables used in the studies, these focused on: the treatment of groups; anticipated tasks; therapist variables; and accumulative effects. Group treatment limitations reported included: variance between groups in addition to the intended manipulation e.g. one group being exposed to time with

a therapist in addition to intended manipulation i.e. receiving feedback - the variance in time spent with a therapist between control and experimental groups may have a possible impact on the construct validity of the study (Aldea, *et al.*, 2010). Anticipated task limitations included the use of anticipated conversation rather than actual conversation resulting in a limited ability to generalise findings to non-anticipated events (Laurenti, *et al.*, 2008) and to a more naturalistic setting (Besser, *et al.*, 2004). Therapist variable limitations included: the use of peer, student, and different therapists due to differences in age, experience and competence (Egan, *et al.*, 2014). Accumulative effect limitations included: the possible impact of information being offered before an intervention as the information alone may have increased participants' readiness to partake in intervention and may have had an effect on intervention outcomes (Steele, *et al.*, 2013); the impact of stress management being offered in combination with CBT as the stress management aspect may have effected participants use of the CBT and so may have had an effect on intervention outcomes (Arpin-Cribbie, *et al.*, 2008; Arpin-Cribbie, *et al.*, 2012).

Studies reported several recommendations for improving the manipulation variables of future research, these focused on: treatment of groups; additional manipulation variables; therapists; exploration of accumulative effects; and comparison of manipulations. Improvement to treatment of groups included having an 'active' control group whereby participants in the non-experimental group participate in a neutral intervention e.g. talk about their weekend with a therapist or orally answer stimulus questions (Aldea, *et al.*, 2010). Additional manipulation variables included: the experimental manipulation of perfectionism (Brown & Kocovski, 2014); and exploration of time management tasks – structure of time management may be more complex and multifaceted than initially expected (Chabaud, *et al.*, 2010). Studies recommended future research utilised professional therapists (Aldea, *et al.*, 2010). Exploration of accumulative effects suggested by examining the effectiveness of a CBT intervention when this type of intervention is the sole intervention and is not combined with a stress management component (Arpin-Cribbie, *et al.*, 2008). Recommendation for comparisons included: speech versus social interaction tasks (Brown & Kocovski, 2014; Cox & Chen, 2014); web versus face to face intervention (Arpin-Cribbie, *et al.*, 2012), individual versus group intervention (Burns, *et al.*, 2011),

different therapy models (Arpin-Cribbie, *et al.*, 2008), and different therapy session frequencies and durations (Arpin-Cribbie, *et al.*, 2008; Burns, *et al.*, 2011).

1.7.5.7.4 Data

There were 14 studies that appeared to have appropriate sample sizes from which to collect data, however they did not clearly state any power calculations to determine sample size efficiency. The remaining three studies did not appear to have appropriate sample sizes.

Studies reported limitations with regard to the data collected in the studies, these focused on the high participant dropout rates (Brown & Kocovski, 2014; Radhu, *et al.*, 2012) and lack of intention to treat analysis (Ashbaugh, *et al.*, 2007). In total, there were eight studies where participants were considered to not be clearly accounted for either by a high dropout rate, lack of intention to treat analysis or lack of follow up.

1.8 THE CURRENT STUDY

1.8.1 Rationale for the Current Study

The current study aimed to explore the relationship between social values and perfectionist behaviour, considering value discrepancy and self-reported anxiety and depression. The study had an analogue design that utilised a 'non-clinical' population in controlled conditions and was intended to explore the potential efficacy of a theory and model of social values and value discrepancy applied to perfectionism in a mental health context.

Influenced by Rokeach (1973) and Kluckhohn (1951), Schwartz (1992) defined social values as desirable, transsituational goals, varying in importance, that serve as guiding principles in people's lives. The concept of values has been investigated in many areas of social psychology (Kristiansen & Hotte, 1996; Rohan & Zanna, 1997; Steele & Liu, 1988; Tanner, *et al.*, 2008). Values are also considered to be relevant to many different psychological theories, including the theory of clinical depression (Beck, 1979) and theory of emotion (Johnson-Laird & Oatley, 1992). Whilst values have been greatly researched in the social psychology arena, there is a comparative lack of research of values applied to a mental health context. Despite this lack of research, concepts of values have become integrated in to several psychological therapies, including Acceptance and Commitment Therapy (ACT; Hayes, *et al.*, 2008), Cognitive Behavioural Therapy (CBT; Beck, 1979), Narrative Therapy (White & Epston, 1990), Positive Psychology (Seligman & Csikszentmihalyi, 2000), and Person Centred Therapy (Rogers, 1951, 1961).

The research literature and psychological therapies do appear to have common links in how values are conceptualised. Despite these commonalities, there are discrepancies in how research and practise are conceptualising and utilising values. In practise, the conceptualisation and utilisation of values appears to have developed from practise based research and there is a lack of empirical research in values and their application to psychological therapies (Wilson & Murrell, 2004). The current study will aim to utilise the existing empirical research on values to explore the application of values to psychological therapies and a mental health context.

Schwartz (1992) proposed a basic model of social values that offers an understanding of value priorities and motivational relations. The model offers a framework on which research may form and test predications about values and behaviour such as predicting the effects of value compatibility and conflict, value discrepancy, value motivated behaviour and impacts on emotional distress. The model has also been used in empirical research with diverse cross cultural samples and so was considered to have a cross cultural and construct validity (Bardi & Goodwin, 2011; Blisky, *et al.*, 2011; Cieciuch & Schwartz, 2012; Davidov, *et al.*,

2008; Maio, *et al.*, 2009; Peng, *et al.*, 1997; Schwartz, 1994, 1996, 1999, 2006; Schwartz, *et al.*, 2001; Schwartz & Boehnke, 2004; Vecchione, *et al.*, 2009). Therefore, Schwartz (1992) was considered to have potential use in exploring values, behaviours related to psychological distress in a mental health context. The current study utilised Schwartz (1992) model of basic values due to the models ability to define, differentiate and understand how values relate to one another and impact on behavioural motivations. The original 1992 model was chosen due to the current lack of empirical research on Schwartz, *et al.* (2012) revised model. However, the revised model was considered with regard to how values relate to social and personal motivations and self-expansion/anxiety free and self-protection/anxiety avoidance motivations.

Maio (2010) proposed mental representation of values is compatible with Schwartz (1992) model and offers further understanding of values, emotions and behaviour. This model offers a framework on which research may form and test predictions about priming values to influence behaviour, specifically whether priming a value increases a behaviour that supports the value motivation whilst decreasing behaviour that support an opposing value motivation. The model has been in empirical research and was considered to have construct validity (Bargh, *et al.*, 2001; Verplanken & Holland, 2002; Karremans, 2007). The priming methodology utilised by Maio, *et al.* (2009) and Maio (2010) to activate values was considered to potentially be a useful methodology to explore values, behaviour, and psychological distress in a mental health context.

Higgins (1987) proposed a theory of self-discrepancy that offers an understanding of how self-discrepancies may impact on psychological wellbeing. This may be a useful theory to consider exploring value discrepancy in relation to emotional distress. Higgins (1987) theory of self-discrepancy has been utilised in empirical research in both physical (Heidrich, *et al.*, 1994; Cantor, *et al.*, 2005; Kinderman *et al.*, 2011) and mental health populations (Alatig *et al.*, 2010; Ferrier & Brewin, 2005; Strauman, 1989; Van den Broeck, *et al.*, 2012; Vergara-Lopez & Roberts, 2012; Wonderlich, *et al.*, 2008). More recently, this model has been applied to value discrepancies (Parsons, 2013; Rees & Maio, 2009). The application of

Higgins (1987) theory to value discrepancies was considered to have potential use in exploring values and behaviours related to psychological distress in a mental health context.

The current study will utilise existing research on social values, the process of priming social values, and self-discrepancy to explore how social values relate to behaviour change, considering the role of value discrepancy and psychological distress. The study will specifically focus on Achievement value priorities that may be associated with the presentation of perfectionism. Perfectionism has been suggested to relate to Achievement values, discrepancy and the experience of psychological distress. However, the effect of priming social values on perfectionism, considering the role of value discrepancy and psychological distress has not been researched. The current study had several hypotheses; each hypothesis is outlined in the following section.

1.8.2. Hypotheses

The current study had four main hypotheses that aimed to explore the effect of priming social values on behaviour associated with perfectionism, whilst considering value discrepancy and distress.

Hypothesis 1 focused on perfectionism, social value priorities, behaviour associated with perfectionism and distress. The aim of this hypothesis was to review the use of the MCUP in measuring perfectionism in relation to the PVQ, behavioural measures and HADS.

Hypothesis 1a - It is predicted that participants who score higher on the perfectionism measure will give higher ranking to the values within the Self-Enhancement quadrant of Schwartz (1992, Schwartz, et al., 2012) circular model. Additionally, the value of Achievement will have a higher relative rank with this quadrant.

Hypothesis 1b – Participants scoring higher on the perfectionism measure will be more likely to display the behaviours related to perfectionism than those who score lower on the measure.

Hypothesis 1c– Participants scoring higher on the perfectionism measure will be more likely to self-report experiences of anxiety and depression on the HADS.

Hypothesis 2 focused on the effects of priming social values on behaviour. The aim of this hypothesis was to explore the effect of priming Achievement value priorities on behaviour associated with perfectionism.

Hypothesis 2a– Participants who are primed with the Achievement value within the Self-Enhancement quadrant of Schwartz (1992) circular model will demonstrate increased behaviour associated with perfectionism compared to those who primed on opposing value of Benevolence within the opposite Self-Transcendence quadrant on the circular model.

Hypothesis 2b – It is predicted that those participants who score higher on the perfectionism measure and who value Achievement within the Self-Enhancement quadrant, will show the largest increase in behaviour when Self-Enhancement values are primed.

Hypothesis 3 focused on value discrepancy and social value priorities. The aim of this hypothesis was to explore the amount and type of value discrepancies in Achievement and benevolent value priorities.

Hypothesis 3a – It is predicted that those participants who give higher ranking to values within the Self-Enhancement quadrant of Schwartz (1992) circular model will have larger actual/ideal discrepancy between values rather than actual-ought discrepancy between values.

Hypothesis 3b – Furthermore, those participants who give higher ranking to values within the Self-Transcendence quadrant will have larger actual/ought discrepancy between values rather than actual-ideal discrepancy between values.

Hypothesis 4 focused on value discrepancy and emotional distress, specifically, anxiety and depression. The aim of the last hypothesis was to explore amount and type of value discrepancies relating to self-reported anxiety, depression and perfectionism.

Hypothesis 4a –As per Higgins' (1987) theory, it is predicted larger discrepancy in values will relate to higher scores for anxiety and depression.

Hypothesis 4b –Furthermore, the type of value discrepancy will relate to the type of emotional distress reported. Based on Higgins (1987) theory, it is predicted that those participants who have larger actual/ideal discrepancy between values will report lower mood and those participants who have larger actual/ought discrepancy between values will report higher anxiety.

Hypothesis 4c – Those who score more highly in helpful perfectionism will differ to those who score more lowly in helpful perfectionism – with higher scores in helpful perfectionism relating to smaller discrepancy. Whilst those scoring more highly in unhelpful perfectionism will differ to those who score more lowly in unhelpful perfectionism – with higher scores in unhelpful perfectionism relating to larger discrepancy.

Hypothesis 4d – Those who score more highly in unhelpful perfectionism will differ to those who score more lowly in unhelpful perfectionism – with higher scores in unhelpful perfectionism relating to larger actual/ought discrepancies and anxiety.

1.9 SUMMARY OF CHAPTER 1

In summary, values have been conceptualised in many ways. Schwartz (1992) offers a model of basic social values that defines and differentiates values, mapping value relations. Schwartz, *et al.* (2012) has revised this model, adding further value motivational dimensions. Schwartz (1992) and Schwartz, *et al.* (2012) have also developed the PVQ tool to measure value priorities. Research has suggested that value's act as truisms unless activated, and various priming strategies have been explored (Maio, *et al.*, 2009). Maio (2010) proposed a mental representation of value activation that maps on to Schwartz (1992) model of values. Using this model, Maio, *et al.* (2009) and Maio (2010) have proposed that priming social values impacts on behaviour, increasing value congruent behaviour.

Higgins (1987) model of self-discrepancy has been used to understand value discrepancy and experiences of psychological distress (Parsons, 2013; Rees & Maio, 2009). This research has proposed that value discrepancy may be associated with increased levels of psychological distress. This appears to be in line with Schwartz (1992), Schwartz, *et al.* (2012), and Maio (2010) proposals that values may be associated to psychological distress.

Several psychological therapies appear to identify and utilise concepts of values to reduce psychological distress. Schwartz's (1992), Schwartz, *et al.* (2012), and Maio (2010) conceptualisations of values as motivational orientations appear to be consistent with the conceptualisation of values in ACT and Positive Psychology. Both ACT and Positive Psychology utilise values and 'character strengths' to motivate individuals to set behavioural goals to work towards initiating change and living life in a meaningful way (Hayes, 1994; Hayes, *et al.*, 1999; Seligman & Csikszentmihalyi, 2000). Person Centred Therapy also

proposes several values that an individual may pursue in an ongoing process of self-development (Rogers, 1951, 1961). Whilst narrative therapies utilise conceptions of values generated by the individual, values also appear to be used in this therapy to motivate change through alternative perspectives (White & Epston, 1990).

Utilising Higgins (1987) theory of self-discrepancy, research has suggested that value discrepancies result in an individual experiencing psychological distress (Parsons, 2013; Maio & Rees, 2009). In line with this research, CBT suggests that discrepancies in thoughts, beliefs and values result in a person experiencing psychological distress termed as cognitive dissonance. Individuals are suggested to be motivated to reduce any cognitive dissonance and to pursue cognitive consistency (Beck, 1979). Person Centred Therapy also suggests that discrepancy between values, self-concepts and experiences may result in psychological distress and individuals are motivated to pursue an internal consistency. (Rogers, 1951, 1961). Whilst Positive Psychology (Seligman & Csikszentmihalyi, 2000) encourages the pursuit of value congruent behaviours.

The research literature and several psychological approaches in practise appear to have common links in how values are being conceptualised. Despite these commonalities, there are discrepancies in how research and practise are conceptualising and utilising values. In practise, it was suggested that there was no 'good science' that could inform how practitioners could access the relative importance of values and utilise them within interventions (Wilson & Murrell, 2004). Consequently, it appears that an understanding of values has developed from practise based research and there is a lack of empirical research on values and their application within mental health context. The current study will aim to utilise the existing empirical research on values to explore their application within a mental health context.

Perfectionism associated with higher levels of anxiety has been suggested to relate to perfectionism that is socially prescribed (Hewitt & Flett, 1991), with a higher external locus of control (Periasamy & Ashby, 2002), motivated by extrinsic factors (Mills & Blainstein,

2000). The concept of perfectionism relating to external/extrinsic and internal/intrinsic motivations appears to support the notion that perfectionism may relate to the Achievement value priorities as defined by Schwartz, *et al.* (2012). In Schwartz, *et al.* (2012) revised model of values, Achievement value priorities are actually positioned in the personally orientated motivational dimension.

The concept of perfectionism having both a positive and negative function appears to support the notion that perfectionism may relate to the Achievement value priorities as defined by Schwartz, *et al.* (2012). In Schwartz, *et al.* (2012) revised model of values, the value of Achievement overlap in regard to its motivational goal with regard to the dimension of self-growth/self-protection. Its overlapping position suggests that meeting standards may serve to self-protect and cope with anxiety or to promote self-growth by expressing ones competence and anxiety free motivations. Therefore, if perfectionism is motivated by Achievement value priorities, one may predict that perfectionism may serve to self-protect and cope with anxiety or to promote self-growth by expressing ones competence and anxiety free motivations. The current study conducted a review of the evidence regarding perfectionism and anxiety to further understand the role of perfectionism in anxiety.

The current study will utilise existing research on social values, the process of priming social values, and self-discrepancy to explore how social values relate to behaviour change, considering the role of value discrepancy and psychological distress. The study will specifically focus on Achievement value priorities that may be associated with the presentation of perfectionism. Perfectionism has been suggested to relate to Achievement values, discrepancy and the experience of psychological distress. However, the effect of priming social values on perfectionism, considering the role of value discrepancy and psychological distress has not been researched. Chapter 2 will discuss the current study methodology.

CHAPTER 2: METHOD

2.1 INTRODUCTION

This chapter will focus on the methodology used in the current research study. The chapter will cover ethical considerations, study design, recruited participants, details of the measures used, study procedures and data analysis.

2.2 ETHICAL APPROVAL

The study made use of both an undergraduate and community pool sample population at Cardiff University. Therefore, ethical approval for the study was sought from Cardiff University Ethics Board (see Appendix 5). Ethical approval was granted before the study commenced (see Appendix 6).

Several aspects of the study were given particular ethical consideration, including the opportunity to provide informed consent, participant's wellbeing, confidentiality and anonymity, and revealing deception.

2.2.1 Informed Consent

All participants received an information form (see Appendix 7) and were asked to then complete an informed consent form (see Appendix 8). A participant's ability to provide informed consent was determined through informal assessment of their capacity, in line with the Mental Capacity Act for England and Wales (2005). There were no concerns with regards to capacity to consent to participate within the sample being recruited from.

All participants were made aware of their right to withdraw from the study at any time without giving a reason. Participants were informed that there would be no adverse consequences if they did withdraw and that any information collected from them would not be used in the research and destroyed.

Following completing the study, all participants were given a debriefing form (see Appendix 9) this included: the value of their participation; a summary of what the study was aiming to investigate, information about the mild deception used in the project and the reasons for this; contact details for the members of the project team for any queries; and the REC contact details if they needed to contact them about the ethical conduct of the study. Participants were also provided with how they could request a summary of the findings of the project. Participants were also offered an explicit opportunity to ask questions or comment.

2.2.2. Wellbeing

Participants were informed that all measures being used, whilst clinically relevant, were not diagnostic tools and not used to form the basis of a clinical diagnosis for any psychological/mental health condition. It was made clear that it was expected that individuals within the general population would display a wide distribution of responses to these measures. It was not anticipated that there would be any adverse reactions from participants with regards to the measures used. However, there was a possibility that a participant may have experienced distress at any time during the study. If this had happened, participants were free to withdraw from the study and would have been given time to speak to the researcher and offered the contact details of the research supervisor. Participants would also have had been offered signposting to appropriate services.

2.2.3. Confidentiality and Anonymity

Participants were informed that their confidentiality would be maintained through all data being anonymous. All information collected about participants during the course of the research was strictly confidential and only accessible to the lead researcher. Consent forms were the only paperwork that identified participants by name and so consent was sought prior to participants being asked to complete any measures. The consent forms were available only to the lead researcher and they were stored separately from all other data in a locked filing cabinet.

Each participant was allocated a participant identification number which was used to ensure that all data collected could be kept confidentially but could still be identified as coming from a particular participant. This allowed any information to be made anonymous at the point of collection and for data to be matched and analysed accurately.

2.2.5. Revealing Deception

There was some mild deception used in the design of the study. Before starting the study, participants were not informed that the study was investigating links between priming values, perfectionism, anxiety and depression. Therefore participants were not informed that they were being primed for different values as this could have had an impact on their responses to the tasks. Participants were also not told that their behaviour was being measured. This deception was necessary in order to gain a valid measurement of their responses. If the participants had been aware that they were being primed and their behaviour was being measured this could have impacted on the way they behaved. Following the completion of tasks, participants were asked if they had thoughts about the hypothesis of the study and they then received a debriefing sheet which explained the mild deception used in the study and clearly stated why it was necessary. If any participant had reported being unhappy with the use of this mild deception, they would have been

reminded that they had the right to withdraw from the study and have their data removed and deleted.

2.3 POWER ANALYSIS

To determine the sample size required for the current study, a power analysis was conducted using a freely available resource programme G-Power Version 3.1.9.2 (Faul, *et al.*, 2007).

With reference to the systematic review, reported Cohen *d* effect sizes had a range of 1.95 (min .25 - max 2.20) and median value of 1.08 (mean 1.15, SD: .60873). Using these effect sizes, a MANOVA power analyses was conducted using the input: the median effect size =1.08, α =.05, Power/1- β = 0.95, number of groups = 3, response variables = 21 (MCUP scales, HADS scales and PVQ scales). This calculation gave a total sample size of 39. To allow for enough participants per group when groups were split in to high/low parts, this was increased to 90 to allow for 30 participants in each group and to allow for any missing participant data being excluded for errors. This sample size is similar to previous studies that have investigated effects of priming values (90, Woodfield, 2014) and explored discrepancies in values (90, Parsons, 2013).

2.4 INCLUSION AND EXCLUSION CRITERIA

To be included in the study, participants had to have fluent English, be aged 18 years old or above, have completed education to a Secondary School level, and have access to the Experimental Management System (EMS) at the selected University. Participants were assumed to have the capacity to provide their informed consent.

Participants were excluded from the study if they did not meet the inclusion criteria.

2.5 RECRUITMENT, PAYMENT AND LOCATION

All student participants were recruited through Cardiff University Experimental Management System (EMS). The EMS is an online programme which enables researchers to advertise a study and participants to sign up to participate. Students at any stage of their studies, in any school within the university have access to the EMS programme. The current study was advertised with a brief study title, the time the study should take to complete, inclusion criteria, the payment offered (cash or course credit), timeslots available, study location, and researcher contact details. Students booked themselves to participate in the study. On attending their booked timeslot, they were given an information sheet about the study and then had the opportunity to decide whether or not they wanted to participate in the study.

All community participants were recruited through Cardiff University Community Research Pool. The researcher approached the community research pool co-ordinator to enquire about participants who may want to participate in the study. The researcher then completed short form outlining the studies ethical approval, brief study title, and inclusion criteria. A list of 100 community research pool members who met the inclusion criteria was emailed to the researcher. The researcher then emailed all 100 potential participants with a brief study title, the time the study should take to complete, inclusion criteria, the payment offered (prize draw entry for £25), timeslots available, study location, and researcher contact details. Community participants booked themselves to participate in the study by responding to the email and selecting an available timeslot. On attending their booked timeslot, they were given an information sheet about the study and then had the opportunity to decide whether or not they wanted to participate in the study.

Student participants could choose from either payment in cash or course credit. Students chose their payment type at the point of booking a timeslot. 68 students opted for cash payment, receiving minimum wage and 12 students opted for course credit payment. All community participants were entered into a prize cash draw for £25.

All study participation took place in a room in the School of Psychology at Cardiff University.

2.6 PARTICIPANT SAMPLE

The current study had an analogue design that utilised a ‘non-clinical’ population. The participant sample included 90 English speaking adults aged 18 years or above (Mean 22.08, Range: 18-62 years, SD: 7.238). Participants were recruited from either a student (sample size 80) or community research pool (sample size 10) population at Cardiff University. Participants were randomly allocated (see procedure section below) to one of three groups: Experimental Group 1, Experimental Group 2 or a Control Group. Each group included 30 participants; participant demographics for these groups are shown in Table 2.1 below:

Table 2.1: Participant demographic information across group conditions.

	Experimental Group 1	Experimental Group 2	Control Group
Age (Years)			
Mean	21.53	21.7	23
Range (SD)	18-51 (5.877)	18-62 (7.848)	18-50 (7.957)
Gender	87% Female 13% Male	90% Female 10 % Male	87% Female 13% Male
Ethnicity	80% White 10% Mixed 7% Other 3% Not Stated	93% White 3% Asian or Asian British 3% Mixed	73% White 10% Chinese or Chinese British 10% Mixed 7% Asian or Asian British

2.7 DEMOGRAPHIC QUESTIONNAIRE

Participants were asked to complete a short questionnaire regarding their demographic identity; data collected included each participant's age, gender, and ethnicity (see Appendix 10).

2.8 QUESTIONNAIRE MEASURES

The questionnaire measures were the independent variables in the current study. The study made use of three freely available questionnaire measures: an adapted version of the Portrait Values Questionnaire (PVQ) (Parsons, 2013; Rees & Maio, 2009) (see Appendix 11), the Measure of Constructs Underlying Perfectionism (M-CUP) (Stairs, *et al.*, 2012) (see Appendix 12), and the Hospital Anxiety and Depression Scale (HADS) (Zigmond & Snaith, 1983) (see Appendix 13).

2.8.1 Adapted Portrait Values Questionnaire 40 Item Version (PVQ-40)

All participants completed the Adapted PVQ-40 (Parsons, 2013; Rees & Maio, 2009) (see Appendix 11). This measure was utilised to obtain a measure of participant's self-reported social value orientations/priorities and discrepancies. The PVQ was initially developed by Schwartz, *et al.* (2001) a self-reported implicit measure of social values. There are two versions of the PVQ available, a 40-item version and a shorter 21-item version. The 21-item version was developed specifically for the European Social Survey (ESS). The 40-item version includes 40 portraits of people; the portraits are presented in two versions, as male or female (Schwartz, *et al.*, 2001). The gender of the portraits is to the participant completing the measure i.e. a male participant would receive 40 male portraits. Each portrait implicitly describes a social value held by a person by describing what they regard as an important goal or desire in life. For example, item 1 for the male portraits implicitly

describes the social value of 'Self-Direction' from the 'Openness to Change' Quadrant of Schwartz (1992) model, by describing the following male portrait: 'thinking up new ideas and being creative is important to him. He likes to do things in his own original way'. Participants are asked to decide how much the person described is like them by choosing from one of six options: 'very much like me', 'like me', 'somewhat like me', 'a little like me', 'not like me', and 'not like me at all'. The participants social values are then inferred from their similarity to the social values implied in each of the 40 portrait items. The number of portrait items for each implied social value ranges from three (Hedonism, Power and Stimulation) to six (Universalism). The number of portrait items for each implied social value is considered to reflect the conceptual breadth of the value i.e. Universalism has the widest conceptual breadth (Schwartz, 1992; Schwartz, *et al.*, 2012).

The PVQ 40-item measure is scored by calculating the mean score for question items related to the social value. In total 10 scores are calculated, one for each of the 10 social values. The 10 values are then ranked in terms of importance with the highest scoring value to lowest scoring value. These 10 scores can be used to give an indication of social value priorities. Scores for each of the four value quadrants (Schwartz, 1992; Schwartz, *et al.*, 2012) can also be summed and averaged. The four quadrants can then be ranked by priority from lowest score (highest priority) to highest score (lowest priority). This method was suggested to provide a robust structure of value priorities across the four quadrants (Verkasalo, *et al.*, 2012).

The PVQ 40-item measure has been suggested to have good internal consistency include with alpha measures of internal consistency ranging from .37 (Tradition) to .79 (Hedonism) (PVQ median .55) and test-retest reliabilities ranged from moderate .66 (Self-Direction) to high .88 (Security) (Schwartz, *et al.*, 2001). The measure has also been demonstrated to have near equivalence of meaning across cultures (Schwartz, 2006) and evidenced to have strong fit to Schwartz model in the countries in which it has been used (Schwartz, *et al.*, 2001). The PVQ has supported construct validity (Cieciuch & Schwartz, 2012), with the quadrant level structure being specifically supported (Hinz, *et al.*, 2005).

The PVQ 40-item version was adapted by Rees and Maio (2009) and Parsons (2013) for use in research exploring social value discrepancy. This adaptation aimed to incorporate Higgins (1987) model of self-discrepancy into the measure. The measure instructions and rating scale were adapted to incorporate participants' actual/own, ideal/own and ought/own self-state representations. The adaptations aimed to measure actual ideal discrepancies or actual ought discrepancies between participants' social value priorities. Instructions were adapted and participants were asked to think about how much each portrait described a person that 'is actually like you', 'is ideally like you', and 'is what you should be like'. The rating scale was adapted to so that participants answered these three questions for each portrait item: 'How much are you like this person?', 'Ideally, how much would you be like this person?', and 'How much should you be like this person?'. The rating scale was also adapted to: 'Not at all (1)', '2', 'somewhat (3)', '4', and 'very much (5)'. These adaptations are shown in Figure 2.1.

Question	Answer				
1) Thinking up new ideas and being creative is important to him. He likes to do things in his own original way.	Not at all 1	2	Somewhat 3	4	Very much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you like to be like this person?					
c) How much <u>should</u> you be like this person?					

Figure 2.1: Adapted PVQ 40-item measure: adapted instructions and rating scale (Parsons, 2013; Rees & Maio, 2009).

To score the Adapted PVQ 40-item measure the social value priorities are calculated in the same way as the PVQ 40-item measure utilising the actual question item scores (i.e. how much are you like this person?) (see Appendix 11). Mean scores are calculated for question items related to the social value. In total 10 scores calculated, one for each of the 10 social values. Value importance is then ranked in the same way as the PVQ 40-item measure. The 10 values are ranked in terms of importance with the highest scoring value to lowest scoring value, this was done for each individual. Scores for each of the four value quadrants (Schwartz, 1992) can also be summed and averaged. The four quadrants can then be ranked by priority from highest score (highest priority) to lowest score (lowest priority).

Actual/ideal and *actual/ought* discrepancy scores were calculated using a method from the regulatory focus strength measure (Higgins, *et al.*, 1997). *Actual/ideal* scores were calculated by subtracting the *actual* mean item value score from the *ideal* mean item value score. *Actual/ought* scores were calculated by subtracting the *actual* mean item value score from the *ought* mean item value score.

The current study utilised the adapted PVQ-40 (Parsons, 2013; Rees & Maio, 2009) to as a measure of social values due to its ability to measure values relative to Schwartz (1992) model, whilst also measuring value discrepancy.

2.8.2 Measure of Constructs Underlying Perfectionism (M-CUP)

All participants completed the Measures of Constructs Underlying Perfectionism (MCUP) (Stairs, *et al.*, 2012) (see Appendix 12). This measure was utilised to obtain a measure of participant's self-reported experience perfectionism. In a pilot study, items from existing measures of perfectionism were sorted onto the nine hypothesized underlying constructs of perfectionism and intra-class correlations used to examine agreement between raters. Intra-class correlations for the nine hypothesised dimensions had a mean of .86 and ranged from .78 (Dissatisfaction construct) to .95 (Order). The items were rewritten to maximize

unidimensionality and representativeness of the items belonging to one of the nine hypothesized construct scales. The resulting 86 items were used in an exploratory factor analysis. Following this, items which did not load highly on any construct scale, loaded highly on more than one scale, or detracted from the internal consistency of a scale were deleted. This resulted in a 61-item pool that was used in a confirmatory factor analysis.

The final MCUP has 61 items; each item is a statement about a person. Participants are asked to read each item and then rate on a scale of 1-5 how much they agree, are neutral or disagree with the statement. For example, item 1 states 'I am a person who sets high standards for myself' and participants can choose from the options: 'strongly disagree', 'somewhat disagree', 'neutral', 'somewhat agree', or 'strongly agree'. Each item is scored on a rating scale of 1-5 (e.g. 'strongly disagree' = 1, 'somewhat disagree' = 2, 'neutral' = 3, 'somewhat agree' = 4, 'strongly agree' = 5). Scores can range from 61 and 305.

Each item relates to one of nine subscales: Order, Satisfaction, Details and Checking, Perfectionism Towards Others, High Standards, Black and White thinking about Tasks and Activities, Perceived Pressure from Others, Dissatisfaction and Reactivity. The number of items for each subscale ranges from four (Back and White Thinking about Tasks and Activities) to nine (Order, Satisfaction, Dissatisfaction). The nine subscales are scored separately and then summed to give a total score of perfectionism and total factor scores. As there were differing number of items for the subscales, scores were aggregated by calculating the mean score for items related to each subscale. In total nine mean subscale scores were calculated. The subscale scores were then summed for a total scale score.

The internal consistency of the MCUP was investigated using Cronbach's coefficient (alpha), scoring above .80, with five scales above .90. Test-retest reliability was examined using a range of intervals between administrations: 2 to 11 days, 12 to 25 days, and 38 to 46 days, 47 to 67 days, and 68 to 91 days. Overall, results indicated good test-retest reliability. Intercorrelations between the M-CUP sub scales were consistent with the results of the

initial factor analyses. Relationships between the MCUP nine subscales and existing measures of perfectionism were investigated using inter-correlations. Results indicated high convergent validity and lower discriminant validity as expected due to existing measures of perfectionism not having less construct homogeneity compared to the MCUP i.e. including multiple constructs within one subscale. Results indicate the MCUP has good internal consistency, good test-retest reliability, and strong convergent and discriminant validity. Statistics for test-retest reliability and inter-correlations between scales were generally similar to findings for existing scales measuring perfectionism. In support of construct validity, the M-CUP scales were related to conceptually similar scales on other measures of perfectionism.

The MCUP proposes that there are two higher order factors in the construct of perfectionism: 'Ego-Syntonic' and 'Ego-Dystonic' factors. Researchers have utilised the term 'Ego-Syntonic' to refer to the needs and goals of the ego being consistent with an individual's self-image, whilst 'Ego-Dystonic' has been used to refer to needs and goals of the ego being dissonant or conflicting with an individual's self-image (Freud, 1914; Hartmann, 1939). In the MCUP, the 'Ego-Syntonic' factor was comprised of the subscales Order, Satisfaction, Details and Checking, Perfectionism toward Others, and High Standards. These 'Ego-Syntonic' subscales were suggested to represent a 'healthy or positive' aspect of perfectionist thinking. Conversely, 'Ego-Dystonic' factors comprised of Black and White Thinking about Tasks and Activities, Perceived Pressure from Others, Dissatisfaction, and Reactivity to Mistakes. These subscales were suggested to represent more negative aspects of perfectionist thinking that may be related to experiences of emotional distress. The subscales related to each higher order factor were also summed and mean factor scores calculated.

The 'Ego-Syntonic' and 'Ego-Dystonic' factors were supported when the MCUP was correlated with relevant personality measures, including aspects of the NEO Personality Inventory Revised (NEOPI- R; McCrae & Costa, 2004) and the UPPS-P (urgency, premeditation, perseverance, sensation seeking, and positive urgency) (Whiteside & Lynam,

2001). In these analyses, measures of anxiety correlated with Satisfaction, High Standards, Perceived Pressure, Dissatisfaction, and Reactivity to Mistakes. Depression measures correlated with Black and White Thinking, Perceived Pressure, Dissatisfaction and Reactivity to Mistakes. The MCUP was also correlated with relevant psychosocial measures, including the Beck Anxiety Inventory (BAI; Beck, *et al.*, 1988) and the Beck Depression Inventory (BDI, Beck, *et al.*, 1996). In these analyses, the BAI significantly correlated with Black and White Thinking ($r=.25$), Perceived Pressure ($r=.15$), dissatisfaction ($r=.33$) and Reactivity to Mistakes ($r=.38$). The BDI significantly correlated with Black and White thinking ($r=.31$), Perceived Pressure ($r=.20$), Dissatisfaction ($r=.48$) and reactivity to mistakes ($r=.45$).

2.8.3 Hospital Anxiety and Depression Scale (HADS)

All participants completed the HADS (Zigmond & Snaith, 1983) (see Appendix 13). This measure was utilised to obtain a measure of participant's self-reported experience of anxiety and depression.

The HADS was developed by Zigmond and Snaith (1983) as a self-report measure of brief state anxiety and depression. The measure was initially developed to measure anxiety and depression in people who were presenting with physical health difficulties in hospital. Since its initial development, the HADS has been used in a wide range of both physical and mental health settings. It has also been found useful for non-hospital populations (McDowell, 2006).

Originally the HADS consisted of 16 items, it had eight items aimed to measure anxiety and eight items aimed to measure depression. Initial findings indicated that one of the items on the depression subscale was weak and it was removed. To keep the items in the subscales equal, the weakest item on the anxiety subscale was also removed. The final HADS is a 14 item measure; it has seven items aimed to measure anxiety and seven items aimed to measure depression. Each item describes a feeling and participants are asked to decide how

closely this item describes how they have been feeling over the past week, choosing from four options. For example, item one describes the feeling 'I feel tense or 'wound up'' and participants can choose from the following four options: 'not at all', 'from time to time/occasionally', 'a lot of the time', and 'most of the time'.

Each item is scored on a rating scale of 0-3: (e.g. 'not at all' = 0, 'from time to time/occasionally' = 1, 'a lot of the time' = 2, and 'most of the time' = 3). Scores can range between 0-21 for anxiety and between 0-21 for depression. The measure is not designed to be used as a tool for clinical diagnosis (Whelan-Goodinson, *et al.*, 2009) but despite this it offers an interpretation of scores with scores of 0-7 = 'Normal', 8-10 = 'mild', 11-14 = 'moderate', and 15-21 = 'Severe'. These interpretative scores have not been shown to be useful in predicting probable presence of clinical depression or anxiety (Whelan-Goodinson, *et al.*, 2009).

The HADS has been suggested to have good internal consistency (Bjelland, *et al.*, 2002; Mykletun, *et al.*, 2001), and a balance of sensitivity and specificity (Bjelland, *et al.*, 2002). Mykletun, *et al.* (2001) investigated the factor structure, item analyses and internal consistency of the HADS measure using a sample of 51,930 people aged 20-89 years. Both the anxiety and depression subscales were found to be internally consistent, with values of Cronbach's coefficient (alpha) being 0.80 and 0.76, respectively. The study concluded that the psychometric properties of the HADS as a self-rating instrument were quite good in terms of factor structure, intercorrelation, homogeneity and internal consistency. In a review of 747 papers that utilised the HADS, Bjelland, *et al.* (2002) reported a Cronbach's coefficient (alpha) for the anxiety subscale ranging from .68 to .93 (mean .83) and for the depression subscale ranging from .67 to .90 (mean .82). An optimal balance between sensitivity and specificity was achieved when presence of anxiety or low mood was defined by a score of 8 or above on both the anxiety and depression subscales. Correlations between HADS and other commonly used questionnaires were in the range 0.49 to 0.83.

2.9 EXPERIMENTAL TASKS

Four different tasks were employed in the study, three 'priming tasks' ('Prime A' task, 'Prime B' task, and a 'Neutral task') and a 'behavioural task'. The 30 participants in Experimental Group 1 were asked to complete the 'Prime A' task (see Appendix 14). The Prime A task required the participants to provide cognitive support for the value of 'Achievement' for which they were being primed. The 30 participants in Experimental Group 2 were asked to complete the 'Prime B' task (see Appendix 15). The Prime B task required the participants to provide cognitive support for the value of 'benevolence' for which they were being primed. The 30 participants in the Control Group were asked to complete the 'Neutral' task (see Appendix 16), providing cognitive support for neutral statements about beverages. All participants then completed the 'Behaviour' task (see Appendix 18).

2.9.1. Priming Tasks

The priming task was the manipulation variable in the current study and it aimed to investigate the effects of priming social values on participants behaviour. Participants in Experimental Group 1 were asked to complete the 'Prime A' task and Experimental Group 2 were asked to complete the 'Prime B' task, whilst participants in the Control Group were asked to complete a 'Neutral' task. The neutral task was similar to previous studies that have included neutral task designs (Maio, *et al.*, 2009; Maio, 2010; Woodfield, 2014) and required participants to give reasons for choosing to drink different beverages. The aim of the neutral task was to provide participants with a similar task experience that did not aim to prime specific social values.

The priming tasks required participants to give reasons for a particular value being important. Participants in Experimental Group 1 were required to give reasons for Achievement values being important and participants in Experimental Group 2 were required to give reasons for benevolence values being important. The aim of the two

priming tasks was to prime Experimental Group 1 to the social value of Achievement and to prime Experimental Group 2 to the social value of Benevolence. These two social values were considered to be positioned on opposing quadrants of the Schwartz (1992) model, i.e. Achievement is positioned in the Self-Enhancement quadrant positioned opposite to benevolence in the Self-Transcendence quadrant.

Values located within the Self-Enhancement quadrant could be considered to be associated with motivating perfectionist behaviour as striving for success, competence and competitiveness all fall within this quadrant, specifically within Achievement values. Perfectionism has been associated with several mental health difficulties including depression (Bimanand, *et al.*, 2013; Egan, *et al.*, 2011; McGrath, *et al.*, 2012), social anxiety (Al-Naggar, *et al.*, 2013; Frost, *et al.*, 2010; Levinson, *et al.*, 2015; Mackinnon, *et al.*, 2014), generalised anxiety (Egan, *et al.*, 2011; Flett, *et al.*, 2004; Handley, *et al.*, 2014; Klibert, *et al.*, 2005); social physique anxiety (Haase, *et al.*, 2002), obsessive-compulsive disorder (OCD) (Frost & Steketee, 1997), body dissatisfaction (Graziano & Sikorski, 2014); the development of eating disorders (Egan, *et al.*, 2011; Fairburn, *et al.*, 1999; Ferreira, *et al.*, 2014; Lilienfeld, *et al.*, 2006), anorexia nervosa (Lloyd, *et al.*, 2014), and bulimia nervosa (Silgado, *et al.*, 2010).

Achievement values are hypothesised to be associated with both self-protection via anxiety avoidance and self-growth via anxiety free motivations, with motivations being personally focused (Schwartz, *et al.*, 2012). The motivations of the Self-Enhancement and Achievement values could be considered to be opposing to those of the Self-Transcendence and Benevolence values which are focused on only self-growth via anxiety free motivations, with motivations being socially focused.

2.9.2 Behaviour Task

The behaviour task was adapted from letter search tasks previously used in research to capture perfectionism (Stoeber, *et al.*, 2010). The task required participants to search for and identify a specific letter in search areas of mixed letters and numbers. Specifically, participants were required to search for and mark every letter 'F' and to notify the researcher when they had finished (see Appendix 17). Task behaviour was measured through recording participant's completion time, accuracy, whether participants choose to take up an offer of checking their task once completed and checking time. Participants were not given any instruction regarding how the task should be completed with regard to time and they were not aware that this was a timed task.

2.10 BEHAVIOURAL MEASURES

The current study aimed to capture and measure behaviour that may be relevant to perfectionism. The study aimed to measure behaviour that could be associated with cognitions suggested by the MCUP subscales i.e. how the task was perceived (via how long participants took to complete and task accuracy), whether participants were satisfied with their task completion (via whether they took up the option of checking, how long participants took to check and checking accuracy) (see Appendix 18)

The behavioural measures were the dependant variables in the current study. All participants were scored on several behavioural measures when completing the behavioural task, including: task completion time, taking up the option of checking, time checking, task accuracy, and accuracy checking.

2.10.1. Task Completion Time

Participants were handed the experimental task and told to inform the researcher when they had finished the task. The researcher began timing the participants task completion time when they were handed the task. When the participants said they had finished, the researcher stopped the clock and recorded the time. Times were recorded using a hand held stop clock. The researcher sat behind the participant so that they did not see the stop clock or become aware that they were being timed.

2.10.2. Taking up the Offer of Checking

When the participant declared that they had finished, the researcher noted the time and asked the participant if they would like to check their work. If the participant did not take up the offer of checking their work, they were informed that the study had ended.

2.10.3. Checking Time

If the participant took up the offer of checking their work, they were handed a different coloured pen to make any amendments and asked to inform the researcher when they had finished checking. When the participant had been handed the different coloured pen, the researcher then began to time the participants checking time. When the participant said they had finished; the researcher stopped the clock and recorded the time. Participants were then told that the study had ended.

2.10.4. Task Accuracy

Task accuracy was a measure of the initial accuracy of a participant's task completion. The number of correct answers identified by the participant was summed as a correct score. Next, any incorrectly identified or missed answers were summed and recorded as an error score. A participant's error score was then deducted from their correct score to produce an accuracy score.

2.10.5. Checking Accuracy

Checking accuracy was a measure of the accuracy of the participants checked task completion. Any additional answers identified whilst checking could be identified due to being marked in a different coloured pen to any initial answers. The number of correct answers identified by the participant was summed as a correct score. Next, any incorrectly identified or missed answers were summed and recorded as an error score. A participant's error score was then deducted from their correct score to produce a checking accuracy score.

2.11. PROCEDURE

In total, 90 people (80 students and 10 community participants) chose to participate in study either via an online programme or e-mail contact with the lead researcher. Interested individuals were then invited to meet with the researcher individually at an appropriate room within the University.

On meeting the lead researcher, all individuals received an information form (see Appendix 7) to read and were offered the opportunity to ask any questions. After reading the study

information and having any questions answered, individuals were then asked whether or not they wanted to participate in the study. If they choose to participate they were given an informed consent form to complete (see Appendix 8).

Following completing the consent form and having any questions answered, all participants were asked to complete three questionnaires: the Adapted Perceived Values Questionnaire (A-PVQ) (Rees & Maio, 2009; Parsons, 2013), the Measure of Constructs Underlying Perfectionism (M-CUP) (Stairs, *et al.*, 2012) and the Hospital Anxiety and Depression Scale (HADS) (Zigmond & Snaith, 1983). The aim of these questionnaires was to provide a self-reported measure of each participant's social values, social value discrepancies, perfectionism, experience of anxiety and depression. The questionnaires were sorted into 90 packs, with each pack containing one copy of each questionnaire measure – totalling three questionnaires per pack. The questionnaires within the packs (PVQ=1, M-CUP=2, HADS=3) were then sorted so that there were fifteen sets of questionnaires in each of the following orderings: (1, 2, 3) (2, 3, 1) (3, 2, 1) (3, 1, 2) (1, 3, 2) (2, 1, 3). An external individual not involved in the study was then asked to mix the packs. Participants were given a pack from the top of the pile. The aim of this process was to reduce any ordering effects.

Once the questionnaires were completed, participants were randomly allocated to one of the three condition groups: Experimental Group 1, Experimental Group 2 or Control Group. Prior to the study beginning, an external individual not attached to the study was asked to mix the pile of priming and neutral task sheets. On completion of the questionnaires, participants were given the next sheet from the top of the pile. This process aimed to reduce group allocation bias as the researcher did not know what group the participant would be allocated to until the point of handing the participant the priming or neutral task sheet. Participants in Experimental Group 1 were given a priming task to complete (see Appendix 15). This task aimed to prime the value of 'Achievement' from the Self-Enhancement quadrant of Schwartz (1992) circular model. Participants in Experimental Group 2 were also given a priming task to complete (see Appendix 16). This task aimed to

prime the value of 'Benevolence' from the Self-Transcendence quadrant of Schwartz (1992) circular model. Participants in the Control Group received a neutral task (see Appendix 17).

Next, all participants were asked to complete an experimental behaviour task (see Appendix 18). Task behaviour was measured and recorded by completion time, accuracy, taking up the option to check, checking time and checking accuracy (see Appendix 14).

After completing the experimental task, participants were asked about their reflections, i.e. if they had had any thoughts about the studies aims or hypotheses. All participants were then given a debrief sheet (see Appendix 9) and the opportunity to ask any questions they had, before being thanked for their time. Lastly, all participants received payment for their time either in cash, course credit or in entry into a prize draw.

Figure 2.2 below outlines the study procedure sequence. This sequence was piloted with two individuals unrelated to the study before the study commenced to approximate the time required to complete the sequence. Following this pilot, each participant was allowed one hour to complete the study and all participants completed within this time.

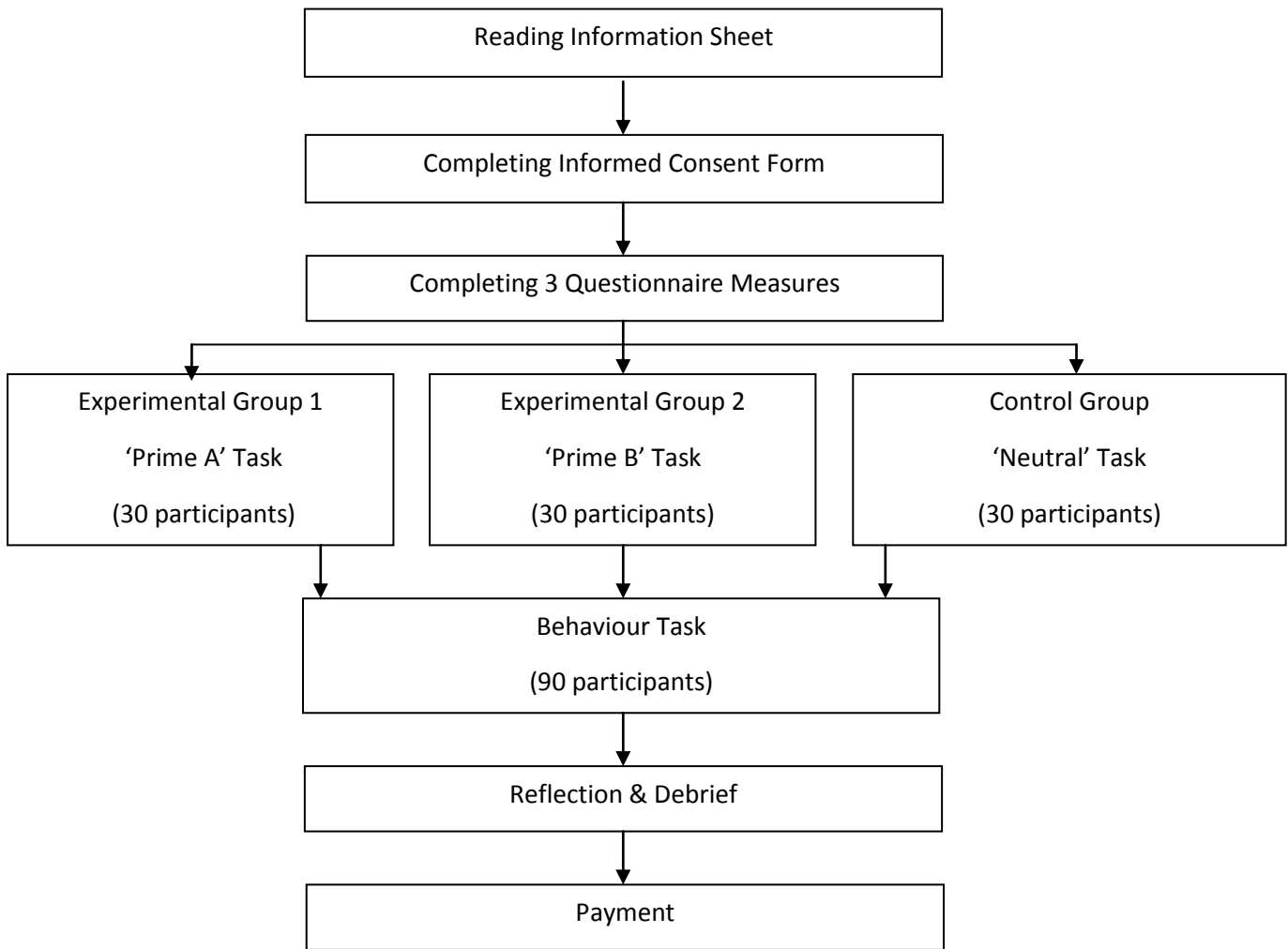


Figure 2.2: The study procedure sequence.

2.12. DESIGN

To strive to meet its aims, the study made use of both questionnaire and behavioural measures. These measures produced nominal (behavioural measure: taking up the option of checking), ordinal (questionnaire measures: Adapted PVQ, MCUP, HADS) and ratio data (or interval data with a natural zero point) (Behavioural measures: completion time, accuracy, checking time, checking accuracy).

These data types required the study to employ a quantitative methodology, making use of between subjects multivariate factorial design.

All data was entered in to the International Business Machines Corporation (IBM) Statistical Package for the Social Sciences Version 20 (SPSS-20) computer software programme (IBM Corp, 2011). This programme was utilised for all data storage.

CHAPTER 3: RESULTS

3.1 INTRODUCTION

In this chapter all data handling, management and analysis will be outlined. The chapter will begin by stating the data software programme utilised, before discussing how any data corrections, exclusions, or outliers were accounted for before the data was analysed. Descriptive analysis will be discussed before the assumptions for parametric statistical analysis are investigated. The choice and process of statistical analysis is outlined, before the final statistical analysis outcomes are reported in order to test the current study aims and hypotheses.

3.2 DATA HANDLING

All data was entered in to the International Business Machines Corporation (IBM) Statistical Package for the Social Sciences Version 20 (SPSS-20) computer software programme (IBM Corp, 2011). This programme was utilised for all data management, descriptive and statistical analysis.

3.3. DATA MANAGEMENT

3.3.1. Excluded Data

All data collected during the study was entered in to SPSS and no data was excluded.

3.3.2 Missing Data

There were no missing data points for the data collected during the study.

3.3.3 Outliers

All data gathered from the three questionnaire measures (HADS, MCUP, and Adapted-PVQ) was explored to identify potential outliers. Box-plots were obtained and reviewed (see Appendix 19) for each of the measures to. Outliers were found for the HADS, MCUP and Adapted PVQ. Outlier scores were all Winsorised (Fields, 2013) to match the highest or lowest score that was not an outlier. Minor outliers were addressed as the correlations conducted in the inferential data analysis were sensitive to outliers.

3.3.3.1 Questionnaire Measures

In the HADS, outliers were found for Anxiety (n = 1, score 18 changed to 17), Depression (n = 2, scores 13 & 15 changed to 11), and total score (n = 2, scores 30 & 31 changed to 24). In the MCUP, outliers were found for the subscales Order (n=2, scores 1 & 1.22 changed to 1.78), High Standards (n=4, scores 2.17, 2.33 & 2.5(x2) changed to 2.67), Black and White Thinking (n=3, scores 4.75 & 5(x2) changed to 4), total score (n=1, score 41.78 changed to 38.80), and factor 2 (n=3, scores 4.54, 4.6 & 4.9 changed to 4.39).

In the Adapted PVQ outliers were found for Power *Ideal* (n=3, scores 4.67(x2) & 4.33 changed to 4), Achievement *Ideal* (n=1, score 1.50 changed to 1.75), Achievement *Actual/Ideal* (n=5, scores 1.75(x2), 2, 2.25 & 2.5 changed to 1.5), Achievement *Actual/Ought* (n=2, scores 2.5 & 3 changed to 2), Hedonism *Actual* (n=1, score 1.33 changed to 2), Hedonism *Ideal* (n=4, scores 2.33(x2) & 2.67(x2) changed to 3), Hedonism *Actual/Ideal* (n=1,

score 2.33 changed to 2), Hedonism *Actual/Ought* (n=2, score 2.67(x2) changed to 2), Stimulation *Actual* (n=2, score 1(x2) changed to 1.5), Stimulation *Ideal* (n=1, score 1 changed to 2.5), Stimulation *Actual/ought* (n=4, scores 2(x2) & 2.5(x2) changed to 1.5), Self-Direction *Ideal* (n=4, scores 3 & 3.6(x3) changed to 3.8), Self-direction *Ought* (n=1, score 2.8 changed to 3), Universalism *Ideal* (n=1, score 2.67 changed to 3), Universalism *Ought* (n=5, scores 2.83 & 3.17(x4) changed to 3.5), Benevolence *Ideal* (n=2, scores 1.75 & 3 changed to 3.25), Benevolence *Ought* (n=2, score 3.25(x2) changed to 3.5), Benevolence *Actual/Ideal* (n=1, score 2.5 changed to 2), Tradition *Actual* (n=2, score 4.5 changed to 3.75 and score 1 changed to 1.25), Conformity *Actual/Ideal* (n=4, scores 1.75 & 2(x3) changed to 1.5), Security *Ideal* (n=3, score 5(x2) changed to 4.8 and score 2.4 changed to 2.6), Security *Actual/Ideal* (n=2, scores 2.4 & 2.8 changed to 1.6) and Security *Actual/Ought* (n=2, scores 2.6 & 3 changed to 2.2).

3.3.3.2 Behavioural Measures

All data gathered from the behavioural measures (Task Completion Time, Task Accuracy, Checking Time, and Checking Accuracy) was explored using Box-Plots to identify potential outliers (see Appendix 20). Outliers were found for all the behavioural variables: Task Completion Time, Task Accuracy, Checking Time, and Checking Accuracy. Outlier scores were all Windsorised (Fields, 2013) to match the highest or lowest score that was not an outlier.

In the Task Completion Time scores four outliers were found (344.41, 356.79, 388.011 & 608.05 changed to 336.77). In the Task Accuracy scores four outliers were found (81, 84, 88 & 89 changed to 90). The 'taking up the option to check' measure was not checked for outliers because it was defined as categorical in nature rather than a scaled measure i.e. Yes or No. For the 52 participants who did take up the option to check, in the Checking Time scores two outliers were found (201.11 & 216.35 changed to 180.09) and for Checking Accuracy scores four outliers were found (93(x3) & 94 changed to 95).

3.4 DATA ASSUMPTIONS

The current study had a between subjects multivariate factorial design. Prior to statistical analysis the data was reviewed for meeting the fixed assumptions required for parametric statistical data analyses in order determine the most appropriate method of statistical analysis to utilise to test the study hypothesis.

Due the study design having multiple dependant and independent variables, multivariate analysis of variances would be required to analyse the data using parametric statistical analyses. The assumptions required for these parametric statistical analyses reviewed included: a) dependant variables being measured at interval or ratio level; b) independent variables being categorical independent groups; c) independence of observations; d) an adequate sample size; e) data not having multivariate outliers; f) multivariate normality and linearity; g) data having homoscedasticity; h) multicollinearity; and i) bivariate relationships.

3.4.1 Dependant Variables are Measured at Interval or Ratio Level

The assumption of dependant variables being measured at an interval or ratio level assumes that the difference between data points has a clear definition. Data at an interval level would have a defined equal difference between points, for example, the difference in temperature between 20 degrees and 30 degrees is the same difference as between 10 degrees and 20 degrees. Data at a ratio level would have the properties of data at an interval level i.e. defined equal difference between points, and also have a clear definition of a zero point. For example, height, weight, and time all have definite zero points.

The current study had dependant variables that met this assumption. The dependant behavioural measures used included completion time, accuracy score, checking time, and checking accuracy score.

3.4.2 Independent Variables Consist of Two or More Categorical, Independent Groups

The independent variable was three independent groups: Experimental Group 1, Experimental Group 2 and a Control Group.

3.4.3 Independence of Observations

There was no relationship between the observations in or between the three groups as there were different participants in each group and no participant was in more than one group.

3.4.4 Adequate Sample Size

Adequate sample size refers to the assumption that the sample size of the current study has a sample size to achieve power.

To ensure the current study met the assumption of an adequate sample size, a power analysis was conducted. This analysis confirmed that the study has adequate sample size of 90 participants in total, with 30 participants in each group and to allow for any missing participant data being excluded for errors. Further details of the analysis are discussed in Chapter 2 (see section 2.3 Power Analysis).

3.4.5 Data Multivariate Outliers

Outliers are data points that are positioned outside of the mean for a particular variable. Outliers have been suggested to increase errors and can pull the mean for a particular variable away from the median and decrease normality (Fields, 2013). The current data set

was reviewed and corrected for outliers; further details on this process are discussed above in section 3.3.3 Outliers.

3.4.6 Data Multivariate Normality and Linearity

The assumption of normality refers to data meeting an assumed pattern of a normal distribution curve. Box plot histograms, skewness and kurtosis values were examined for normal distribution. Next, Kolmogorov-Smirnov tests were conducted on each variable. These test indicated that there were variables (HADS, MCUP and PVQ scores) that did not meet the assumptions of normality (Fields, 2013) (see Appendix 21).

Whilst, multivariate normality cannot be calculated in SPSS, it can be assumed from univariate normality checks as univariate normality is considered a necessary condition for multivariate normality but does not guarantee multivariate normality (Fields, 2013). Therefore, the current data was not considered to have met the assumption of multivariate normality.

Multivariate normality can also be checked for using a Box's Test when conducting the final MANOVA, however it has been indicated that when studies have equal sample sizes across group conditions (Taberchnick & Fidell, 2012) and larger sample sizes (Field, 2013) the study does not benefit from a Box's test. Due to the current study having equal sample sizes across groups and a large total sample size a Box Test was not used.

3.4.7 Data Homoscedasticity of Covariate Matrices

Data homoscedasticity refers to the assumption that the dependant variables have similar amounts of variance across the independent variables (Field, 2013). The Levene's test for

homogeneity was conducted on to check this assumption. The Levene's test indicated that variables did not meet the assumptions for homoscedasticity (Task Accuracy ($F(2,87)=6.980, p<.01$) and Checking Accuracy ($F(2,49)=6.068, p<.01$) (see Appendix 22).

3.4.8 Data Multicollinearity

The assumption of multicollinearity refers to there being no perfect linear relationships between two or more of the independent variables. Bivariate Pearson's R correlations were calculated to examine if independent variables were highly correlated. Fields (2013) suggests correlation values of .8 or above suggest variables are highly correlated and violate this assumption. The bivariate Pearson's r correlations reported that the data was not highly correlated and met the assumption of multicollinearity.

3.4.9 Bivariate Relationships

It is possible that the demographic characteristics of the sample population may act as confounding factors. Bivariate Pearson's r correlations were calculated to examine the relationships between demographic factors (age, gender and ethnicity) and each of the variables. The correlations reported that age was correlated with a number of the study variables. Therefore, age was considered and controlled for in the inferential analyses (see section 3.6.2 Hypothesis 2)

3.4.10 Summary of Data Assumptions

In summary, the current data met six of the assumptions required for parametric testing, including: dependant variables at internal or ratio level; independent variables of two or more categorical independent groups; independence of observations; adequate sample size;

outliers were amended; and no multicollinearity. However, the data failed to meet assumptions of normality and homoscedasticity. Fields (2009) discusses that when data sets do not meet assumptions required for parametric tests and parametric tests are used, there may be an increased change of Type 1 errors (false positives) being reported. Therefore, when assumptions are not met, non-parametric tests or data transformations to correct assumptions may be used.

Transformation of the data was considered but was not undertaken for several reasons. Firstly, F tests have been suggested to perform as they were expected to, despite being used on skewed data (Games & Lucas, 1966; in Fields, 2013). Also in Fields (2013), Glass, Peckham and Sanders (1972) suggest that transforming data is 'often not worth the effort' as the process does not largely increase valid probability statements. Games (1983) proposed four issues to consider when deciding whether or not to transform data: 1) The central limit theorem (Lumley, *et al.*, 2002) suggests that there are situations where one can assume normality regardless of the shape of data such as when a sample size is large – especially with light tails; 2) Transforming data changes the study hypotheses and interpretations that can be made; 3) In small samples it can be difficult to calculate normality; 4) Applying an incorrect transformation may be more costly than not transforming the data (in Fields, 2013, pp 202). In agreement with Games (1983), Grayson (2004) suggests that transforming data, for example, using log transformation to calculate geometric means from arithmetic means, changes the constructs being measured and so has implications for hypotheses and interpretations. Tabachnick and Fidell (2006) also argue that when measures have been used widely, transformation of the data may hinder any interpretation. Especially when measures are scored using the sums of means, as in this situation normality is evaluated according to the distribution of means and not according to the distribution of individual data points. In the current study, data normality tests were conducted on the sums of means (e.g. PVQ value means).

Non-parametric tests were considered but not undertaken for several reasons. Research has proposed that parametric tests F tests in particular (ANOVA, MANOVA) are robust and type

1 error rates are not affected when data is not normally distributed (Glass, *et al.*, 1972; Finch & French, 2013). Finch (2005) compared nonparametric and parametric tests when assumptions for normality had been violated; reporting that the parametric test outperformed the nonparametric tests despite not having met assumptions. Other researchers have agreed with the robustness of F tests in particular (i.e. MANOVA) even when required assumptions have not been met (Field, 2009). Fields (2013) recommends that, in light of the issues regarding transforming data, robust procedures may be used where possible 'in preference to transforming the data' (pp 202). MacDonald (2014) has also recently suggested that parametric tests remain robust even when assumptions are violated.

In light of the above, the current study analysed the data collated using parametric inferential statistics.

3.5 DESCRIPTIVE DATA ANALYSIS

Descriptive analyses were utilised to analyse participant data, questionnaire measure data (independent variables: HADS, MCUP, PVQ), and the behaviour measure data (dependant variables: Task Time, Task Accuracy, Check Option, Check Time, Check Accuracy).

3.5.1. Sample

In total, 90 participants completed the study. There were 30 participants in Experimental Group 1, 30 participants in Experimental Group 2 and 30 participants in the Control Group. All demographic information collected from the participant sample can be found in Table 3.1.

Table 3.1: Participant descriptive demographic information.

	Experimental Group 1	Experimental Group 2	Control Group
Age range (Mean, SD)	18-51 (21.53, 5.88)	18-62 (21.7, 7.85)	18-50 (23, 7.96)
Gender	87% Female/13% Male	90% Female/10 % Male	87% Female/13% Male
Ethnicity	80% White 10 % Mixed 7% Other 3% Not Stated	93% White 3% Asian or Asian British 3% Mixed	73% White 10% Chinese or Chinese British 10% Mixed 7% Asian or Asian British

Participants in Experimental group 1 were 87% female, aged between 18-51 years old with a mean age of 21.53 (SD: 5.877). Participants in Experimental Group 2 were 90% female, aged between 18-62 years old with a mean age of 21.7 (SD: 7.848). Lastly, participants in the control group were 87% female, aged between 18-50 years old with a mean age of 23 (SD: 7.957). In Experimental Group 1, the majority of the participants were reported to be White (80%), as in Experimental group 2 (93%) and the control group (73%).

One way Analysis of Variance (ANOVA) calculations were conducted to determine if there were differences between the three groups with regard to age or gender. A one way ANOVA showed no significant differences between the three groups with regard to age ($F, (2, 87) = .364, p = .696$ (see Appendix 23). There were also no significant differences between the three groups with regard to gender ($F, (2, 87) = .100, p = .905$ (see Appendix 23). A Chi Square calculation was conducted to determine if there were differences between the three groups with regard to ethnicity. However, the expected frequencies for a chi-square of ethnicity ratio per group showed that fifteen cells (83.3%) of the expected frequencies were less than five, suggesting that the Chi Square test should not be carried out (see Appendix 24).

3.5.2. Questionnaire Measures

Descriptive data for the three questionnaire measures (HADS, MCUP and the Adapted-PVQ) are displayed in the tables 3.2 to 3.14. The range, mean score and standard deviations are reported for each of the three groups (Experimental Group 1, Experimental Group 2 and Control Group 3).

3.5.2.1 Hospital Anxiety and Depression Scale (HADS)

The range, mean score and standard deviation for data collated using the HADS measure is presented in Table 3.2.

Table 3.2: Descriptive data for the HADS measure for the total sample and each group (range, mean & standard deviation (sd)).

	Total Sample			Experimental Group 1			Experimental Group 2			Control Group		
HADS	Range	Mean	sd	Range	Mean	sd	Range	Mean	sd	Range	Mean	sd
Anxiety	0-17	7.54	3.89	4-17	8.47	3.38	0-15	6.83	3.824	0-15	7.33	4.34
Depression	0-11	3.54	2.82	0-11	3.67	3.19	0-9	3.53	2.501	0-11	3.4	2.82
Total	1-30	11.09	2.82	4-24	12	5.32	1-23	10.37	5.846	2-30	10.9	6.49

Anxiety scores for the total sample ranged from 0-17; the three groups appear to have a similar range in scores compared to the total sample. The mean anxiety score for the total sample was 7.54 (SD: 3.89), each of the three groups appear to have similar mean scores compared to the total sample. Depression scores for the total sample ranged from 0-11; the three groups appear to have a similar range in scores compared to the total sample. The

mean depression score for the total sample was 3.54 (SD: 2.82), each of the three groups appear to have similar mean scores compared to the total sample.

The measure is not designed to be used as a tool for clinical diagnosis (Whelan-Goodinson, *et al.*, 2009) but despite this it offers an interpretation of scores with scores of 0-7 = 'Normal', 8-10 = 'mild', 11-14 = 'moderate', and 15-21 = 'Severe'. Anxiety scores for the total sample covered the 'normal' to 'severe' range of scores and depression scores for the total sample covered the 'normal' to 'moderate' range of scores. A Pearson's *r* correlation test showed that there was a significant positive relationship between anxiety and depression scores ($r=.517$, $p<.01$) with higher scores in anxiety being related to higher scores in depression.

One way Analysis of Variance (ANOVA) calculations were conducted to determine if there were differences between the three groups with regard to anxiety or depression scores. A one way ANOVA showed no significant differences between the three groups with regard to anxiety scores ($F, (2, 87) =1.404$, $p=.251$ (see Appendix 25). There were also no significant differences between the three groups with regard to depression scores ($F, (2, 87) =.066$, $p=.937$ (see Appendix 25).

3.5.2.2 Measure of Constructs Underlying Perfectionism (M-CUP)

The range, mean score and standard deviation for data collated using the MCUP measure is presented in Table 3.3.

Table 3.3: Descriptive data for the MCUP measure for each group (range, mean & standard deviation (sd)).

MCUP	Total Sample			Experimental Group 1			Experimental Group 2			Control Group 3		
	Range	Mean	sd	Range	Mean	sd	Range	Mean	sd	Range	Mean	sd
Order*	1-5.	3.42	0.88	1.78-5	3.53	0.8	1.22-4.89	3.17	0.89	1-5.	3.54	0.92
Satisfaction*	3-5.	4.47	0.44	3.56-5	4.54	0.44	3-5.	4.38	0.48	3.67-5	4.49	0.4
Details & Checking*	1-5.	3.30	0.92	1.2-5	3.28	0.98	1.80-5	3.41	0.87	1-5.	3.19	0.93
Perfectionism Towards Others*	1.67-4.67	2.98	0.71	2-4.5	3.04	0.67	1.83-4.17	2.89	0.70	1.67-4.67	3.01	0.78
High Standards*	2.67-5	4.18	0.64	3.17-5	4.22	0.49	2.67-5	4.20	0.67	2.67-5	4.11	0.76
Black & White Thinking**	1-4.	1.98	0.87	1-4.	1.94	0.80	1-4.	2.16	0.89	1-4.	1.84	0.91
Perceived Pressure**	1-5.	2.94	0.95	1-4.83	2.82	0.97	1.17-4.83	3.12	1.00	1.67-5	2.87	0.87
Dissatisfaction**	1.11-5	3.04	0.95	1.33-5	2.97	0.87	1.11-5	3.12	1.07	1.67-4.89	3.02	0.91
Reactivity To Mistakes**	1.29-5	2.73	0.95	1.29-4.86	2.58	0.94	1.29-5	2.88	1.03	1.29-4.86	2.73	0.90
Factor 1 Subscale	2.57-4.59	3.67	0.44	2.8-4.59	3.72	0.4	2.93-4.52	3.62	0.45	2.57-4.47	3.66	0.49
Factor 2 Subscale	1.33-4.39	2.68	0.77	1.33-4.28	2.61	0.71	1.61-4.39	2.82	0.85	1.54-4.39	2.61	0.76
Total Score	19.10-38.80	29	4.33	21.78-36.15	28.93	3.66	22.30-38.80	29.33	4.71	19.10-38.80	28.75	4.67

* Factor 1 subscales, ** Factor 2 subscales

One way Analysis of Variance (ANOVA) calculations were conducted to determine if there were differences between the three groups with regard to Factor 1 scores, Factor 2 scores and MCUP total scores. MCUP subscales were not calculated to reduce repeat calculations as they were already included in the Factor scores. A one way ANOVA showed no significant

differences between the three groups with regard to MCUP Factor 1 scores ($F, (2, 87) = .400, p = .672$), there were also no significant differences between the three groups with regard to MCUP Factor 2 scores ($F, (2, 87) = .694, p = .502$) or with regard to MCUP Total scores ($F, (2, 87) = .135, p = .874$) (see Appendix 26).

3.5.2.3 Adapted Portrait Value Questionnaire (A-PVQ)

The data for the Adapted-PVQ measure will be split in to four sections. Firstly, the data for the *actual*, *ideal* and *ought* value means will be presented for each group. Secondly, the data for the *actual*, *ideal* and *ought* value priorities will be presented for each group. Thirdly, the data for the *Actual/Ideal* (AI) and *Actual/Ought* (AO) value discrepancies will be presented for each group. Lastly, data for the *actual*, *ideal* and *ought* quadrant priorities will be presented, before the *Actual/Ideal* (AI) and *Actual/Ought* (AO) quadrant discrepancies are presented for each group.

3.5.2.3.1 Value Means

This section will present the data for the *actual*, *ideal* and *ought* value means for each of the three group conditions.

The range, mean score and standard deviation for *actual* value data collated using the PVQ measure is presented in Table 3.4.

Table 3.4: Descriptive data for the adapted PVQ measure *actual* scores for each group (range, mean & standard deviation (sd)).

Adapted PVQ - Actual	Experimental Group 1			Experimental Group 2			Control Group 3		
	Range	Mean	sd	Range	Mean	sd	Range	Mean	sd
Power	1-4.67	3.00	0.94	1-4.	2.55	0.79	1.33-4	2.68	0.81
Achievement	1.50-5	3.77	0.90	2-5.	3.43	0.90	2-5.	3.53	0.89
Hedonism	2-5.	3.87	0.78	2-5.	3.59	0.81	2-5.	3.81	0.77
Stimulation	1.50-5	3.4	1.02	1.50-5	3.33	0.85	1.50-5	3.38	1.02
Self-Direction	2.40-5	3.63	0.63	2.40-4.80	3.75	0.60	2.60-5	3.68	0.62
Universalism	2.17-4.33	3.49	0.64	2.17-4.83	3.51	0.57	2.33-4.67	3.59	0.54
Benevolence	2.50-4.75	3.68	0.63	2-5.	3.71	0.71	2.50-4.75	3.83	0.68
Tradition	1.25-3.75	2.37	0.66	1.25-3.75	2.63	0.59	1.50-3.25	2.48	0.49
Conformity	1.75-4.25	3.23	0.76	1.75-4.74	3.36	0.72	2.25-4.25	3.09	0.52
Security	1.80-4.80	3.15	0.68	2-4.80	3.16	0.68	1.80-4.20	3.06	0.67

One way Analysis of Variance (ANOVA) calculations were conducted to determine if there were differences between the three groups with regard to any of the 10 *actual* value mean scores, no significant differences were found (see Appendix 27).

The range, mean score and standard deviation for *ideal* value data collated using the PVQ measure is presented in Table 3.5.

Table 3.5: Descriptive data for the adapted PVQ measure *ideal* scores for each group (range, mean & standard deviation (sd)).

Adapted PVQ - Ideal	Experimental Group 1			Experimental Group 2			Control Group 3		
	Range	Mean	sd	Range	Mean	sd	Range	Mean	sd
Power	1.67-4	2.71	0.74	1.33-3.67	2.54	0.60	1.33-4	2.56	0.62
Achievement	2-5.	3.77	0.72	1.75-5	3.68	0.75	1.75-5	3.5	0.84
Hedonism	3-5.	4.06	0.56	3-5.	3.89	0.63	2.33-5	3.83	0.62
Stimulation	3-5.	4.15	0.56	2.5-5	3.85	0.76	2.5-5	3.77	0.8
Self-Direction	3.8-5	4.49	0.31	3.8-5	4.48	0.31	3.60-5	4.34	0.38
Universalism	3.17-5	4.28	0.44	2.67-5	4.33	0.49	3-4.83	4.27	0.48
Benevolence	3.25-5	4.53	0.42	3.25-5	4.38	0.51	3.25-5	4.49	0.48
Tradition	1.50-4.75	2.89	0.76	2-4.25	2.0	0.61	1.50-4.50	3.04	0.69
Conformity	1.50-4.50	3.33	0.73	2.25-4.50	3.48	0.58	2.50-5	3.43	0.65
Security	2.60-4.80	3.77	0.51	2.80-4.80	3.67	0.51	2.60-4.80	3.64	0.58

One way Analysis of Variance (ANOVA) calculations were conducted to determine if there were differences between the three groups with regard to any of the 10 *ideal* value mean scores, no significant differences were found (see Appendix 27).

The range, mean score and standard deviation for *ought* value data collated using the PVQ measure is presented in Table 3.6.

Table 3.6: Descriptive data for the adapted PVQ measure *ought* scores for each group (range, mean & standard deviation (sd)).

Adapted PVQ - Ought	Experimental Group 1			Experimental Group 2			Control Group 3		
	Range	Mean	sd	Range	Mean	sd	Range	Mean	sd
Power	1.67-4	2.57	0.64	1.67-3.67	2.39	0.57	1.33-3.67	2.50	0.59
Achievement	1.50-5	3.57	0.78	2-4.75	3.48	0.71	2-5.	3.41	0.78
Hedonism	2-5.	3.56	0.62	1.67-4.67	3.53	0.69	2-4.67	3.51	0.68
Stimulation	2-5.	3.6	0.69	1.50-4.50	3.27	0.67	2-5.	3.32	0.65
Self-Direction	3.20-5	4.23	0.46	3.20-4.80	4.17	0.46	3-5.	4.07	0.44
Universalism	3.50-5	4.57	0.37	3.50-5	4.39	0.50	3.50-5	4.40	0.46
Benevolence	3.50-5	4.48	0.41	3.25-5	4.43	0.46	3.50-5	4.53	0.46
Tradition	1.75-5	3.03	0.75	2-5.	3.07	0.76	1.75-4.75	3.18	0.66
Conformity	2.50-4.75	3.76	0.60	2.50-5	3.85	0.60	2.50-5	3.58	0.74
Security	2.60-4.80	4.06	0.45	2.80-5	3.89	0.63	2.80-4.80	3.8	0.56

One way Analysis of Variance (ANOVA) calculations were conducted to determine if there were differences between the three groups with regard to any of the 10 *ought* value mean scores, no significant differences were found (see Appendix 27).

3.5.2.3.2 Value Priorities

This section will present the *actual*, *ideal* and *ought* value priorities for the total sample and each of the three group conditions. Value priorities were identified by ranking the value means for each of the three groups. Value means were ranked from the largest mean (ranked highest priority 1) to the smallest mean (ranked lowest priority 10) (see Chapter 2 for further detail).

For the total sample and each group, *actual* value priorities are presented in Table 3.7, *ideal* value priorities are presented in Table 3.8, and *ought* value priorities are presented in Table 3.9.

Table 3.7: Descriptive data for the adapted PVQ measure *actual* value priorities for the total sample and each group (Mean).

Actual Rank	Total Sample	Experimental Group 1	Experimental Group 2	Control Group 3
1	Hedonism (3.76)	Hedonism (3.87)	Self-Direction (3.75)	Benevolence (3.83)
2	Benevolence (3.74)	Achievement (3.77)	Benevolence (3.71)	Hedonism (3.81)
3	Self-Direction (3.69)	Benevolence (3.68)	Hedonism (3.59)	Self-Direction (3.68)
4	Achievement (3.57)	Self-Direction (3.63)	Universalism (3.51)	Universalism (3.59)
5	Universalism (3.53)	Universalism (3.49)	Achievement (3.43)	Achievement (3.53)
6	Stimulation (3.37)	Stimulation (3.4)	Conformity (3.36)	Stimulation (3.38)
7	Conformity (3.23)	Conformity (3.23)	Stimulation (3.33)	Conformity (3.09)
8	Security (3.12)	Security (3.15)	Security (3.16)	Security (3.06)
9	Power (2.74)	Power (3.00)	Tradition (2.63)	Power (2.68)
10	Tradition (2.49)	Tradition (2.37)	Power (2.55)	Tradition (2.48)

The top three *actual* value priorities appear to be similar across the sample (although in slightly different order) with the total sample, Group 2 and Group 3 each holding Hedonism, Benevolence and Self-Direction in high priority. Group 2 also held Hedonism and Benevolence, but Achievement was ranked above Self-Direction.

Table 3.8: Descriptive data for the adapted PVQ measure *ideal* value priorities for the total sample and each group (Mean)

Ideal Rank	Total Sample	Experimental Group 1	Experimental Group 2	Control Group 3
1	Benevolence (4.47)	Benevolence (4.53)	Self-Direction (4.48)	Benevolence (4.49)
2	Self-Direction (4.44)	Self-Direction (4.49)	Benevolence (4.38)	Self-Direction (4.34)
3	Universalism (4.29)	Universalism (4.28)	Universalism (4.33)	Universalism (4.27)
4	Hedonism (3.93)	Stimulation (4.15)	Hedonism (3.89)	Hedonism (3.83)
5	Stimulation (3.92)	Hedonism (4.06)	Stimulation (3.85)	Stimulation (3.77)
6	Security (3.70)	Security (3.77)	Achievement (3.68)	Security (3.64)
7	Achievement (3.65)	Achievement (3.77)	Security (3.67)	Achievement (3.5)
8	Conformity (3.41)	Conformity (3.33)	Conformity (3.48)	Conformity (3.43)
9	Tradition (2.97)	Tradition (2.89)	Tradition (2.98)	Tradition (3.04)
10	Power (2.60)	Power (2.71)	Power (2.54)	Power (2.56)

Table 3.9: Descriptive data for the adapted PVQ measure *ought* value priorities for the total sample and each group (Mean).

Ought Rank	Total Sample	Experimental Group 1	Experimental Group 2	Control Group 3
1	Benevolence (4.48)	Universalism (4.57)	Benevolence (4.43)	Benevolence (4.53)
2	Universalism (4.45)	Benevolence (4.48)	Universalism (4.39)	Universalism (4.4)
3	Self-Direction (4.16)	Self-Direction (4.23)	Self-Direction (4.17)	Self-Direction (4.07)
4	Security (3.92)	Security (4.06)	Security (3.89)	Security (3.8)
5	Conformity (3.73)	Conformity (3.76)	Conformity (3.85)	Conformity (3.58)
6	Hedonism (3.53)	Stimulation (3.6)	Hedonism (3.53)	Hedonism (3.51)
7	Achievement (3.48)	Achievement (3.57)	Achievement (3.48)	Achievement (3.41)
8	Stimulation (3.39)	Hedonism (3.56)	Stimulation (3.27)	Stimulation (3.32)
9	Tradition (3.09)	Tradition (3.03)	Tradition (3.07)	Tradition (3.18)
10	Power (2.49)	Power (2.57)	Power (2.39)	Power (2.50)

The top three *ideal* and *ought* value priorities (see Table 3.8 & 3.9) appear to be similar across the sample (although slightly different in order) with the total sample, Group 1, Group 2 and Group 3 each holding Benevolence, Universalism, and Self-Direction in high priority.

Value priorities were also looked at in terms of quadrant priorities (Schwartz, 1992; Schwartz, *et al.*, 2012). Quadrant priorities were identified by calculating the quadrant means (summing the relevant value means and dividing by the number of values as there were differing numbers of values relating to the quadrants) and ranking these means for the total sample and each of the three groups. Quadrant means were ranked from the largest mean (ranked highest priority 1) to the smallest mean (ranked lowest priority 10) For the total sample and each group, *actual* quadrant priorities are presented in Table 3.10, *ideal* quadrant priorities are presented in Table 3.11, and *ought* value priorities are presented in Table 3.12.

Table 3.10: Descriptive data for the adapted PVQ measure *actual* quadrant priorities for the total sample and each group (Mean).

Actual Rank	Total Sample	Experimental Group 1	Experimental Group 2	Control Group 3
1	Self-Transcendence (3.64)	Openness (3.62)	Self-Transcendence (3.63)	Self-Transcendence (3.71)
2	Openness (3.60)	Self-Transcendence (3.58)	Openness (3.55)	Openness (3.62)
3	Self Enhancement (3.35)	Self Enhancement (3.53)	Self Enhancement (3.19)	Self Enhancement (3.34)
4	Conservation (2.95)	Conservation (2.94)	Conservation (3.04)	Conservation (2.88)

Table 3.11: Descriptive data for the adapted PVQ measure *ideal* quadrant priorities for the total sample and each group (Mean).

Ideal Rank	Total Sample	Experimental Group 1	Experimental Group 2	Control Group 3
1	Self-Transcendence (4.37)	Self-Transcendence (4.40)	Self-Transcendence (4.33)	Self-Transcendence (4.38)
2	Openness (4.08)	Openness (4.23)	Openness (4.06)	Openness (3.94)
3	Self Enhancement (3.39)	Self Enhancement (3.53)	Conservation (3.38)	Conservation (3.34)
4	Conservation (3.35)	Conservation (3.33)	Self Enhancement (3.36)	Self Enhancement (3.29)

Table 3.12: Descriptive data for the adapted PVQ measure *ought* quadrant priorities for the total sample and each group (Mean).

Ought Rank	Total Sample	Experimental Group 1	Experimental Group 2	Control Group 3
1	Self-Transcendence (4.46)	Self-Transcendence (4.51)	Self-Transcendence (4.42)	Self-Transcendence (4.46)
2	Openness (3.69)	Openness (3.79)	Openness (3.66)	Openness (3.63)
3	Conservation (3.58)	Conservation (3.62)	Conservation (3.60)	Conservation (3.52)
4	Self Enhancement (3.17)	Self Enhancement (3.23)	Self Enhancement (3.13)	Self Enhancement (3.14)

The top two *actual*, *ideal* and *ought* value priorities appear to be similar across the sample (although slightly different in order) with the total sample, Group 1, Group 2 and Group 3 each holding value priorities within the Self-Transcendence and Openness to Change quadrants in high priority.

3.5.2.3.3 Value Discrepancy

This section will present the *actual/ideal* (AI) and *actual/ought* (AO) value discrepancy for the total sample and each of the three group conditions. AI value discrepancy was calculated by subtracting *actual* value scores from *ideal* value scores, and AO value discrepancy was calculated by subtracting *actual* value scores from *ought* value scores. In some instances the calculated value discrepancy scores were negative. The negative scores were amended to absolute scores as to the current study hypothesis is not investigating the direction of discrepancy scores and only absolute scores were used for further analysis.

Table 3.13 presents the AI and AO discrepancy value scores for the total sample and each group condition. All discrepancy scores have been ranked from the largest discrepancy (1) to the smallest discrepancy (10) score.

Table 3.13: Descriptive data for the adapted PVQ measure AI and AO discrepancy value scores (Mean), ranked largest to smallest for the total sample and each group.

Rank	Total Sample		Experimental Group 1		Experimental Group 2		Control Group 3	
	Actual/Ideal	Actual/Ought	Actual/Ideal	Actual/Ought	Actual/Ideal	Actual/Ought	Actual/Ideal	Actual/Ought
1	Stimulation (0.82)	Universalism (0.91)	Stimulation (1.05)	Universalism (1.06)	Universalism (0.82)	Benevolence (0.88)	Hedonism (0.76)	Universalism (0.8)
2	Self-Direction (0.78)	Benevolence (0.84)	Benevolence (0.89)	Security (0.94)	Self-Direction (0.76)	Universalism (0.88)	Stimulation (0.72)	Conformity (0.8)
3	Benevolence (0.77)	Security (0.84)	Self-Direction (0.87)	Benevolence (0.88)	Benevolence (0.75)	Security (0.77)	Self-Direction (0.71)	Security (0.79)
4	Universalism (0.77)	Conformity (0.78)	Universalism (0.80)	Conformity (0.8)	Stimulation (0.7)	Conformity (0.74)	Universalism (0.68)	Benevolence (0.77)
5	Hedonism (0.67)	Tradition (0.69)	Hedonism (0.69)	Tradition (0.74)	Achievement (0.59)	Self-Direction (0.61)	Benevolence (0.66)	Tradition (0.73)
6	Security (0.62)	Hedonism (0.66)	Tradition (0.66)	Achievement (0.72)	Security (0.59)	Tradition (0.61)	Tradition (0.63)	Hedonism (0.68)
7	Tradition (0.61)	Achievement (0.64)	Security (0.65)	Hedonism (0.71)	Hedonism (0.567)	Achievement (0.6)	Security (0.62)	Power (0.62)
8	Achievement (0.57)	Stimulation (0.63)	Power (0.64)	Stimulation (0.7)	Tradition (0.55)	Hedonism (0.59)	Conformity (0.58)	Achievement (0.62)
9	Power (0.55)	Self-Direction (0.62)	Conformity (0.58)	Power (0.67)	Power (0.44)	Stimulation (0.58)	Power (0.57)	Stimulation (0.62)
10	Conformity (0.53)	Power (0.60)	Achievement (0.55)	Self-Direction (0.65)	Conformity (0.43)	Power (0.53)	Achievement (0.57)	Self-Direction (0.61)

In Table 3.13, the largest three AI discrepancies appear similar across the total sample and three group conditions (although in slightly different order) with the total sample and Group 1 both having the largest discrepancies in Stimulation, Self-Direction, and Benevolence values. Similarly, Group 2 also had large discrepancies in Self-Direction and Benevolence, but differed having large discrepancy in Universalism values. Group three also had large discrepancy in Stimulation and Self-Direction but differed having large discrepancy in Hedonism values.

Table 3.13 also presents AO discrepancies, the largest three AO discrepancies appear similar across the total sample and three group conditions (although in slightly different order) with

the total sample, Group 1 and Group 2 having the largest discrepancies in Universalism, Benevolence and Security values. Similarly to the total sample and other groups, Group 3 also had large discrepancies in Universalism and Security, but differed having large discrepancy in Conformity values.

AI and AO value discrepancy was also looked at in terms of AI and AO quadrant discrepancy. Table 3.14 presents the AI and AO quadrant discrepancy scores for the total sample and each group condition. All discrepancy scores have been ranked from the largest discrepancy (1) to the smallest discrepancy (10) score.

Table 3.14: Descriptive data for the adapted PVQ measure AI and AO discrepancy quadrant score (Mean) ranked largest to smallest for the total sample and each group.

Rank	Total Sample		Experimental Group 1		Experimental Group 2		Control Group 3	
	Actual/Ideal	Actual/Ought	Actual/Ideal	Actual/Ought	Actual/Ideal	Actual/Ought	Actual/Ideal	Actual/Ought
1	Self-Transcendence (.75)	Self-Transcendence (.86)	Self-Transcendence (.83)	Self-Transcendence (.94)	Self-Transcendence (.73)	Self-Transcendence (.86)	Self-Transcendence (.68)	Self-Transcendence (.77)
2	Openness (.61)	Conservation (.69)	Openness (.74)	Conservation (.71)	Openness (.53)	Conservation (.65)	Conservation (.58)	Conservation (.71)
3	Conservation (.50)	Self-Enhancement (.51)	Conservation (.51)	Self-Enhancement (.57)	Self-Enhancement (.41)	Openness (.45)	Openness (.56)	Self-Enhancement (.56)
4	Self-Enhancement (.46)	Openness (.49)	Self-Enhancement (.44)	Openness (.50)	Conservation (.40)	Self-Enhancement (.40)	Self-Enhancement (.54)	Openness (.52)

In Table 3.14, the largest two AI discrepancies appear similar across the total sample and two group conditions (in the same order) with the total sample, Group 1 and Group 2 have the largest discrepancies in Self-Transcendence and Openness to Change quadrant value priorities. Similarly, Group 3 has large discrepancy in the Self-Transcendence quadrant but differs with large discrepancy in the Conservation quadrant value priorities.

Table 3.14 also present the AO discrepancies, the largest two AO discrepancies appear similar across the total sample and three group conditions (in the same order) with the total sample, Group 1, Group 2 and Group 3 having the largest discrepancies in Self-Transcendence and Conservation quadrant value priorities.

3.5.3. Behaviour Measures

Descriptive data for the five behavioural measures (Task Completion Time, Task Accuracy, Checking option, Checking Time and Checking Accuracy) are displayed in Table 3.15 to 3.17. The range, mean score and standard deviations are reported for each of the three groups (Experimental Group 1, Experimental Group 2 and Control Group 3).

3.5.3.1 Task Completion Time and Accuracy

The range, mean score and standard deviation for data collated for Task Time and Task Accuracy measures are presented in Table 3.15.

Table 3.15: Descriptive data for the Task Completion and Task Accuracy measure for each group (range, mean & standard deviation (sd)).

	Experimental Group 1			Experimental Group 2			Control Group 3		
	Mean	sd	Range	Mean	sd	Range	Mean	sd	Range
Task Completion Time (Seconds)	200.61	49.40	120.81-299.20	184.86	65.49	99.14-336.77	208.27	62.07	104.04-336.77
Task Accuracy (%)	97.57	2.5	91-100	96.43	3.94	90-100	97.8	2.68	90-100

3.5.3.2 Checking Option

The percent (%) for data collated for the checking option (decided to take option – Yes, declined option – No) measure is presented in Table 3.16.

Table 3.16: Descriptive data for the Checking Option measure for each group (%).

	Experimental Group 1		Experimental Group 2		Control Group 3	
	Yes	No	Yes	No	Yes	No
Checking Option (%)	22 (73%)	8(27%)	17 (57%)	13 (43%)	14 (47%)	16 (53%)

3.5.3.3 Checking Time and Accuracy

The range, mean score and standard deviation for data collated for Checking Time and Checking Accuracy measures are presented in Table 3.17.

Table 3.17: Descriptive data for the Checking Time Accuracy measure for each group (range, mean & standard deviation (sd)).

	Experimental Group 1			Experimental Group 2			Control Group 3		
	Mean	sd	Range	Mean	sd	Range	Mean	sd	Range
Checking Time (Seconds)	110.42	43.3	32.02-180.09	82.07	33.71	32.10-180.09	81.9	48.39	12.91-180.09
Checking Accuracy (%)	98.82	1.53	95-100	98.12	2.12	95-100	99.31	1.03	97-100

3.6 INFERENCEAL DATA ANALYSIS

All inferential data analysis was conducted using the International Business Machines Corporation (IBM) Statistical Package for the Social Sciences Version 20 (SPSS-20) computer software programme (IBM Corp, 2011). Inferential statistical analyses were utilised to analyse the questionnaire measure data (independent variables: HADS, MCUP, PVQ), and the behaviour measure data (dependant variables: Task Time, Task Accuracy, Check Option, Check Time, Check Accuracy). This section will present the analyses and results in relation to each of the study hypotheses.

3.6.1 Hypothesis 1

1a) It was predicted that participants who score higher on the perfectionism measure will give higher ranking to the values within the Self-Enhancement quadrant of Schwartz (1992; Schwartz, et al., 2012) circular model. Additionally, the value of Achievement will have a higher relative rank with this quadrant.

Pearson's R Bivariate Correlations were used to test the first part of this hypothesis, as the hypothesis aimed to investigate relationships between perfectionism scores and quadrant value priorities. Perfectionism scores were correlated with the quadrant priorities to test if higher scores on the perfectionism measure related to Self-Enhancement quadrant value priorities (see Table 3.18). Results showed that the MCUP total scores and value priorities within the Self-Enhancement quadrant were significantly positively correlated ($r=.402$, $p<0.01$). There was also a small significant positive correlation between MCUP total scores and value priorities within the Conservation quadrant ($r=.214$, $p<0.05$). Correlations between the MCUP total scores and Self-Transcendence ($r=.086$, $p=.422$) and Openness to Change ($r=.141$, $p=.184$) quadrants were not significant. Suggesting value priorities positioned in the Self-Enhancement and Conservation quadrants (Schwartz, 1992; Schwartz, et al., 2012) were related to higher perfectionism scores.

Table 3.18: MCUP perfectionism scores correlated with quadrant mean scores (Schwartz, 1992; Schwartz, *et al.*, 2012).

Quadrants	MCUP Perfectionism Scores		
	MCUP Total (r,(p))	MCUP Factor 1 (r,(p))	MUP Factor 2 (r,(p))
Self Enhancement	.402 (.000)	.393 (.000)	.259 (.014)
Self-Transcendence	.086 (.422)	-.030 (.777)	.147 (.167)
Openness	.141 (.184)	.067 (.529)	.126 (.235)
Conservation	.214 (.043)	.307 (.003)	.078 (.466)

Further correlations were run between the MCUP Factor 1 and 2 scores and quadrants. Results showed that the MCUP Factor 1 scores and value priorities within the Self-Enhancement quadrant were significantly positively correlated ($r=.393$, $p < 0.001$), as were MCUP Factor 1 scores and value priorities within the Conservation quadrant ($r=.307$, $p < 0.01$). Correlations between the MCUP FACTOR 1 and Self-Transcendence ($r = -.030$, $p = .777$) and Openness to Change ($r = .067$, $p = .529$) quadrants were not significant. Results showed that the MCUP Factor 2 scores and value priorities within the Self-Enhancement quadrant were significantly positively correlated ($r=.259$, $p < 0.05$). Correlations between the MCUP Factor 2 and Self-Transcendence ($r = .147$, $p = .167$), Openness ($r = .126$, $p = .235$) and Conservation ($r = .078$, $p = .466$) quadrants were not significant. Suggesting value priorities positioned within the Self-Enhancement and Conservation quadrants (Schwartz, 1992; Schwartz, *et al.*, 2012) were related to Factor 1 ‘Ego-Syntonic’ aspects of perfectionism, including the subscales Order, Satisfaction, Details and Checking, Perfectionism toward Others, and High Standards. These ‘Ego-Syntonic’ subscales have been suggested to represent a ‘healthy or positive’ aspect of perfectionist thinking (Stairs, *et al.*, 2012). Value priorities positioned within the Self-Enhancement quadrant also related to Factor 2 ‘Ego-Dystonic’ aspects of perfectionism, including: Black and White Thinking about Tasks and Activities, Perceived Pressure from Others, Dissatisfaction, and Reactivity to Mistakes. These subscales have been suggested to represent more negative aspects of perfectionist thinking that may be related to experiences of emotional distress (Stairs, *et al.*, 2012)

Pearson's R Bivariate Correlations were then used to test the second part of this hypothesis, as the hypothesis aimed to investigate relationships between perfectionism scores and Achievement value priorities. Perfectionism scores were correlated with the value priorities to test if higher scores on the perfectionism measure related to Achievement value priorities (see Table 3.19). Results showed that MCUP total scores were significantly positively correlated with the Achievement ($r=.507$, $p<.001$), Power ($r=.285$, $p<.01$), Conformity ($r=.264$, $p<.05$) and Security ($r=.264$, $p<.05$) values. Correlations between the MCUP total scores and Hedonism ($r=.154$, $p=.147$), Stimulation ($r=.138$, $p=.194$), Self-Direction ($r=.063$, $p=.557$), Universalism ($r=.141$, $p=.186$) and Benevolence ($r=.010$, $p=.929$) and Tradition ($r=-.037$, $p=.727$) were not significant. These results indicate that the value priorities of Achievement, Power, Conformity and Security values were related to higher perfectionism scores, with higher Achievement values having the largest significant relationship with higher perfectionism scores.

Table 3.19: MCUP perfectionism scores correlated with value priority mean scores (Schwartz, 1992; Schwartz, *et al.*, 2012).

Value Priority	MCUP Perfectionism Scores		
	MCUP Total (r,(p))	MCUP Factor 1 (r,(p))	MUP Factor 2 (r,(p))
Power	.285 (.006)	.338 (.001)	.155 (.144)
Achievement	.507 (.000)	.466 (.000)	.345 (.001)
Hedonism	.154 (.147)	.109 (.307)	.108 (.309)
Stimulation	.138 (.194)	.005 (.961)	.170 (.109)
Self-Direction	.063 (.557)	.073 (.491)	.028 (.792)
Universalism	.141 (.186)	-.071 (.509)	.260 (.013)
Benevolence	.010 (.929)	.003 (.977)	.009 (.931)
Tradition	-.037 (.727)	-.009 (.936)	-.054 (.613)
Conformity	.242 (.022)	.295 (.005)	.127 (.233)
Security	.264 (.012)	.391 (.000)	.094 (.377)

Further correlations were run between the MCUP Factor 1 and 2 scores and value priorities. Results showed that the MCUP Factor 1 scores were significantly positively correlated to Achievement ($r=.466$, $p<.01$), Power ($r=.338$, $p<.01$), Conformity ($r=.295$, $p<.01$) and Security ($r=.391$, $p<.01$) values. Correlations between MCUP Factor 1 scores and Hedonism ($r=.109$,

$p=.307$), Stimulation ($r=.005$, $p=.961$), Self-Direction ($r=.073$, $p=.491$), Universalism ($r=-.071$, $p=.509$), Benevolence ($r=.003$, $p=.977$), and Tradition ($r=-.009$, $p=.936$) were not significant. Results showed that the MCUP Factor 2 scores were significantly positively correlated to Achievement values ($r=.354$, $p<.01$) and a smaller significant positive correlation was found between MCUP Factor 2 scores and Universalism values ($r=.260$, $p<.05$). Correlations between MCUP Factor 2 scores and Power ($r=.155$, $p=.144$), Hedonism ($r=.108$, $p=.309$), Stimulation ($r=.170$, $p=.109$), Self-Direction ($r=.028$, $p=.792$), Benevolence ($r=.009$, $p=.931$), Tradition ($r=-.054$, $p=.613$), Conformity ($r=.127$, $p=.233$), and Security ($r=.094$, $p=.377$). These results indicate that Achievement, Power, Conformity and Security values related to Factor 1 'Ego-Syntonic' aspects of perfectionism, suggested to represent a 'healthy or positive' aspect of perfectionist thinking (Stairs, *et al.*, 2012). Whilst, Achievement and Universalism values related to Factor 2 'Ego-Dystonic' aspects of perfectionism, suggested to represent more negative aspects of perfectionist thinking that may be related to experiences of emotional distress (Stairs, *et al.*, 2012)

1b) Participants scoring higher on the perfectionism measure will be more likely to display the behaviours related to perfectionism than those who score lower on the measure.

Pearson's R Bivariate Correlations were used to test this hypothesis, as the hypothesis was aiming to investigate relationships between perfectionism scores and behaviour.

Perfectionism scores were correlated with behavioural measures to test if higher scores on the perfectionism measure related to increased Task Time, Task Accuracy, Checking Option, Checking Time and Checking Accuracy (see Table 3.20). Results showed that MCUP total scores were significantly positively correlated with Checking Accuracy ($r=.277$, $p<.05$). Correlations between MCUP total scores and Task Time ($r=-.089$, $p=.402$), Task Accuracy ($r=.014$, $p=.895$), Checking Option ($r=-.118$, $p=.269$), and Checking Time ($r=.200$, $p=.150$) were not significant.

Table 3.20: MCUP perfectionism scores correlated with behavioural measures: Task Time, Task Accuracy, Checking Option, Checking Time, and Checking Accuracy.

Behaviour Measure	MCUP Perfectionism Scores		
	MCUP Total (r,(p))	MCUP Factor 1 (r,(p))	MUP Factor 2 (r,(p))
Task Time	-.089 (.402)	-.112 (.294)	-.051 (.630)
Task Accuracy	.014 (.895)	.098 (.375)	-.051 (.632)
Checking Option	-.118 (.269)	-.124 (.243)	-.073 (.492)
Checking Time	.200 (.150)	.093 (.507)	.250 (.071)
Checking Accuracy	.277 (.047)	.374 (.006)	.102 (.470)

Further correlations were run between the MCUP Factor 1 and 2 scores and behavioural measures. MCUP factor 1 scores and checking accuracy were significantly positively correlated ($r = .374, p < .01$). Correlations between MCUP Factor 1 scores and Task Time ($r = -.112, p = .294$), Task Accuracy ($r = .098, p = .357$), Checking Option ($r = -.124, p = .243$), and Checking Time ($r = .093, p = .507$) were not significant. Correlations between MCUP Factor 2 scores and Checking Time ($r = .250, p = .071$ – approaching significance), Task Time ($r = -.051, p = .630$), Task Accuracy ($r = .051, p = .632$), Checking Option ($r = -.073, p = .492$), and Checking Accuracy ($r = .102, p = .470$) were not significant.

These results indicate that higher total perfectionism scores and Factor 1 scores were related to higher Checking Accuracy. Factor 1 ‘Ego-Syntonic’ aspects of perfectionism, suggested to represent a ‘healthy or positive’ aspect of perfectionist thinking (Stairs, *et al.*, 2012). Factor 2 scores were approaching significance in relation to Checking Time, suggesting that higher Factor 1 scores were approaching being related to increased Checking Time. Factor 2 ‘Ego-Dystonic’ aspects of perfectionism, suggested to represent more negative aspects of perfectionist thinking that may be related to experiences of emotional distress (Stairs, *et al.*, 2012)

1c) Participants scoring higher on the perfectionism measure will be more likely to self-report experiences of anxiety and depression on the HADS.

Pearson's R Bivariate Correlations were used to test this hypothesis, as the hypothesis aimed to investigate relationships between perfectionism scores and self-reported anxiety and depression. Perfectionism scores were correlated with anxiety scores and then depression scores to test if higher scores on the perfectionism measure related to higher scores on the anxiety and depression aspects of the HADS (see Table 3.21). Results showed that MCUP total scores were significantly positively correlated with anxiety scores ($r=.586$, $p<.01$). MCUP total scores were also significantly positively correlated with depression ($r=.404$, $p<.01$).

Table 3.21: MCUP perfectionism scores correlated with HADS anxiety and depression scores.

HADS Scores	MCUP Perfectionism Scores		
	MCUP Total (r,(p))	MCUP Factor 1 (r,(p))	MUP Factor 2 (r,(p))
Anxiety	.586 (.000)	.397 (.000)	.541 (.000)
Depression	.404 (.000)	.065 (.543)	.538 (.000)

Further correlations were run between the MCUP Factor 1 and 2 scores and anxiety and then depression scores. MCUP Factor 1 scores were significantly positively correlated with anxiety ($r=.397$, $p<.01$) as were MCUP Factor 2 scores and anxiety ($r=.541$, $p<.01$). MCUP Factor 1 scores were not significantly correlated to depression scores ($r=.065$), however, MCUP Factor 2 scores were significantly positively correlated with depression scores ($r=.538$, $p<.01$).

Results indicate that higher perfectionism total scores, Factor 1 and Factor 2 scores were related to higher self-reported levels of anxiety. Higher perfectionism total scores and Factor 2 scores were also related to higher levels of self-reported depression.

3.6.2 Hypothesis 2

2a) Participants who were primed with the Achievement value within the Self-Enhancement quadrant of Schwartz (1992) circular model will demonstrate increased behaviour associated with perfectionism compared to those who primed on opposing value of Benevolence within the opposite Self-Transcendence quadrant on the circular model.

A Pearson's R Bivariate Correlation was used to test this hypothesis, as the hypothesis was aiming to investigate relationships between the three group conditions and behavioural measures. The three groups were correlated with checking option (as this measure was dichotomous and so could not be included in the MANOVA) to test if the group condition was related to performance on this measure. Results showed that group condition was significantly positively correlated to checking option ($r=.221$, $p<.05$). Independent t-tests were used to explore the group conditions separately to test which groups differed on checking option. Results showed that Experiment group 1 (Primed for Achievement) significantly differed to Control Group 3 ($t(58)=2.154$, $p<.05$) with Experiment Group 1 taking up the offer to check more often than the Control Group. Differences in taking up the offer to check for Experiment Group 1 and Experiment Group 2 (Primed for Benevolence) ($t(58)=1.351$, $p=.182$) and for Experiment Group 2 and Control Group 3 ($t(58)=.766$, $p=.447$) were not significant (see Appendix 28).

Two Multivariate Analysis of Variance (MANOVA) were used to further test differences between the three group conditions. Firstly, a MANOVA was used to test differences between the groups in task time and task accuracy, then a second MANOVA was used to test differences between the groups in checking time and checking accuracy. Two MANOVA's were conducted due to there being fewer participants in the second MANOVA as not all participants chose to take up the checking option. The checking option variable will not be included in either MANOVA as it is nominal data level. A MANOVA was selected as there were three independent variables (Experiment Group 1, Experiment Group 2 and

Control Group 3) and two dependant variables (Either Task Time and Task Accuracy or Checking Time and Checking Accuracy).

Results showed that differences between the groups with regard to Task Time ($F(2, 87) = 1.212, p = .303$) and Task Accuracy ($F(2, 87) = 1.662, p = .196$) were not significant. Results also showed that differences between the groups with regard to Checking Time ($F(2, 49) = 2.662, p = .080$) and Checking Accuracy ($F(2, 49) = 1.990, p = .148$) were not significant. When age was considered as a covariate differences between group condition and Task Time ($F(2, 86) = 1.064, p = 3.50$), Task Accuracy ($F(2, 86) = 1.575, p = 2.13$), Checking Time ($F(2, 48) = 2.909, p = .064$) and Checking Accuracy ($F(2, 48) = .162, p = .162$) remained not significant.

2b) It is predicted that those participants who score higher on the perfectionism measure and who value Achievement within the Self-Enhancement quadrant, will show the largest increase in behaviour when Self-Enhancement values are primed.

MANOVAs were run to test this hypothesis, as the hypothesis was aiming to investigate the effects of priming groups on behavioural measures, taking in to consideration MCUP perfectionism scores and PVQ scores. Two MANOVA's were run (as above) with added effects of covariates for total MCUP scores (high/low), MCUP Factor 1 scores (high/low), MCUP Factor 2 scores (high/low) and PVQ scores (high/low) Achievement (high/low). High and low groups were determined by calculating the median score for these variables and then categorising scores higher or lower than the median.

Results showed that there was no significant effect for MCUP total scores (Task Time ($F(1, 74) = .786, p = .378$) and Task Accuracy ($F(1, 74) = 3.336, p = .0.72$)), Factor 1 scores (Task Time ($F(1, 74) = .023, p = .880$) and Task Accuracy ($F(1, 74) = .130, p = .720$)) and Factor 2 scores (Task Time ($F(1, 74) = .090, p = .765$) and Task Accuracy ($F(1, 74) = .3.465, p = .0.67$)). There were also no significant effects of Achievement value priorities (Task Time ($F(1, 74) = .034, p = .854$))

and Task Accuracy ($F(1,74)=.277, p=.600$)). All other PVQ value priorities were also not significant (see Appendix 29).

Results also showed that there was no significant effect for MCUP total scores (Checking Time $F(1,36)=1.981, p=.168$) and Checking Accuracy ($F(1,36)=1.315, p=.259$)), Factor 1 scores (Checking Time ($F(1,36)=.154, p=.697$) and Checking Accuracy ($F(1,36)=.252, p=.619$)) and Factor 2 scores (Checking Time ($F(1,36)=.007, p=.935$) and Checking Accuracy ($F(1,36)=.1.670, p=.205$)). There were also no significant effects of Achievement value priorities (Checking Time ($F(1,36)=.349, p=.558$) and Checking Accuracy ($F(1,36)=.359, p=.553$)). All other PVQ value priorities were also not significant (see Appendix 29).

Results suggest that higher perfectionism scores and Achievement value priorities did not have a significant effect on behaviour when Self-Enhancement values were primed.

3.6.3 Hypothesis 3

3a) It was predicted participants who give higher ranking to values within the Self-Enhancement quadrant of Schwartz (1992) circular model will have larger actual/ideal discrepancy between values rather than actual-ought discrepancy between values.

Pearson's R Bivariate Correlations were used to test this hypothesis, as the hypothesis was aiming to investigate relationships between Self-Enhancement quadrant scores and AI and AO value discrepancies.

Results showed there were significant positive relationships between Self-Enhancement quadrant scores and AI discrepancies in Tradition ($r=.315, p<.01$) and Power value priorities

($r=.218$, $p<.05$). There were also significant negative relationships between Self-Enhancement quadrant scores and AI discrepancies in Hedonism values ($r=-.217$, $p<.05$) and AI discrepancies in Self-Direction values ($r=-.220$, $p<.05$). Correlations between Self-Enhancement quadrant scores and AI discrepancies in Achievement ($r=-.070$, $p=.510$), Stimulation ($r=-.170$, $p=.108$), Universalism ($r=.142$, $p=.183$), Benevolence ($r=-.160$, $p=.131$), Conformity ($r=.099$, $p=.353$) and Security ($r=-.003$, $p=.975$) values were not significant. These results indicate that higher scores in the Self-Enhancement quadrant were related to higher AI discrepancy in Tradition and Power value priorities and lower AI discrepancy in Hedonism and Self-Direction value priorities.

Results showed there were significant positive relationships between Self-Enhancement quadrant scores and AO discrepancies in Power ($r=.366$, $p<.01$) and Tradition ($r=.292$, $p<.01$) value priorities. There was only a significant negative relationship between Self-Enhancement and AO discrepancy in Self-Direction value priorities ($r=-.236$, $p<.05$). Correlations between Self-Enhancement quadrant scores and AO discrepancies in Achievement ($r=.066$, $p=.534$), Hedonism ($r=.053$, $p=.619$), Stimulation ($r=.063$, $p=.554$), Universalism ($r=.086$, $p=.421$), Benevolence ($r=-.190$, $p=.073$), Conformity ($r=.076$, $p=.479$) and Security ($r=.139$, $p=.193$) value priorities were not significant. These findings indicate that higher scores in the Self-Enhancement quadrant are related to higher AO discrepancy in Power and Tradition value priorities and lower AO discrepancy in Self-Direction value priorities.

These results suggest that higher Self-Enhancement quadrant scores were related to both AI and AO discrepancies.

3b) Furthermore, those participants who give higher ranking to values within the Self-Transcendence quadrant will have larger discrepancy between actual/ought values rather than between actual-ideal values.

Pearson's R Bivariate Correlations were used to test this hypothesis, as the hypothesis was aiming to investigate relationships between Self-Transcendence quadrant scores and AI and AO value discrepancies.

Results showed there were significant positive relationships between Self-Transcendence quadrant scores and AI discrepancies in Universalism ($r=.453$, $p<.01$) and Benevolence ($r=.510$, $p<.01$) value priorities. There were significant negative relationships between Self-Transcendence quadrant scores and AI discrepancies in Power ($r=-.081$, $p=.447$), Self-Direction ($r=-.256$, $p<.05$) and Security ($r=-.291$, $p<.01$) value priorities. Achievement values were approaching significance ($r=-.203$, $p=.054$). Correlations between Self-Transcendence quadrant scores and AI discrepancies in Hedonism ($r=.065$, $p=.543$), Stimulation ($r=.042$, $p=.694$), Tradition ($r=-.091$, $p=.395$) and Conformity ($r=-.116$, $p=.276$) value priorities were not significant. These findings indicate that higher scores in the Self-Transcendence quadrant were related to higher AI discrepancy in Universalism and Benevolence value priorities and lower AI discrepancy in Power, Self-Direction and Security value priorities.

Results showed there were significant negative relationships between Self-Transcendence quadrant scores and AO discrepancies in Self-Direction ($r=-.277$, $p<.01$), Universalism ($r=-.578$, $p<.01$), Benevolence ($r=-.554$, $p<.01$) and Security ($r=-.316$, $p<.01$) value priorities. Correlations between Self-Transcendence quadrant scores and AO discrepancies in Power ($r=-.148$, $p=.163$), Achievement ($r=-.042$, $p=.693$), Hedonism ($r=.048$, $p=.651$), Stimulation ($r=-.157$, $p=.141$), Tradition ($r=-.052$, $p=.626$), and Conformity ($r=-.116$, $p=.275$) value priorities were not significant. Results indicate that higher scores in the Self-Transcendence quadrant were related to lower AO discrepancy in Self-Direction, Universalism, Benevolence, and Security values.

These results suggest that higher Self-Transcendence quadrant scores were related to both AI and AO discrepancies.

3.6.4 Hypothesis 4

4a) As per Higgins' (1987) theory, it is predicted larger discrepancy in values will relate to higher scores for anxiety and depression.

Pearson's r Bivariate Correlation tests were used to test this hypothesis, as the hypothesis aimed to investigate relationships between discrepancies and anxiety and depression scores. Results showed there were four significant relationships between discrepancy scores and anxiety scores (Hedonism AI x anxiety ($r=.212$, $p<.05$), Achievement AO x anxiety ($r=.247$, $p<.05$), Security AO x anxiety ($r=.219$, $p<.05$) and Stimulation AO x anxiety ($r=.227$, $p<.05$). There were six significant relationships between discrepancy scores and depression scores (Hedonism AI x depression ($r=.214$, $p<.05$), Security AI x depression ($r=.231$, $p<.05$), Achievement AO x depression ($r=.226$, $p<.05$), Hedonism AO x depression ($r=.228$, $p<.05$) Benevolence AO x depression ($r=.210$, $p<.05$) and Security AO x depression ($r=.239$, $p<.05$)).

These results suggest that larger discrepancy scores in four value priorities (Hedonism, Achievement, Security and Stimulation) were related to higher anxiety scores. Whilst larger discrepancy scores in four value priorities (Hedonism, Security, Achievement, and Benevolence) were related to higher depression scores.

4b) Furthermore, the type of value discrepancy will relate to the type of emotional distress reported. Based on Higgins (1987) theory, it is predicted that those participants who have larger actual/ideal discrepancy between values will report lower mood and those participants who have larger actual/ought discrepancy between values will report higher anxiety.

Using the results from the Pearson's r correlations discussed in 4a) above, results show that larger AI discrepancy scores in one value priority (Hedonism) and larger AO discrepancies in

three value priorities (Achievement, Security and Stimulation) were related to higher anxiety scores. Whilst larger AI discrepancy scores in two value priorities (Hedonism, Security) and larger AO discrepancies in four value priorities (Achievement, Hedonism, Benevolence and Security) were related to higher depression scores. These results suggest that larger AI discrepancy between values were related to low mood slightly more than to anxiety and larger AO discrepancy between values also related to low mood slightly more than to anxiety.

4c) Those who score more highly in helpful perfectionism will differ to those who score more lowly in helpful perfectionism – with higher scores in helpful perfectionism relating to smaller discrepancy. Whilst those scoring more highly in unhelpful perfectionism will differ to those who score more lowly in unhelpful perfectionism – with higher scores in unhelpful perfectionism relating to larger discrepancy.

Pearson's r Bivariate Correlation tests were used to test this hypothesis, as the hypothesis was aiming to investigate relationships between perfectionism scores and discrepancies. Results showed there were three significant relationships between MCUP total scores and discrepancy scores (MCUP total scores x AO Achievement AO ($R=.213$, $p<.05$), MCUP total scores x AO Stimulation ($r=.213$, $p<.05$) and MCUP total x AO Tradition ($r=.224$, $p<.05$). These results suggest that higher MCUP total scores were related to larger discrepancy scores in three value priorities (Achievement, Stimulation and Tradition).

Correlations were also calculated for the MCUP Factor 1 and Factor 2 scores. There were no significant correlations found between MCUP Factor 1 scores and discrepancies in values. For MCUP Factor 2 scores there was a significant positive relationship with AO Achievement value priority discrepancy ($r=.301$, $p<.01$). This finding indicates that higher MCUP Factor 2 scores were related with higher AO discrepancy. Factor 2 'Ego-Dystonic' aspects of perfectionism, suggested to represent more negative aspects of perfectionist thinking that may be related to experiences of emotional distress (Stairs, *et al.*, 2012)

4d) *Those who score more highly in unhelpful perfectionism will differ to those who score more lowly in unhelpful perfectionism – with higher scores in unhelpful perfectionism relating to larger actual/ought discrepancies and anxiety.*

Using the results from the Pearson's r correlations discussed in 4c) above, results show that higher MCUP total scores were significantly related to larger AO discrepancy scores in three value priorities (Achievement, Stimulation and Tradition), whilst no significant relationships were found with AI discrepancy scores. These results suggest that higher scores in perfectionism were related to larger AO discrepancy between specific values. AO discrepancies have been associated with increased anxiety (Higgins, 1987).

Results also showed that higher Factor 2 scores were significantly related to larger AO discrepancy scores in the Achievement value priority. These results suggest that higher scores in Factor 2 'Ego Dystonic' aspects of perfectionism were related to larger AO discrepancy in Achievement value priorities positioned in the Self-Enhancement quadrant (Schwartz, 1992; Schwartz, *et al.*, 2012).

3.7 SUMMARY OF CHAPTER 3

Descriptive analyses explored the participant (demographics), questionnaire (MCUP, HADS, and PVQ) and behavioural (Task Time, Task Accuracy, Checking Option, Checking Time and Checking Accuracy) data collated. The analyses indicated that group conditions did not differ in regard to the participant demographics (age and gender) at baseline. Ethnicity data could not be computed, but the groups appeared similar in ethnic diversity. When participant demographic data was explored in relation to the questionnaire and behavioural measures, age was identified as a variable that may need to be controlled for in any inferential analysis.

The data was then reviewed to assess whether it met the assumptions required for parametric statistical tests. The data met six of the assumptions required for parametric testing, including: dependant variables at internal or ratio level; independent variables of two or more categorical independent groups; independence of observations; adequate sample size; outliers were amended; and no multicollinearity. However, the data failed to meet assumptions of normality and homoscedasticity. Fields (2009) discusses that when data sets do not meet assumptions required for parametric tests and parametric tests are used, there may be an increased change of Type 1 errors (false positives) being reported. In light of research recommending the use of parametric analyses over the use of non-parametric (Glass, *et al.*, 1972; Finch & French, 2013; Finch, 2005; Field, 2009, 2013; MacDonald, 2014) and data transformations (Games, 1983; Games & Lucas, 1966; Glass, *et al.*, 1972; Grayson, 2004; Lumley, *et al.*, 2002; Tabachnick & Fidell, 2006) when assumptions are violated, the data collated was analysed using parametric inferential statistics.

Descriptive data for the HADS indicated that for both anxiety and depression scores, there were no significant differences across the three groups at baseline. Anxiety scores for the total sample covered the 'normal' to 'severe' range of scores and depression scores for the total sample covered the 'normal' to 'moderate' range of scores. There was also a significant relationship between anxiety and depression scores, with higher anxiety scores being related to higher depression scores. The descriptive data for the MCUP indicated that there were no significant differences across the three groups at baseline.

The PVQ descriptive data was presented for value (*actual*, *ideal* and *ought*) means and then for value (*actual/ideal* and *actual/ought*) discrepancy. No significant differences were found between the three groups at baseline for *actual*, *ideal* or *ought* value means. The top three *actual*, *ideal* and *ought* value priorities appeared to be similar across the sample (although in slightly different order) reflecting the cross cultural priorities identified by Schwartz (1992).

Inferential statistical analyses were used to explore the data in relation to the main hypothesis. Hypotheses 1 was focused on perfectionism in relation to value priorities (PVQ), behaviours (Behavioural measures) and emotional distress (HADS). Results indicated that overall higher scores on the perfectionism measure were related to higher value priorities positioned in the Self Enhancement and Conservation quadrants (Schwartz, 1992; Schwartz, *et al.*, 2012). Higher scores on Factor 1 'Ego-Syntonic' aspects of perfectionism were related to value priorities positioned within the Self-Enhancement and Conservation quadrants (Schwartz, 1992, 2012). Whilst higher scores on Factor 2 'Ego-Dystonic' aspects of perfectionism were only related to value priorities positioned within the Self-Enhancement quadrant. Additionally, results indicated that higher overall perfectionism scores were related to higher value priorities of Achievement, Power, Conformity and Security values - with higher perfectionism scores and Achievement values having the largest significant relationship. Higher scores on Factor 1 'Ego-Syntonic' aspects of perfectionism were related to higher value priorities in Achievement, Power, Conformity and Security values. Whilst, higher scores on the Factor 2 'Ego-Dystonic' aspects of perfectionism were only related to higher priorities in Achievement and Universalism values. In regard to behaviour, results indicated that higher total perfectionism scores and Factor 1 scores were related to higher checking accuracy. Factor 1 'Ego-Syntonic' aspects of perfectionism, suggested to represent a 'healthy or positive' aspect of perfectionist thinking (Stairs, *et al.*, 2012). Factor 2 scores were approaching significance in relation to Checking Time, suggesting that higher Factor 1 scores were approaching being related to increased Checking Time. Factor 2 'Ego-Dystonic' aspects of perfectionism, suggested to represent more negative aspects of perfectionist thinking that may be related to experiences of emotional distress (Stairs, *et al.*, 2012). Lastly, in regard to emotional distress, results indicated that higher perfectionism total scores, Factor 1 and Factor 2 scores were related to higher self-reported levels of anxiety. Higher perfectionism total scores and Factor 2 scores were also related to higher levels of self-reported depression.

Hypothesis 2 was focused on the effects of priming social values on behaviour associated with perfectionism. Results indicated that Experiment group 1 (Primed for Achievement) significantly differed to Control Group 3, with Experiment Group 1 taking up the offer to

check more often than the control group. Differences between the priming groups with regard to Task Time, Task Accuracy, Checking Time and Checking Accuracy were not significant, even when age was considered as a covariate. Results also indicated that higher perfectionism scores and Achievement value priorities did not have a significant effect on behaviour when Self-Enhancement values were primed.

Hypothesis 3 focused on value discrepancy in relation to value priorities. Results indicated that higher Self-Enhancement quadrant scores were related to both AI and AO discrepancies, also higher Self-Transcendence quadrant scores were related to both AI and AO discrepancies. However, these discrepancies did lay in different values. Higher scores in the Self-Enhancement quadrant were related to: higher AI discrepancy in Tradition and Power value priorities; lower AI discrepancy in Hedonism and Self-Direction value priorities; higher AO discrepancy in Power and Tradition value priorities; and lower AO discrepancy in self-direction value priorities. Whilst higher scores in the Self-Transcendence quadrant were related to: higher AI discrepancy in Universalism and Benevolence value priorities; lower AI discrepancy in Power, Self-Direction and Security value priorities; and lower AO discrepancy in Self-Direction, Universalism, Benevolence, and Security values.

Hypothesis 4 focused on value discrepancy in relation to emotional distress and perfectionism. Results indicated that larger discrepancy scores in four value priorities (Hedonism, Achievement, Security and Stimulation) were related to higher anxiety scores. Whilst larger discrepancy scores in four value priorities (Hedonism, Security, Achievement, and Benevolence) were related to higher depression scores. Larger AI and AO discrepancy between values were related to low mood slightly more than to anxiety. Higher MCUP total scores were related to larger discrepancy scores in three value priorities (Achievement, Stimulation and Tradition). Further analysis revealed that MCUP Factor 2 'Ego Dystonic' scores were related with higher AO discrepancy in Achievement value priorities positioned in the Self-Enhancement quadrant (Schwartz, 1992; Schwartz, *et al.*, 2012).

The interpretation of the analyses results will be discussed in Chapter 4.

CHAPTER 4: DISCUSSION

4.1 INTRODUCTION

This chapter will summarise and interpret the results of the current study, discussing findings in relation to the current literature on social values, value discrepancy and perfectionism. Clinical implications of the research will be considered in a mental health context. The study will be critiqued by outlining its strengths and limitations before recommendations for future research are offered. The chapter will then conclude with a summary of the current study and a declaration of any conflicts of interest and sponsorship.

4.2 STUDY RESULTS

The current study had four main hypotheses that aimed to explore the effect of priming the social value of Achievement on behaviour associated with perfectionism, whilst considering value discrepancy and distress. The focus of the four hypotheses were as follows:

Hypothesis 1 focused on perfectionism, social value priorities, behaviour associated with perfectionism and distress. The aim of this hypothesis was to review the use of the MCUP in measuring perfectionism in relation to the PVQ, behavioural measures and HADS.

Hypothesis 1a - It is predicted that participants who score higher on the perfectionism measure will give higher ranking to the values within the Self-Enhancement quadrant of Schwartz (1992; Schwartz, et al., 2012) circular model. Additionally, the value of Achievement will have a higher relative rank with this quadrant.

Hypothesis 1b –Participants scoring higher on the perfectionism measure will be more likely to display the behaviours related to perfectionism than those who score lower on the measure.

Hypothesis 1c– Participants scoring higher on the perfectionism measure will be more likely to self-report experiences of anxiety and depression on the HADS.

Hypothesis 2 focused on the effects of priming social values on behaviour. The aim of this hypothesis was to explore the effect of priming Achievement value priorities on behaviour associated with perfectionism.

Hypothesis 2a–Participants who are primed with the Achievement value within the Self-Enhancement quadrant of Schwartz (1992) circular model will demonstrate increased behaviour associated with perfectionism compared to those who primed on opposing value of Benevolence within the opposite Self-Transcendence quadrant on the circular model.

Hypothesis 2b - It is predicted that those participants who score higher on the perfectionism measure and who value Achievement within the Self-Enhancement quadrant, will show the largest increase in behaviour when Self-Enhancement values are primed.

Hypothesis 3 focused on value discrepancy and social value priorities. The aim of this hypothesis was to explore the amount and type of value discrepancies in Achievement and Benevolent value priorities.

Hypothesis 3a – It is predicted that those participants who give higher ranking to values within the Self-Enhancement quadrant of Schwartz (1992) circular model will have larger actual/ideal discrepancy between values rather than actual-ought discrepancy between values.

Hypothesis 3b – Furthermore, those participants who give higher ranking to values within the Self-Transcendence quadrant will have larger actual/ought discrepancy between values rather than actual-ideal discrepancy between values.

Hypothesis 4 focused on value discrepancy and emotional distress, specifically, anxiety and depression. The aim of the last hypothesis was to explore amount and type of value discrepancies impacting on self-reported anxiety, depression and perfectionism.

Hypothesis 4a –As per Higgins' (1987) theory, it is predicted larger discrepancy in values will relate to higher scores for anxiety and depression.

Hypothesis 4b –Furthermore, the type of value discrepancy will relate to the type of emotional distress reported. Based on Higgins (1987) theory, it is predicted that those participants who have larger actual/ideal discrepancy between values will report lower mood and those participants who have larger actual/ought discrepancy between values will report higher anxiety.

Hypothesis 4c – Those who score more highly in helpful perfectionism will differ to those who score more lowly in helpful perfectionism – with higher scores in helpful perfectionism relating to smaller discrepancy. Whilst those scoring more highly in unhelpful perfectionism will differ to those who score more lowly in unhelpful perfectionism – with higher scores in unhelpful perfectionism relating to larger discrepancy.

Hypothesis 4d – Those who score more highly in unhelpful perfectionism will differ to those who score more lowly in unhelpful perfectionism – with higher scores in unhelpful perfectionism relating to larger actual/ought discrepancies and anxiety.

To investigate these hypotheses, inferential statistical analyses were used to explore the data.

4.2.1 Hypothesis 1

Hypotheses 1 was focused on perfectionism in relation to value priorities (PVQ), behaviours (Behavioural measures) and emotional distress (HADS). Results indicated that overall higher scores on the perfectionism measure were related to higher value priorities positioned in the Self-Enhancement (Achievement, Power) and Conservation (Conformity and Security) quadrants (Schwartz, 1992; Schwartz, *et al.*, 2012). In relation to Schwartz (1992) model of basic social values, these findings suggest that perfectionism is related to value priorities that promote the self (Self-Enhancement) and the existing status quo (Conservation). Schwartz, *et al.* (2012) revised model also proposed that the pursuit of values within the Self-Enhancement and Conservation quadrants are self-protective and serve to cope with anxiety. This suggests, individuals who prioritise values associated with conservation and self-enhancement may be motivated to pursue behaviours associated with self-protection and trying to cope with life. In relation to the revised model, findings from the current study suggest that perfectionism may be associated with self-protection and coping with anxiety.

Results further indicated that higher scores on Factor 1 ‘Ego-Syntonic’ aspects of perfectionism were related to value priorities positioned within the Self-Enhancement and Conservation quadrants (Schwartz, 1992; Schwartz, *et al.*, 2012). Whilst higher scores on Factor 2 ‘Ego-Dystonic’ aspects of perfectionism were only related to value priorities positioned within the Self-Enhancement quadrant. In relation to Schwartz, *et al.* (2012) these findings suggest that ‘Ego-Syntonic’ aspects of perfectionism were associated with

Conservation and Self-Enhancement value priorities— suggesting perfectionism may have functioned as a ‘healthy/positive self-protection strategy (Stairs, *et al.*, 2012). Findings also suggested that ‘Ego-Dystonic’ aspects of perfectionism were only associated with Self-Enhancement value priorities - suggesting perfectionism may have functioned as a more ‘unhealthy/negative’ strategy (Stairs, *et al.*, 2012).

When looking at individual value priorities, overall perfectionism scores were most significantly related to the Achievement value priorities. This suggests that perfectionism was related to Achievement values such as being successful, capable, ambitious and influential, prioritising personal success though demonstrating competence according to social standards (Schwartz, 1992). Findings also suggested that both ‘Ego-Syntonic’ and ‘Ego-Dystonic’ aspects of perfectionism were associated with Achievement value priorities - suggesting perfectionism may have both ‘healthy /positive’ and ‘unhealthy/negative’ functions (Stairs, *et al.*, 2012). This appears to support the placement of the Achievement values having an overlapping position on the self-protection/self-growth dimension of Schwartz, *et al.* (2012) model, suggesting that perfectionism and Achievement values motivations to meet standards may serve to self-protect and cope with anxiety or to promote self-growth by expressing ones competence and anxiety free motivations.

In regard to behaviour, results indicated that higher perfectionism scores were associated with increased checking accuracy. ‘Ego-Syntonic’ aspects of perfectionism were associated with this behaviour, suggesting it represent a ‘healthy or positive’ strategy (Stairs, *et al.*, 2012). Lastly, in regard to emotional distress, results indicated that higher perfectionism total scores, Factor 1 and Factor 2 scores were related to higher self-reported levels of anxiety. Higher perfectionism total scores and factor 2 scores were also related to higher levels of self-reported depression. In relation to Stairs, *et al.* (2012) these findings appear to suggest that perfectionism was associated with both healthy/positive anxiety and also unhealthy/negative anxiety. Again, this supports perfectionism being associated with Achievement values that is proposed to have motivations to meet standards may serve to

self-protect and cope with anxiety or to promote self-growth by expressing ones competence and anxiety free motivations (Schwartz, *et al.*, 2012).

4.2.2 Hypothesis 2

This hypothesis was focused on the effects of priming social values on behaviour associated with perfectionism. Results indicated that Experiment group 1 (Primed for Achievement) significantly differed to Control Group 3, with Experiment Group 1 taking up the offer to check more often than the Control Group. These results suggest that individuals primed with Achievement values displayed value congruent behaviour, as taking up the offer to check their work may have functioned to increase their personal success through demonstrating competence according to the expectations of the researcher (Schwartz, 1992). In relation to the literature on priming values, these results suggest that priming social values increases value congruent behaviour (Maio, *et al.*, 2009; Maio, 2010). Differences between the priming groups with regard to Task Time, Task Accuracy, Checking Time and Checking Accuracy were not significant, even when age was considered as a covariate. Results also indicated that higher perfectionism scores and Achievement value priorities did not have a significant effect on behaviour when Self-Enhancement values were primed.

4.2.3. Hypothesis 3

Hypothesis 3 focused on value discrepancy in relation to value priorities. Results indicated that higher Self-Enhancement quadrant scores were related to both AI and AO discrepancies, also higher Self-Transcendence quadrant scores were related to both AI and AO discrepancies. Higher scores in the Self-Enhancement quadrant were related to: higher AI discrepancy in Tradition and Power value priorities; lower AI discrepancy in Hedonism and Self-Direction value priorities; higher AO discrepancy in Power and Tradition value priorities; and lower AO discrepancy in Self-Direction value priorities. These results

suggested that higher discrepancies were located in more congruent values, whilst lower discrepancies were located in opposing values. If individuals are motivated to reduce discrepancy (Higgins, 1987) these results suggesting individuals may be more motivated to pursue the self-enhancing values that they experience more discrepancy within. Whilst higher scores in the Self-Transcendence quadrant were related to: higher AI discrepancy in Universalism and Benevolence value priorities; lower AI discrepancy in Power, Self-Direction and Security value priorities; and lower AO discrepancy in Self-Direction, Universalism, Benevolence, and Security values. Again, if individuals are motivated to reduce discrepancy (Higgins, 1987) these results suggest higher AI discrepancies were located in more congruent values, suggesting individuals with higher Self-Transcendence scores may be more motivated to pursue the values that promote others that they experience more discrepancy within. These findings appear to provide support for Schwartz (1992) and Schwartz, *et al.*, (2012) models of basic social values.

4.2.4 Hypothesis 4

Hypothesis 4 focused on value discrepancy in relation to emotional distress and perfectionism. Results indicated that larger discrepancy scores in four value priorities (Hedonism, Achievement, Security and Stimulation) were related to higher anxiety scores. Whilst larger discrepancy scores in four value priorities (Hedonism, Security, Achievement, and Benevolence) were related to higher depression scores. Larger AI and AO discrepancy between values were related to low mood slightly more than to anxiety. These results appear to support Higgins (1987) theory that discrepancy increases anxiety and low mood, however, not that AI and AO discrepancy will predict the type of distress reported.

Higher perfectionism total scores were related to larger discrepancy scores in three value priorities (Achievement, Stimulation and Tradition). Further analysis revealed that 'ego dystonic' aspects of perfectionism were related with higher AO discrepancy in Achievement value priorities positioned in the Self-Enhancement quadrant (Schwartz, 1992; Schwartz, *et*

al., 2012). This finding suggests that perfectionism is associated with the actual pursuit of Achievement value priorities (i.e. success, ambition, capability, and influence) not meeting the perceived expectations of others. This AO discrepancy may account for the increased anxiety and depression reported by individuals higher in perfectionism (Higgins, 1987).

4.3 CLINICAL IMPLICATIONS IN A MENTAL HEALTH CONTEXT

Research in a mental health context has proposed that individuals who experience 'clinical perfectionism' are motivated to focus on Achievement in life (Fairburn *et al.*, 2003; Shafran *et al.*, 2002; Wonderlich, 2002). Research has suggested that perfectionism and a focus on Achievement is related to psychological distress; both increasing vulnerability to and maintaining psychological difficulties (Egan, *et al.*, 2014). Despite perfectionism and Achievement based values sharing conceptual similarities, research in to clinical perfectionism appears to not have incorporated social values in to a clinical understanding of perfectionism.

The current study aimed to begin to explore Achievement values, perfectionism and psychological distress in a non-clinical population. Results suggest that prioritising Achievement values was associated with higher levels of perfectionism and increased self-reports of anxiety and depression. Further, *Actual/Ought* discrepancies in Achievement values were found to be associated with more negative aspects of perfectionism that have been associated with increased distress (Stairs, *et al.*, 2012). The current study supports the inclusion of Schwartz (1992) and Schwartz, *et al.* (2012) model of social values and Higgins (1987) value discrepancy theory as frameworks for further understanding Achievement values, perfectionism and distress in a non-clinical population.

Further research is needed to explore the efficacy of Schwartz (1992) and Schwartz, *et al.* (2012) model of social values and Higgins (1987) value discrepancy theory as frameworks for understanding social values, perfectionism and distress with clinical populations in a mental health context. Further research on *Actual/Ought* discrepancies in Achievement values,

perfectionism and clinical distress could potentially inform clinical interventions that focus on values.

4.4 STUDY CRITIQUE

4.4.1 Strengths

Several strengths of the study will be discussed, including: the unique literature review, empirical research, and the study design.

4.4.1.1 Literature Review

The current study conducted a unique systematic literature review of the evidence regarding perfectionism and anxiety. The review aimed to collate and critique an empirical research literature base exploring the role of perfectionism in experiences of anxiety in an adult population.

4.4.1.2 Empirical Research

The current study used an empirical design that provides support for considering social values when working with individuals who experience perfectionism and the role that values have in relation to value discrepancy and psychological distress. The study findings suggest that the inclusion of Schwartz (1992) model of basic social values in psychological interventions may support understanding value priorities and the adapted PVQ (Parsons, 2013; Rees & Maio, 2009) may inform individuals about value discrepancy to further understand discrepancy and psychological distress.

4.4.1.3 Design

4.4.1.3.1 Sample Size

The participant sample size (90) used in the current study was larger than the sample size calculated by power analysis (39).

4.4.1.3.2 Comparison Group

The study made use of both a control group and comparison group to explore the effects of social values on behaviour associated with perfectionism. This design allowed for a more valid interpretation of effects caused by manipulation variables.

4.4.1.3.3 Randomisation

Participants in the study were randomly allocated to group conditions. Measures were also randomly ordered. These processes aimed to reduce researcher bias and any ordering effects.

4.4.1.3.4 Measures

The questionnaire measures (MCUP, PVQ, & HADS) used in the study were regarded to have high validity. The priming task has also been used by researchers to prime social values (Maio, *et al.*, 2009; Maio, 2010; Woodfield, 2014).

4.4.2 Limitations

Several limitations of the study will be discussed, including: the literature review, study design, and analysis of results.

4.4.2.1 Literature Review

The literature review initially set out to explore the role of perfectionism in anxiety and depression. However, due to limitations in the scope of the current study, and a rationale based on anxiety being part of Schwartz, *et al.* (2012) model of values, the literature review question was revised to include only anxiety and depression was not part of the review. The current study findings suggest that social values and perfectionism are associated with both anxiety and depression. Future review of perfectionism and depression may enhance understanding in this area.

The review used a Quality framework (SURE) to assess the quality of the 17 studies identified. Whilst this framework has been widely used, it is important to note that the structure of the framework has a built in inherit bias. The framework places larger weighting on items that ask about whether studies have comparison groups, the framework also has multiple questions on the processes of randomisation. Therefore, studies which did have comparison groups and utilised randomisation scored higher compared to those who did not.

4.4.2.2 Design

4.4.2.2.1 Sample

The study utilised a non-clinical population that included a majority of undergraduate students, individuals who were female, and predominantly of White ethnicity. These limitations in the sample diversity reduce the generalisability of the study results to a wider more diverse population and to a clinical population. Previous research by Parsons (2013) reported that clinical samples had larger value-discrepancy than non-clinical samples and so it would be interesting to repeat his study with clinical samples.

The sample demographics may also have had an impact on the study results, it is possible that the population used produced a skewed range of outcomes on the measures used i.e. a student population may have all scored within the top percentiles compared to the general population on the measures used e.g. students may have scored more highly on Achievement value priorities and perfectionism compared to a wider population. It is also important to note that students may have been revising for or undergoing exams and so Achievement value priorities may have been primed prior to participating in the study, as well as participants perhaps having higher than baseline levels of anxiety and depression.

The findings of the study should be considered with caution when applied outside of the current population and context. Future research would need to conduct the study with a more diverse population before findings can be generalised to any other population.

4.4.2.2 Procedure

In the experimental task, to avoid participants becoming aware that their behaviour was being timed, the researcher was positioned behind the participant. Then as part of the debrief procedure, all participants were debriefed using a funnelling technique. None of the participants verbalised that they had guessed that they had been primed and what the prime was for, they also did not report being aware of being timed. If participants had become aware and chose not to verbalise this, they still would not have known whether the researcher expected a faster or slower time performance. There are limitations in this methodology. Firstly, it relied on participants being forthcoming with their thoughts. Secondly, it relied on researcher timing which may have included human error. Future studies using computerised tasks and timing may produce a more precise timing count.

It is also possible that individual differences impacted on the experimental task i.e. processing speed. To estimate a completion time for the task, it was piloted on two individuals who were not attached to the current study. The task was also produced in size 12 font to reduce effects of limited eyesight and participants were asked to bring any glasses or eyesight correction with them.

4.4.2.3 Measures

The questionnaire measures used were all reliant on participants subjectively self-reporting their experiences. A limitation with such measures is that participants may provide biased responses as well perceived socially desirable responses (Van de Motel, 2008), this may have been particularly important for participants who scored more highly on perfectionism measures. To account for this bias, a scale to measure perceived social desirability could have been used.

The questionnaire measures used were also chosen due to the scope of the current study, including financial limitations. The HADS measure was chosen due to being a well validated and widely used measure. It is also a short measure that does not take long to complete. The studies in the review utilised several anxiety measures and it may be useful to use such measures in future research and to correlate findings with the HADS. The current study only measured anxiety and depression, as these emotions have been identified as being relevant to social values (Schwartz, *et al.*, 2012) and value discrepancy (Higgins, 1987). Future studies could use the HADS alongside other measures of anxiety, depression and wider emotional experience.

The MCUP measure was chosen due to its validation and ease of completion. The studies in the review had utilised several perfectionism measures, however these have received criticism regarding their construct validity. The MCUP proposed to overcome these limitations; however it has not been widely used in empirical research and does not have a clinical threshold after which perfectionism may be considered to be a 'clinical' need/difficulty. Future studies could use the MCUP alongside other measures of perfectionism.

As previous research has noted perfectionism has been considered to be adaptive or maladaptive, it may be that both extremely low and extremely high levels of perfectionism are maladaptive (creating an inverted 'u curve' when perfectionism is plotted on an x axis and functioning or wellbeing is plotted on a y axis on a graph). It may be that whilst the non-clinical sample used in the current study score highly on the perfectionism measure used, they may not fall within 'extreme score' ranges and so perfectionism and functioning/wellbeing are positively correlated. It is possible that non-clinical and clinical populations are situated at different points on such a graph, with clinical populations being placed at either end within 'extreme score' ranges. Further research is needed to explore the range of perfectionism scores utilising the MCUP measure with wider and clinical populations.

The current study used the original PVQ 40-item measure adapted to incorporate Higgins (1987) model of self-discrepancies. Whilst Schwartz, *et al.* (2012) has revised the PVQ, this version is longer and has not yet been widely researched in terms of its validity. Therefore using the original model may be considered a limitation, however, in terms of making the study time appealing to participants and using a more widely validated measure, the original PVQ appeared to be a more efficient choice of measure.

The adapted PVQ has not yet been widely researched in terms of its validity and so further research would enhance the understanding of the properties of the measure. In the current study, the PVQ findings did appear to reflect the cross cultural patterns reported by Schwartz (1992). On reflection, the Adapted PVQ used the term '*should*' rather than '*ought*'. This may have impacted on the way that participants understood the questions. To review if the *should* items relate to *ought* concepts, future studies could adapt the measure to include *ought* statements. Participants could also be asked about their understanding of the actual, ideal and should/ought concepts as in previous research (Rees & Maio, 2009).

4.4.2.3 Results

The study hypotheses were focused on exploring Achievement values and perfectionism. However, it is important to note that other social values have also been associated with perfectionism. Individuals who experience have been considered to meet diagnostic criteria for obsessive compulsive difficulties often score highly on perfectionism measures and have been suggested to have an increased sense of personal responsibility that may be associated with "a high degree of conscientiousness, marked by dedication to work and an acute sense of social obligation" (Salkovskis, *et al.*, 1999, pp. 1060). In this clinical population, perfectionism associated with self-criticism about being caring enough appears to be focused more on social conscientiousness and benevolent values. It is important to acknowledge that whilst social values may appear to be distinct within the theory; in practice such concepts may be more complex. Further research is needed to explore values

associated with perfectionism and how these relate, in both wider non-clinical and clinical populations e.g. when does wanting to be caring towards others become less about a desire for benevolence and more about a desire for personal achievement through meeting one's own high standards of caring for others.

In light of the research on transforming data and using non parametric tests when assumptions for parametric tests have not been met, the current study chose to go ahead with parametric analysis. The analysis conducted did not provide the casual direction of relationships between values, perfectionism, discrepancy or distress. Several correlations were calculated to test specific hypothesis. Whilst each correlation had a rationale it is important to note that multiple correlations may increase type 1 errors, i.e. incorrectly reporting the presence of a significant correlation, and so should be considered with caution. To account for the increased likelihood that type 1 errors may have occurred, the significance level may be adjusted so that it is more conservative, moving from a significance threshold of .05 to 0.1.

Despite there being statistically significant findings from the study, it is important to note that such findings are not presumed to be clinically significant. The calculation of statistical significance does offer a method for working out the probability that the study findings may have occurred by chance and would not be found if the study was repeated. However, these probability values (e.g. that findings had a .01 (1%) or 0.5 (5%) probability of occurring by chance) are arbitrary and do not reflect an actual measurement of the degree or meaningfulness of the effect seen in the study. Instead, clinical significance may be used as a concept to consider whether the findings in the study were enough to have impact on altering clinical practice. Whilst clinical judgement would be used in deciding whether a study and its findings were sufficient to have clinical importance, statistical calculations may also be used to inform clinical judgement through the use of confidence intervals. Confidence intervals offer likely range of results within which the true finding is likely to sit, this information may be more useful for a clinician.

4. 5 RECOMMENDATIONS FOR FUTURE RESEARCH

The current study has provided support for the social value of Achievement and value discrepancy being associated with perfectionism and psychological distress in a non-clinical population. However, further research is needed to explore these findings and increase understanding of values and discrepancy and the efficacy of these concepts applied to a mental health context.

Future research could explore social values and perfectionism with larger, diverse and clinical populations. Research could also explore other social value priorities in relation to other behaviours associated with mental health or psychological distress. It would also be interesting to explore the hypothesis that living (i.e. behaving) consistently with values promotes psychological wellbeing and that living (i.e. behaving) inconsistently with values is a risk factor for experiencing psychological distress. Research by Parsons (2013) reported clinical samples to have larger value discrepancies than non-clinical samples; it would be interesting to explore value discrepancy further in clinical populations in relation to psychological distress.

The current study did not explore value discrepancy direction but a study from the review suggested that lower levels of social anxiety were associated with negative discrepancy scores i.e. others standards were rated lower than an individual's own efficacy, regardless of SPP and so individuals thought they could match or exceed others expectations. In contrast, higher levels of social anxiety were associated with positive discrepancy scores i.e. others standards were rated higher than an individual's own self efficacy, increasing with SPP and so individuals thought they could not meet the expectations of others. Laurenti, *et al.* (2008). Future research could explore the direction of value discrepancy and the impact this has on behaviour and emotional distress.

The current study found that both anxiety and depression were associated with social values. Social value motivations in relation to depression are not currently included in Schwartz, *et al.* (2012) model of basic values. Future research in this area would add to the current understanding of social value priorities and experiences of depression. Future research could also add to this area by exploring other emotional experiences.

4.6 CONFLICTS OF INTEREST

All researchers and supervisors involved in the current study declare that there are no actual or potential conflicts of interest with regard to financial, personal or other relationships with people or organizations within three years of commencing the study that could inappropriately influence, or be perceived to influence, this report.

4.7 SPONSORSHIP

All researchers and supervisors involved in the current study can declare that no sponsorship was required, sought or received for the current study.

4.8 FINANCES

All participant cash and prize draw payments were reimbursed by Cardiff University.

4.9 SUMMARY OF CHAPTER 4

The current study applied Schwartz (1992) model of basic social values and Maio (2010) theory of priming values to explore the effect of priming social values on behaviour

associated with perfectionism. The study also considered Higgins (1987) theory of self-discrepancy to explore the concept of value discrepancy and self-reported anxiety and depression.

The study found that higher perfectionism was related to Self-Enhancement and Conservation value priorities, with strongest relations to Achievement values. These findings suggest that perfectionism was related to value priorities that promote the self and the existing status quo, whilst being self-protective and serve to cope with anxiety. Perfectionism was found to have both a 'healthy/positive' and 'unhealthy/negative' aspect (Stairs, *et al.*, 2012). This appears to support Achievement being related to perfectionism, as Achievement values have an overlapping position on the self-protection/self-growth dimension of Schwartz, *et al.* (2012) model. Priming Achievement increased perfectionist behaviour associated with more 'healthy or positive' behaviour. Results indicated that higher perfectionism was related to higher self-reported levels of anxiety and depression. 'Unhealthy/negative' perfectionism were related with higher AO discrepancy in Achievement value, suggesting that perfectionism was associated with the actual pursuit of Achievement value priorities (i.e. success, ambition, capability, and influence) not meeting the perceived expectations of others.

The current study provides empirical support for the inclusion of a theory and model of values and value discrepancy to further understanding perfectionism and distress in a mental health context. Further research is needed to explore the use of Schwartz (1992) theory and model of social values and the PVQ (Schwartz, 1992) or adapted PVQ measure (Rees & Maio, 2009; Parsons, 2013) in clinical assessments, formulations and interventions to further understand social values in relation to behaviour and psychological distress. The current study lends some support to priming social values leading to value congruent behaviour, however further research is needed to explore priming behaviours related to clinical presentations.

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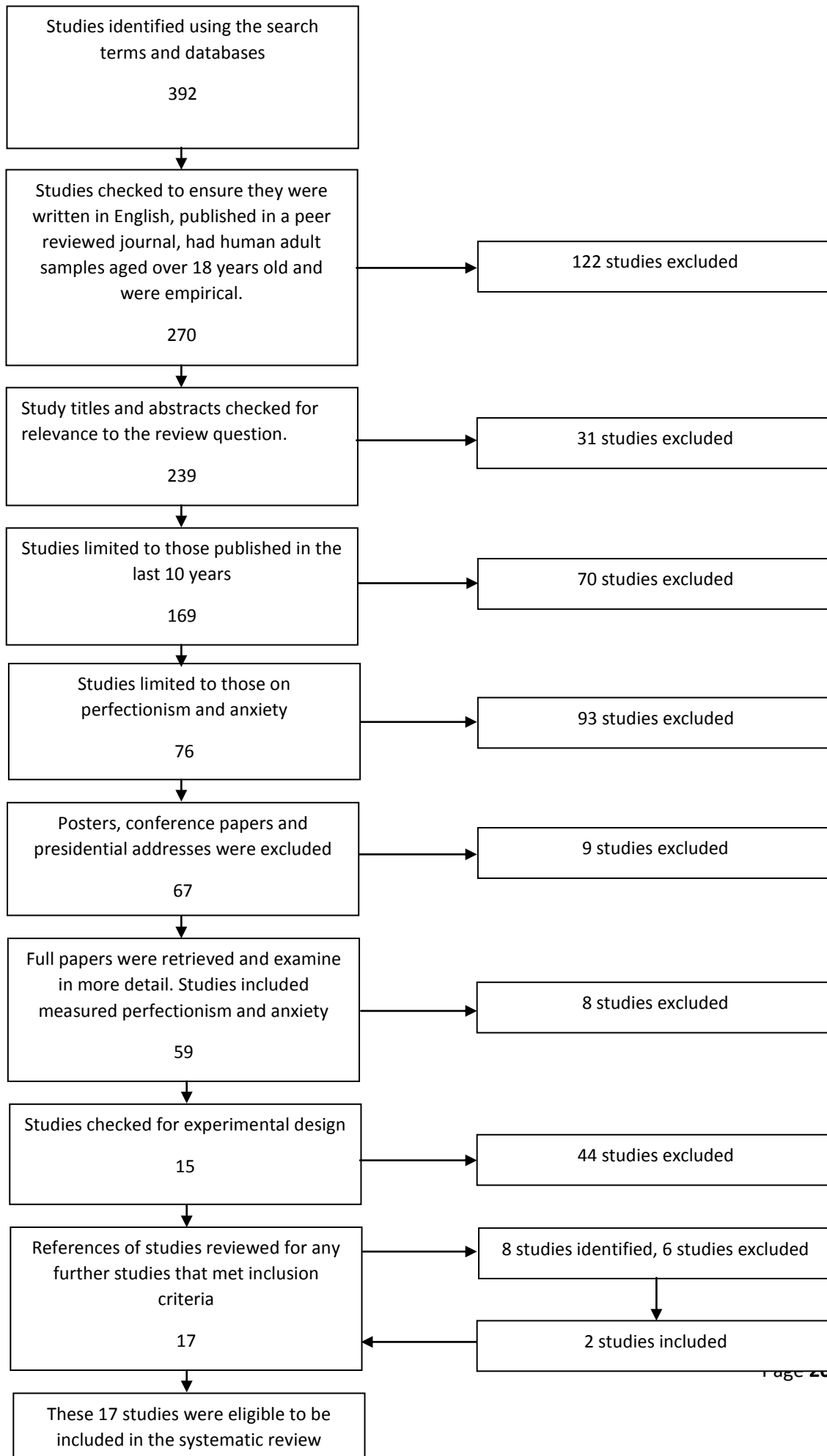
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APPENDICES

- Appendix 1 Systematic Review Process
- Appendix 2 Systematic Review Results
- Appendix 3 SURE Quality Framework
- Appendix 4 Quality Review
- Appendix 5 Ethical Approval Application
- Appendix 6 Ethical Approval Granted (include amendments)
- Appendix 7 Participant Information Sheet
- Appendix 8 Participant Consent Form
- Appendix 9 Participant Debrief Sheet
- Appendix 10 Demographic Questionnaire
- Appendix 11 Adapted Portrait Values Questionnaire 40 Item Version (PVQ-40)
- Appendix 12 Measure of Constructs Underlying Perfectionism (M-CUP)
- Appendix 13 Hospital Anxiety and Depression Scale (HADS)
- Appendix 14 Priming Task A
- Appendix 15 Priming Task B
- Appendix 16 Neutral Task
- Appendix 17 Behavioural Task
- Appendix 18 Behavioural Form
- Appendix 19 Box Plots for Outliers (HADS, MCUP, PVQ)
- Appendix 20 Box Plots for Outliers (Behaviour Measures)
- Appendix 21 Tests of normality
- Appendix 22 Tests of homogeneity
- Appendix 23 One way ANOVA's (Age, gender)
- Appendix 24 Chi Square (Ethnicity)
- Appendix 25 One way ANOVA's (Anxiety, depression)
- Appendix 26 One way ANOVA's (Perfectionism)
- Appendix 27 One way ANOVA's (Values)
- Appendix 28 Independent T-Tests
- Appendix 29 MANOVA's

Appendix 1 Systematic Review Process



Appendix 2 Systematic Review Results

Study Author (Date)	Number of Participants (Population Type, Age range, Mean, Gender, Ethnicity)	Study Design	Measures for Perfectionism	Measures for Anxiety	Other Measures	Key Focus	Results (Effect Sizes)	Key Findings
Aldea, et al (2010)	59 Participants <i>Undergraduate students</i> <i>Range not reported, Mean age: 19.68, SD:1.74,</i> 78% female/22%male 53% White or European American, 15% Hispanic/ Latino, 14% Asian or Asian American, 8% Black or African American, 7% Multicultural Mixed Race, and 1% Pacific Islander	Mixed experimental design	Almost Perfect Scale-Revised (APS-R) (Slaney, et al, 1996, 2001)	Psychological Distress subscale for Phobic Anxiety - Brief Symptom Inventory (BSI) (Derogatis, 1993)	Differentiation of Self Inventory (DSI) (Skowron & Friedlader, 1998) Rosenberg Self Esteem Inventory (Rosenberg, 1965, 1979)	Determining the efficacy of receiving feedback in a sample of maladaptive perfectionists	<p>Correlation Time 1</p> High Standards x Global Severity = -.06 (not sig) <p>Discrepancy x Global Severity = .30 (sig p<.05)</p> <p>Correlation Time 2</p> High Standards x Global Severity = .00 (not sig) <p>Discrepancy x Global Severity = .42 (sig p<.05)</p> <p>Correlation Time 3</p> High Standards x Global Severity = .12(not sig) Discrepancy x Global Severity = .44 (sig p<.05) <p>Hierarchical Linear Regression</p> <p>Unconditional Model</p>	<p>Discrepancy scores were significantly related to distress scores across time. Maladaptive perfectionist participants who reported higher than average</p> <p>discrepancy scores also reported higher distress scores across time. High Standards scores were not significantly associated with distress scores across time.</p> <p>It was not how high individuals standards were but how much they believed they were</p> <p>failing to meet standards that contributed to experience of distress across time.</p> <p>The intervention condition was a significant, negative predictor of Time 3 distress scores with individuals receiving the intervention reported significantly lower levels of distress at Time 3 than those who did not receive the intervention. Maladaptive perfectionists who received feedback were less distressed two weeks later than those who did not receive feedback.</p>

							<p>Mean Outcome t=13.67 (sig p<.001)</p> <p>Level 1 model with time Mean time 3 outcome t = 11.01 (sig p<.01) Mean change in outcome t = 3.01 (sig p<.01)</p> <p>Level 1 model with perfectionism Mean time 3 outcome t=12.00 (sig p<.001) Mean change in outcome t=2.78 (sig p<.01) Discrepancy on outcome t=4.01 (sig p<.001) High standards on outcome t=-0.45 (not sig)</p> <p>Level 2 with intervention condition Mean time 3 outcome t=9.34 (sig p<.001) Mean change in outcome t=2.78 (sig p<.01) Discrepancy on outcome t=4.53 (sig p<.001) High standards on outcome t=-0.54 (not sig) Intervention condition on time 3 outcome t=-2.45 (sig p<.05)</p>	<p>19% of the variance in distress between people was accounted for by discrepancy levels and group condition</p>
<p>Arpin-Cribbie, Irvine & Ritvo (2012)</p>	<p>77 Participants</p> <p><i>Undergraduate students</i> <i>Age range 18-48,</i> <i>Mean age 20.14,</i> <i>SD: 4.14</i></p> <p><i>70% female, 30% male</i></p>	<p>RCT Intervention</p>	<p>Multidimensional Perfectionism Scale (MPS) (Frost, et al., 1990)</p> <p>Multidimensional Perfectionism Scale (MPS) (Hewitt & Flett, 1991)</p> <p>Perfectionism Cognitions Inventory (PCI) (Flett, et al., 1998)</p> <p>Almost Perfect Scale-Revised (APS-R) (Slaney, et al., 2001)</p>	<p>Beck Anxiety Inventory (Beck, et al., 1988)</p> <p>Anxiety Sensitivity Index (ASI) (Reiss, et al., 1986)</p>	<p>Centre for Epidemiologic Studies- Depressed Mood Scale (Radloff 1987)</p> <p>Automatic Thoughts Questionnaire (ATQ) (Hollon & Kendall 1987) Credibility Expectancy Questionnaire (CEQ) (Devilly & Borkovec, 2000)</p>	<p>Assessed the effectiveness of a web-based CBT intervention in</p> <p>reducing perfectionism and psychological distress</p>	<p>Paired T-Tests</p> <p>Cognitive Behaviour Therapy Pre/Post</p> <p>Self-Orientated Perfectionism (sig p<.01)</p> <p>Other Orientated Perfectionism (sig p<.05)</p>	<p>For individuals in the CBT intervention there were significant changes on perfectionism and anxiety scales except the BAI. For individuals in the General Stress Management intervention there were significant changes on four of scales (ASI, CM, PCI, SOP). Lastly, for individuals in the no intervention group there were no significant changes on any scales. In the CBT intervention, Other Orientated</p>

Ethnicity not reported

Socially Prescribed Perfectionism (sig p<.01)

Concern over Mistakes (sig p<.01)

Discrepancy (sig p<.01)

Perfectionism Cognitions (sig p<.01)

Beck Anxiety Inventory (not sig)

Anxiety Sensitivity (sig p<.05)

General Stress Management Pre/Post

Self-Orientated Perfectionism (sig p<.01)

Other Orientated

Perfectionism (not sig)

Socially Prescribed

Perfectionism (not sig)

Concern over Mistakes (sig p<.01)

Discrepancy (not sig)

Perfectionism Cognitions (sig p<.01)

Beck Anxiety Inventory (not sig)

Anxiety Sensitivity (sig p<.05)

No Treatment Pre/Post

Self-Orientated Perfectionism (not sig)

Other Orientated

Perfectionism (not sig)

Socially Prescribed

Perfectionism (not sig)

Concern over Mistakes (not sig)

Discrepancy (not sig)

Perfectionism scores were not significantly correlated with the anxiety scales. In the CBT intervention, the perfectionism scores for: SOP, SPP, PCI, CM and DIS, decreased significantly more than scores in the no intervention group. In the CBT intervention group perfectionism scores for SOP, SPP, PCI and CM, scores decreased significantly more than in the General Stress Management intervention. In the General Stress Management intervention, the perfectionism scores for: SOP, PCI, CM and DIS decreased significantly more than in the no intervention group.

Perfectionism Cognitions (not sig)
 Beck Anxiety Inventory (not sig)
 Anxiety Sensitivity (not sig)

Correlations CBT group
 Self-Orientated Perfectionism (x Beck Anxiety Inventory = .44, sig p<.05) (x Anxiety Sensitivity = .41, sig p<.05)
 Other Orientated Perfectionism (x Beck Anxiety Inventory = .22, not sig) (x Anxiety Sensitivity = .34, not sig)
 Socially Prescribed Perfectionism (x Beck Anxiety Inventory = .44, sig p<.05) (x Anxiety Sensitivity = .45, sig p<.05)
 Concern over Mistakes (x Beck Anxiety Inventory = .36, not sig) (x Anxiety Sensitivity = .44, sig p<.05)
 Discrepancy (x Beck Anxiety Inventory = .29, not sig) (x Anxiety Sensitivity = .45, sig p<.05)
 Perfectionism Cognitions (x Beck Anxiety Inventory = .64, sig p<.01) (x Anxiety Sensitivity = .49, sig p<.01)

ANCOVA
Cognitive Behaviour Therapy - General Stress Management
 Self-Orientated Perfectionism (sig, p<.05)
 Other Orientated Perfectionism (sig, p<.05)
 Socially Prescribed Perfectionism (sig, p<.05)
 Perfectionism Cognitions (sig, p<.05)
 Concern Over Mistakes (sig,

						<p>p<.05)</p> <p>Discrepancy (not sig) Beck Anxiety Inventory (not sig)</p> <p>Anxiety Sensitivity (not sig) Cognitive Behaviour Therapy - No Treatment Self-Orientated Perfectionism (sig, p<.05) Other Orientated Perfectionism (not sig) Socially Prescribed Perfectionism (sig, p<.05) Perfectionism Cognitions (sig, p<.05) Concern Over Mistakes (sig, p<.05)</p> <p>Discrepancy (sig, p<.05) Beck Anxiety Inventory (sig, p<.05)</p> <p>Anxiety Sensitivity (not sig) General Stress Management - No Treatment Self-Orientated Perfectionism (sig, p<.05) Other Orientated Perfectionism (not sig) Socially Prescribed Perfectionism (not sig) Perfectionism Cognitions (sig, p<.05) Concern Over Mistakes (sig, p<.05)</p> <p>Discrepancy (sig, p<.05) Beck Anxiety Inventory (sig, p<.05)</p> <p>Anxiety Sensitivity (not sig)</p>		
Arpin-Cribbie, et al. (2008)	83 Participants	RCT Intervention	Concern over Mistakes Subscale (CM) - Multidimensional Perfectionism Scale (Frost et al. 1990)	Beck Anxiety Inventory (BAI) (Beck, et al. 1988)	Automatic Thoughts Questionnaire (ATQ) (Hollon & Kendall 1987)	Assessed the effectiveness of a web-based psychoeducational	Paired T-Tests	For individuals in the CBT intervention there were significant changes on all of the scales except

<p><i>Undergraduate students</i> <i>Age range 18-48,</i> <i>Mean age 20.14,</i> <i>SD: 4.14</i></p> <p><i>70% female, 30% male</i></p> <p><i>Ethnicity not reported</i></p>		<p>Multidimensional Perfectionism Scale (Hewitt & Flett 1991)</p> <p>Perfection Cognitions Inventory (PCI) (Flett, et al., 1998)</p>		<p>Centre for Epidemiologic Studies-Depressed Mood Scale (CESD) (Radloff 1987)</p>	<p>intervention protocol for decreasing levels of perfectionism and psychological distress.</p>	<p>Cognitive Behaviour Therapy Pre/Post</p> <p>Self-Orientated Perfectionism (sig p<.01)</p> <p>Socially Prescribed Perfectionism (sig p<.01)</p> <p>Concern over Mistakes (sig p<.01)</p> <p>Perfectionism Cognitions (sig p<.01)</p> <p>Beck Anxiety Inventory (not sig)</p> <p>General Stress Management Pre/Post</p> <p>Self-Orientated Perfectionism (sig p<.01)</p> <p>Socially Prescribed Perfectionism (not sig)</p> <p>Concern over Mistakes (sig p<.01)</p> <p>Perfectionism Cognitions (sig p<.01)</p> <p>Beck Anxiety Inventory (not sig)</p> <p>No Treatment Pre/Post</p> <p>Self-Orientated Perfectionism (not sig)</p> <p>Socially Prescribed Perfectionism (not sig)</p> <p>Concern over Mistakes (not sig)</p> <p>Perfectionism Cognitions (not sig)</p>	<p>the BAI. For GSM participants, significant changes were on the SOP, the CM, and the PCI. No significant changes were noted for NT participants. Post-test perfectionism was significantly predicted from pretest perfectionism, $z = 4.27, p < .001$. Posttest psychological distress factor was significantly predicted from pretest psychological distress factor, $z = 6.27, p < .001$. level of therapeutic intervention significantly predicted the amount of change in perfectionism, $z = 5.560, p < .001$. Those receiving more therapeutic intervention showed greater improvement than those receiving less therapeutic intervention. Level of therapeutic intervention also predicted amount of change in psychological distress, $z = 2.774, p = .002$, where again those receiving more therapeutic intervention showed greater improvement than those receiving less therapeutic intervention. changes in perfectionism were significantly associated with changes in psychological distress.</p>
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Ashbaugh, et al. (2007)	107 Participants <i>Outpatients - all participants had a principal diagnosis of social phobia based on DSM-IV</i> Age range not reported, Mean age: 36.31, SD: 10.94 53% female, 47% male Caucasian 95%, African American 1%, Hispanic 2%, Unknown 2%	Within Intervention	Multidimensional Perfectionism Scale (MPS) (Frost et al, 1990)	Social Phobia Scale (Mattick & Clarke, 1998) Social Interaction Anxiety Scale (SAIS) (Mattick & Clarke, 1998) Depression Anxiety Stress Scales (DASS) (Lovibond & Lovibond, 1995)	To investigate the extent to which various dimensions of perfectionism change as a result of participating in a 12 session CBT group for social phobia.	Beck Anxiety Inventory (not sig) Paired T-Tests Anxiety Pre/Post SPS t=131.45 (Sig, p<.0001) (Cohen's d=1.08) SAIS t=123.28 (Sig, p<.0001) (Cohen's d=1.08) DASS- 21 -A t=22.06 (Sig, p<.0001) (Cohen's d=.42) Perfectionism Pre/Post Total MPS t=8.04 (sig, p<.01) (Cohen's d=.26) CM t=17.04 (sig, p<.0001) (Cohen's d=.41) DA t=7.39 (sig, p<.05) (Cohen's d=.25) PS t=.64 (not sig) (Cohen's d=.07) PE t=.001 (not sig) (Cohen's d=.00) PC t=1.17 (not sig) (Cohen's d=.05) OR t=6.80 (sig, p<.01) (Cohen's d=.26) Hierarchal Linear Regression - SPS Step 1 was significant for the SPS accounting for 49% of the variance Step 2 was significant for the SPS [R2 change= .05, F(3,	Individuals showed a significant decrease on both measures of social anxiety, self-reported anxiety. Overall perfectionism scores, CM and DA subscales decreased post intervention. However, after controlling for the number of analyses conducted, decreases in the DA subscale were no longer significant. Pre intervention levels of perfectionism were not significant predictors of treatment outcome after controlling for pre intervention levels of social anxiety and anxiety . However, changes on the DA predicted post intervention levels of social anxiety, even after controlling for changes in general psychopathology and levels of social anxiety.
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101)=3.55, P<.05]

Step 3 was not significant
Hierarchal Linear Regression - SIAS

Step 1 was significant for the SIAS, accounting for 31% of the variance

Step 2 was significant for the SIAS [R2 change=.07, F(3, 100)=3.86, P<.05].

Step 3 was not significant

Multiple Regression - SPS Level 1 with social anxiety scores and DASS-21 residual change scores (RCS)

R=.847, R2=.72, F(4, 101)=64.28, P<.001

Level 2 with perfectionism scores CM, DA, and OR residual change scores (RCS)

Total MPS R=.85, R2=.72, F(1, 100)=2.04, P<.16

CM R=.85, R2=.73, F(1, 100)=2.85, P<.09

DA R=.86, R2=.74, F(1, 100)=8.38, P<.01

OR R=.85, R2=.72, F(1, 100)=.35, P<.55

Multiple Regression - SAIS Level 1 with social anxiety scores and DASS-21 residual change scores (RCS)

R=.74, R2=.54, F(4, 100)=29.42, p<.001

Level 2 with perfectionism scores: Total MPS, CM, DA, and OR residual change scores (RCS)

Total MPS R=.74, R2=.55, F(1, 99) = .88, P<.35

CM R=.74, R2=.55, F(1, 99)=2.53, P<.12

							<p>DA R=.76, R2=.58, F(1, 99)=9.68, P<.01 OR R=.74, R2=.55, F(1, 99)=1.41, P<.24</p> <p>The Sobel test - indirect effect for mediation of SPS by DA RCS Sobel=.04, z=1.50, P<.13 (not sig)</p>	
Brown, & Kocovski (2014)	<p>104 Participants</p> <p><i>Students</i> <i>Age Range not reported, Mean age: 18.58, SD: 109.</i></p> <p><i>69% female, 31% male</i></p> <p><i>73.1% White, 23% Asian</i></p>	Within Experimental	<p>Trait perfectionism Concern about Mistakes (CM) Subscale - Multidimensional Perfectionism Scale (Frost, et al, 1990) Doubts about Actions (DA) Subscale - Multidimensional Perfectionism Scale (Frost, et al, 1990)</p> <p>State perfectionism Adapted version of the Concern about Mistakes (CM) Subscale - Multidimensional Perfectionism Scale (Frost, et al, 1990) Adapted version of the Doubts about Actions (DA) Subscale - Multidimensional Perfectionism Scale (Frost, et al, 1990) Socially Prescribed Perfection (SPP) Subscale - Multidimensional Perfectionism Scale (Hewitt & Flett 1991)</p>	<p>Social Interaction Anxiety Scale (SAIS) (Mattick & Clarke, 1998)</p> <p>State Anxiety</p> <p>Subjective Units of Distress Scale (SUDS) (Wople, 1969)</p>	<p>Rumination subscale - Rumination and Reflection Questionnaire (Trapnell & Campbell, 1999)</p> <p>Beck Depression Inventory (BDI) (Beck et al, 1996) Modified Version of the Post Event Processing Questionnaire (Fehm, 2008)</p>	<p>To examine perfectionism in both state and trait forms,</p> <p>as a predictor or post-event rumination</p>	<p>Correlations</p> <p>LSAS x Trait CM/DA .38 (sig, p<.01)</p> <p>LSAS x Trait SPP .43 (sig, p<.01)</p> <p>LSAS x SUDS .43 (sig, p<.01)</p> <p>LSAS x State CM/DA .49 (sig, p<.01)</p> <p>LSAS x State SPP .38 (sig, p<.01)</p> <p>SUDS x State CM/DA .47 (sig, p<.01)</p> <p>SUDS x State SPP .38 (sig, p<.01)</p> <p>SUDS x Trait CM/DA .30 (sig, p<.01)</p> <p>SUDS x Trait SPP .30 (sig,</p>	<p>Trait and state perfectionism scores were a significant predictor of post event rumination two days after a speech.</p> <p>Baseline social anxiety and state anxiety were significantly correlated with PEP. State anxiety was a significant predictor in the model predicting PEP, but not TQ-Negative, whereas baseline social anxiety was significant in both models. However, when perfectionism was added into the models, state anxiety and baseline social anxiety were no longer significant predictors. In three of the four models, state perfectionism was the only significant predictor in the final model. In the remaining model, trait perfectionism was the only significant predictor. Finding if a socially anxious individual is not concerned about having made mistakes during a social event, then that individual</p>

p<.01)

Trait CM/DA x State CM/DA
.56 (sig, p<.01)

Trait CM/DA x State SPP .47
(sig, p<.01)

Trait SPP x State CM/DA .55
(sig, p<.01)

Trait SPP x State SPP .51 (sig,
p<.01)

Trait CM/DA x PEPQ .32 (sig,
p<.01)

Trait CM/DA x TQ Negative .42
(sig, p<.01)

Trait SPP x PEPQ .40 (sig,
p<.01)

Trait SPP x TQ Negative .32
(sig, p<.01)

State CM/DA x PEPQ .60 (sig,
p<.01)

State CM/DA x TQ Negative
.46 (sig, p<.01)

State SPP x PEPQ .57 (sig,
p<.01)

State SPP x TQ Negative .41
(sig, p<.01)

LSAS x PEPQ .44 (sig, p<.01)

LSAS x TQ Negative .42 (sig,
p<.01)

SUDS x PEPQ .43 (sig, p<.01)

SUDS x TQ Negative .33 (sig,
p<.01)

**Hierarchal Linear Regression -
TQ Negative**

Step 1 F Change (3, 87) = 7.90,
p\0.001

Step 2 F Change (1, 86) = 6.50,
p\0.05,

Step 3

**Hierarchal Linear Regression -
PEPQ**

Step 1 F Change (3 87) = 10.83,

will be less likely to dwell on that event at a later time. Similarly, if the individual feels that others are not expecting perfection, then dwelling on the event would be less likely. Concluding perfectionism may maintain social anxiety, at least in part, by leading to greater post-event rumination.

							<p>p\,01</p> <p>Step 2 Step 3 F Change (1, 85) = 15.52, p\,01. Hierarchal Linear Regression - TQ Negative & SPP</p> <p>Step 1 Step 2 Step 3 F Change (1,85) = 4.35, p\,05. Hierarchal Linear Regression - PEPQ & SPP</p> <p>Step 1 Step 2 F Change (1,86) = 4.02, p\,05. Step 3 F Change (1, 85) = 14.87, p\,01</p>	
Burns, Lee & Brown (2011)	<p>43 Participants</p> <p><i>College Students</i></p> <p><i>Age range not reported, Mean age 19.55</i></p> <p><i>58% female, 42% male</i></p> <p><i>European 59.3%, biracial/multiracial 1 – 14.8%, African origin 7.4%, Asian 7.4%, Hispanic 7.4%, indigenous 3.7%</i></p>	Within Intervention	Perfectionistic Cognitions Inventory (Flett, et al.,1998)	Trait Anxiety Beck Anxiety Inventory (BAI) (Kohn, et al., 2001)	Perceive Stress Scale- (Cohen, Kamarck & Mermelstein, 1983) Centre for Epidemiologic Studies- Depressed Mood Scale (Radloff 1987)	The effects of meditation specifically on experiences of stress, anxiety, depression and perfectionistic thoughts	<p>Group 1 - Paired T Tests Pre/Post Intervention</p> <p>Trait anxiety t(16) = 2.47, p<.025 (sig) Perfectionistic Thinking t(16) = 2.88, p<.11 (reported as sig, *error as figures reported suggest not sig)</p> <p>Group 2- Paired T Tests Pre/Post Intervention</p> <p>Trait anxiety t(12) = 3.36, p<.007 (sig) Perfectionistic Thinking t(12) = 2.05, p<.063 (not sig)</p>	Results suggest TM interventions may significantly reduce trait anxiety but not perfectionism.
Chabaud, Ferrand & Maury (2010)	65 Participants <i>Undergraduate students</i>	Mixed experimental design	Multidimensional Perfectionism Scale (MPS) Hewitt & Flett, 1991)	State-Trait Anxiety Inventory form Y2 (STAI; Spielberger, Gorsuch, Lushene, Vagg & Jacobs, 1983)		To examine how undergraduate student athletes organised different explanations relating to	Vignette (8 levels) x Group (2 levels: high and low trait anxiety and perfectionism) = F(7, 504) = 3.44, p < .001.	The 2 groups both placed the nonprocrastinator vignette in the first position, but rated differently the behavioural self-

mean age 19.14

No gender reported

No ethnicity reported

behavioural procrastination into a hierarchy.

handicap of reveller drinker and

perfectionism with high standards vignettes.

In the group scoring high in TA and perfectionism (see Figure 1A), vignettes were classified in ascending order between two control vignettes. both groups a nonprocrastinator tends to have higher levels of purposive use of time, control of time, and self-efficacy than does a procrastinator (Chu & Choi, 2005; Vodanovich & Seib, 1997). However, participants scoring high on TA and

perfectionism significantly differentiated between the two control situations in procrastinating situations. In other words, they distinctly identified three groups

of vignettes: a nonprocrastinator vignette, procrastination vignettes, and a self-handicapping

vignette.

In contrast, participants scoring low in TA and perfectionism did not significantly differentiate between this behavioural self-handicap and other procrastinating behaviours. Instead, identified two groups of vignettes: a nonprocrastinator vignette and a group containing procrastination

and self-handicapping vignettes.

although the positions of vignette 2 (Socially prescribed perfectionism and anxiety) and vignette 5 (Perfectionism

								with high standards) in the classification order of the two groups includes some differences, the results lend support to the maladaptive aspects of perfectionism associated with procrastination.
Cox & Chen (2014)	48 Participants <i>Undergraduate students</i> <i>Age range 18-55, Mean age 23.94, SD: 9.05</i> <i>71% female 29% male</i> <i>Ethnicity not reported</i>	Within Experimental	Doubts about Actions (DA) Subscale - Multidimensional Perfectionism Scale (Frost, et al, 1990) Socially Prescribed Perfection (SPP) Subscale - Multidimensional Perfectionism Scale (Hewitt & Flett 1991)	Stait Anxiety Rating (SAR) (Rapee & Abbott, 2007) Brief Fear of Negative Evaluation Scale– Straightforward Items (BFNE-S) (Weeks, et al., 2005)	Speech Performance Questionnaire (SPQ) (Rapee & Lim, 1992)	To examine how perfectionism is contributing to social anxiety and its cognitive processes of post-event rumination and self-perception of performance following a speech task	<p>Correlations</p> <p>DAA x Social anxiety = .71 (sig, p<.001)</p> <p>DAA x State anxiety = .23 (not sig)</p> <p>SPP x Social anxiety = .54 (sig, p<.001)</p> <p>SPP x State anxiety = .41 (sig, p<.01)</p> <p>Mediation Models</p> <p>Model a</p> <p>(a) DAA → SA → StA 1.68 .</p> <p>(b) DAA → SA → StA → PP 1.21</p> <p>(c) DAA → SA → StA → PP → R 1.04</p> <p>(d) DAA → SA → R 1.43</p> <p>(e) DAA → PP → R .45</p> <p>(f) DAA → SA → PP 1.34</p>	All indirect relations regarding SPP were statistically significant the current results showed that SPP and DAA directly influenced trait social anxiety, but did not directly influence rumination or self-perception of performance and only DAA influenced state anxiety directly. SPP and DAA indirectly influenced rumination through trait social anxiety or in sequence through trait social anxiety, state anxiety, and self-perception of performance. SPP and DAA influenced self-perception of performance through trait social anxiety or serially through trait social anxiety and state anxiety. showed that trait social anxiety did not directly influence rumination but did have an indirect influence through its relationship with state anxiety and self-perception of performance

							<p>(g) DAA → StA → PP .46 (h) DAA → StA → PP → R .39 (i) SA → StA → PP .57 (j) SA → StA → PP → R .48 (k) StA → PP → R .65 (l) SA → PP → R .54</p> <p>Model b</p> <p>(a) SPP → SA → StA .26 (b) SPP → SA → StA → PP .19 (c) SPP → SA → StA → PP → R .16 (d) SPP → SA → R .29 (e) SPP → PP → R .29 (f) SPP → SA → PP .19 (g) SPP → StA → PP .26 (h) SPP → StA → PP → R .22</p>	
Egan, et al (2014)	<p>52 Participants Outpatients - all participants scored over 25 on the Concern over Mistakes subscale -</p> <p>MPS (Frost, et al., 1990).</p> <p>20-65 years, mean age 39.88, SD: 11.88</p> <p>58% female, 42 % male</p>	RCT Intervention	<p>Multidimensional Perfectionism Scale (FMPS) (Frost et al., 1990)</p> <p>Clinical Perfectionism Questionnaire (CPQ) (Fairburn, Cooper, & Shafran, 2003)</p> <p>Self-Criticism (SC) subscale - Dysfunctional Attitude Scale (DAS) (Weissman & Beck, 1978)</p>	<p>Depression Anxiety and Stress Scale (DASS-21) (Lovibond & Lovibond, 1995)</p>	<p>Dichotomous Thinking in Eating Disorders Scale (DTEDS) (Byrne, Cooper, & Fairburn, 2004)</p> <p>Rosenberg Self-esteem Scale (RSES) (Rosenberg, 1965)</p> <p>Eating Disorders Examination Questionnaire (EDEEeQ) Fairburn & Beglin, 1994).</p> <p>Quality of Life Enjoyment and Satisfaction Questionnaire18 (Q-LES-Q-18)</p> <p>(Ritsner, Kurs, Gibel, Ratner, & Endicott, 2005)</p>	<p>Investigated the efficacy of two formats of CBT for perfectionism (CBT-P),</p> <p>face-to-face and pure online self-help, in reducing perfectionism</p> <p>and associated psychological symptoms.</p>	<p>Generalised linear mixed model</p> <p>Group x time interactions</p> <p>clinical perfectionism (CPQ: F[2, 88] = 2.14, p=.124) (not sig)</p> <p>concern over mistakes (CM: F[2, 88] = 14.73, p < .001) (sig)</p> <p>personal standards (PS: F[2, 88] = 3.65, p = .030) (sig)</p>	<p>face to face therapy showed a significant decrease in perfectionism (CM, PS, DAS-SC)and anxiety,</p> <p>decrease in perfectionism , depression, anxiety changes were maintained at 6 month follow-up.</p> <p>No significant changes were reported for the waitlist Face to face therapy had statistically</p> <p>increased improvements compared to self-help treatment at follow up for CM and PS. Whilst self-help was effective in decreasing perfectionism , did not have significant effect on anxiety.</p>

Ethnicity not reported

Mini International Neuropsychiatric Interview Version 5 (MINI-5) (Sheehan et al., 1998)

self-criticism (DAS-SC: $F[2,88] = 9.29, p < .001$) (sig)
depression, anxiety, and stress (DASS-21: $F[2,88] = 7.04, p = .001$) (sig)

Paired t test Pre/Post

WL group

no significant pre-post change on any of the outcome measures

F2F group

CM ($t[88] = 5.77, p < .001$)
(Effect size, Cohen's $d = 1.23$)
PS ($t[88] = 3.62, p < .001$)
(Effect size, Cohen's $d = 0.77$)
DAS-SC ($t[88] = 4.80, p < .001$)
(Effect size, Cohen's $d = 1.02$)
DASS-21 ($t[88] = 4.17, p < .001$)
(Effect size, Cohen's $d = 0.89$)

POSH group

CM ($t[88] = 3.94, p < .001$)
(Effect size, Cohen's $d = 0.84$)
PS ($t[88] = 3.00, p = .004$) (Effect size, Cohen's $d = 0.64$)
DAS-SC ($t[88] = 2.70, p = .008$)
(Effect size, Cohen's $d = 0.58$),
DASS-21 ($t[88] = 1.79, p = .077$)
(Effects size, Cohen's $d = 0.38$)

Paired t tests Pre/Follow up

FSF

CM ($t[41] = 6.76, p < .001$)
(Effect size, Cohen's $d = 2.11$)
PS ($t[41] = 5.72, p < .001$)
(Effect size, Cohen's $d = 1.77$)
DAS-SC ($t[41] = 7.03, p < .001$)
(Effect size, Cohen's $d = 2.20$)
DASS-21 ($t[41] = 3.73, p = .001$) (Effect size, Cohen's $d = 1.16$)

POSH

							CM (t[36] = 2.19, p = .035 (Effect size, Cohen's d = 0.73) PS (t[36] = 2.21, p = .033 (Effect size, Cohen's d = 0.74) DAS-SC (t[36] = 2.21, p = .033 (Effect size, Cohen's d = 0.74)	
Laurenti, Bruch & Haase (2008)	77 Participants <i>College Students Age range 17-36 years, Mean age 21.40 61% female, 39% male 53.1% white, 7.6% as African-American, 16.5% as Hispanic, 3.8% as Asian, 2.5% as Native American, and 16.5% as other</i>	Within Experimental	Socially Prescribed Perfection (SPP) Subscale - Multidimensional Perfectionism Scale (Hewitt & Flett 1991)	Social Interaction Anxiety Scale (SIAS) (Mattick & Clarke, 1998)	Visual Rating Scale (VRS) (Wallace & Alden, 1991) Social Interaction Self-Statement Test (SISST) (Glass, Merluzzi, Biever & Larsen, 1982)	The joint role of social anxiety and socially prescribed perfectionism was assessed relative to participants' appraisal of an interpersonal situation.	<p>Correlations</p> <p>Social Anxiety x SPP = .57 (sig, p<.01)</p> <p>Hierarchical Regression</p> <p>Other standards – self-efficacy discrepancy</p> <p>Step 1: Social Interaction Self-Statements R² = .53 p = .0001</p> <p>Step 2</p> <p>Social anxiety (SA) p = .002</p> <p>SPP p = .001</p> <p>Step 3: SA x SPP R² = .70 p = .002</p> <p>Negative self-statements</p> <p>Step 1: O – S discrepancy .53 p = .0001</p> <p>Step 2</p> <p>Social anxiety (SA) p = .0001</p>	<p>both social anxiety and SPP were related with discrepancy scores and SPP moderated the</p> <p>relationship between social anxiety and discrepancy. At a lower level of social anxiety, participants' discrepancy scores were negative (i.e., others' standards rated lower than one's own self-efficacy) regardless of level of SPP.</p> <p>Therefore, individuals who were low in social anxiety across all levels of SPP believed that they could either match or slightly exceed the expectations that they perceived others had for them. Participants who were higher in social anxiety only reported positive discrepancy scores (i.e., others' standards rated higher than one's own self-efficacy), increasing with level of SPP. Therefore, individuals who were higher in social anxiety and had higher levels of SPP believed they were not capable of meeting the high standards expected of them by others.</p>

							<p>SPP p= .073 Step 3: SA x SPP R2= .72 p= .003</p> <p>Positive self-statements Step 1: Social anxiety (SA) p= .006</p> <p>SPP p= n.s.</p> <p>Step 2: SA x SPP R2.16 p =n.s.</p>	
Radhu, et al (2012)	<p>47 Participants</p> <p><i>Undergraduate students</i> <i>Age range not reported, Mean age 22.63 years</i></p> <p><i>72% female, 28% male</i> <i>West Asian 17%, black African 2%, black Caribbean 4%, Caucasian 34%, Latin American 2%, Chinese 9%, Pilipino 4%, south Asian 9%, southeast Asian 9%,</i></p> <p><i>other 11%</i></p>	Mixed Intervention	<p>Multidimensional Perfectionism Scale (FMPS) (Frost et al., 1990)</p> <p>Multidimensional Perfectionism Scale (Hewitt & Flett 1991)</p> <p>Perfection Cognitions Inventory (PCI) (Flett, et al., 1998)</p> <p>Almost Perfect Scale-Revised (APS-R) (Slaney, et al, 1996, 2001)</p>	<p>Becks anxiety inventory (BAI) (Beck et al 1988)</p> <p>Anxiety sensitivity index (ASI) (Reiss et al, 1986)</p>	<p>Automatic Thoughts Questionnaire (ATQ) (Hollon & Kendall 1987)</p> <p>Centre for Epidemiologic Studies- Depressed Mood Scale (Radloff 1987)</p> <p>Perceived Stress Scale (PSS) (Cohen, Kamarck & Mermelstein, 1986)</p>	<p>assessed a Web-based cognitive behavioral therapy (CBT) for maladaptive perfectionism, investigating perfectionism, anxiety, depression, negative</p> <p>automatic thoughts, and perceived stress</p>	<p>Paired t-tests Pre-Post</p> <p>CBT group</p> <p>CM subscale of MPS (Frost) (t(21) = 2.997, p =.007)</p> <p>PC subscale of the MPS-F (t(21) = 2.127, p = .045)</p> <p>PCI (t(21) = 4.088, p =.001)</p> <p>Standards subscale of the APS-R (t(21) = 2.037, p = .054)</p> <p>Waiting list</p> <p>PE subscale of the MPS-F t(24) = 2.054, p = .051</p> <p>P C subscale of the MPS-F (t(24) = 2.502, p= .020)</p>	<p>maladaptive perfectionists randomized to the CBT intervention demonstrated significant decrease</p> <p>on the ASI compared to the waiting list group.</p> <p>The CBT group also demonstrated significantly lower scores at posttest compared to pretest on 4 perfectionism measures: Concern Over Mistakes (MPS-F), Parental Criticism (CM)</p> <p>(MPS-F), PCI, and the Standards subscale of the APS-R. Lastly, participants within the CBT group</p> <p>demonstrated significant positive correlations between self-reported changes in perfectionism scores and self-reported changes in anxiety. The waitlist control group significantly increased their ASI scores from pre-test to post test (i.e., they became more anxiety sensitive between assessments.</p> <p>Furthermore, the wait-list controls also manifested significant pre- to posttest improvements on</p>

							<p>PCI scores ($t(24) = 2.397, p = .025$)</p> <p>ASI scores ($t(24) = -2.344, p = .028$)</p> <p>CBT V Waiting List ASI, $F(1, 46) = 9.132, p = .004, \eta^2 = 0.172$, (power of .84)</p> <p>Correlations</p> <p>CBT group</p> <p>Perfectionism x anxiety Organization (MPS-F) x BAI ($r = .467, p < .05$)</p> <p>Order (APS-R) x BAI ($r = .480, p < .05$)</p> <p>CM (MPS, Frost) x ASI ($r = .428, p < .05$)</p> <p>P E (MPS-Frost) x ASI ($r = .469, p < .05$)</p> <p>Organization (MPS-F) x ASI ($r = .464, p < .05$)</p>	<p>perfectionism measures: Parental Expectations (MPS-F), Parental Criticism (MPS-F), and PCI.</p>
Richardson, Rice & Devine (2014)	<p>61 Participants</p> <p><i>Undergraduate students</i> <i>Age range note reported, Mean age 18.88, SD 1.91</i></p> <p><i>52% female, 48% male</i> <i>White or European</i> <i>American (51.7%), Black or African American (17.6%),</i></p>	Mixed experimental design	Short Version - Almost Perfect Scale-Revised (S-APS) (Rice et al., in press; Slaney et al., 2001)	<p>Anxiety and Self-Control Subscales - Sixteen Personality Factors'</p> <p>Questionnaire (16PF) (Cattell, Cattell, & Cattell, 1993)</p>	<p>The Emotion Regulation Questionnaire (ERQ; Gross & John, 2003)</p> <p>Saliva samples were obtained with Salivette sampling devices (Sarstedt, Newton, NC).</p>	<p>Examined perfectionists' typical emotion regulation patterns and physiological reactivity (salivary cortisol concentration) to a social-evaluative stress experience.</p>	<p>Latent profile analysis (LPA)</p>	<p>Maladaptive perfectionists had a more blunted than reactive pattern of cortisol reactivity compared with the other groups. The profile for adaptive perfectionists suggested better approaches to emotion regulation and a level of stress reactivity that was higher in change of cortisol compared with maladaptive perfectionists but lower in concentration than non-perfectionists.</p> <p>Results suggest that maladaptive perfectionism is associated with a lower cortisol response to a</p>

	Hispanic/Latino/a (12.8%), Asian or Asian American (10.7%), or Multicultural Mixed Race (4.5%); other or did not report (2.6%)							stressful task, suggesting daily challenges e.g. Academic tasks and self-criticism take their toll on physiological reactivity to multiple stress events.
Schrijvers, et al. (2010)	39 Participants <i>Inpatients - all participants had a diagnosis of a major depressive (single or recurrent) episode</i> <i>according to DSM-IV-TR</i> Age range not reported, Mean age: 39 years, SD = 11 67% female, 33% male	Mixed experimental design	Dutch version of the Multidimensional Perfectionism Scale (MPS) (Soenens et al. 2005)	Trait form - State-Trait Anxiety Inventory (STAI-T) (Spielberger et al. 1970; Van der Ploeg et al. 1980)	Electroencephalogram (EEG)	Explore the impact of perfectionism and anxiety traits on action monitoring in MDD.	Correlations Overall MPS x STAI-T $r=.28$, $p<.1$ Regression for Ne/ERN amplitudes Overall perfectionism ($p=.023$) STAI-T ($p = 0.613$)	patients who displayed more perfectionistic doubts about their responses had significantly larger Ne/ERN amplitudes than those who were less doubtful. With regard to the STAI scores, the regression analyses did not show a substantial effect of the measured anxiety traits on any of the ERP amplitudes. A possible explanation was given in that the assessed trait anxiety features are more closely linked to state-dependent depression as the STAI-T and HDRS were highly correlated.
Steele, et al (2013)	21 Participants <i>Outpatients - all participants had high levels of perfectionism on the Concern over</i> <i>Mistakes subscale of the MPS (Frost, et al., 1990)</i> Age range not reported, Mean	Within Intervention	Concern about Mistakes (CM) subscale - Multidimensional Perfectionism Scale (Frost, et al, 1990) Clinical Perfectionism Questionnaire (CPQ) (Riley et al., 2007) Personal Standards (PS) subscale - Multidimensional Perfectionism Scale (Frost, et al, 1990)	Depression Anxiety Stress Scale -21 Item (DASS-21) (Lovibond & Lovibond, 1995)	Psychiatric Diagnostic Screening Questionnaire (PDSQ) (Zimmerman & Mattia, 2001) Self-Criticism subscale - Dysfunctional Attitude Scale (DAS) (Weissman & Beck, 1978) Mini-International Neuropsychiatric Interview - Version 5 (MINI-5) (Sheehan et al., 1998)	Utilised a case series design to compare psycho-education materials and subsequent eight-week group cognitive behaviour therapy (CBT) to a baseline waitlist in an outpatient community psychiatry sample	Linear Regression Tests for CBT group Baseline to post treatment clinical perfectionism $F=10.74$, $p<.001$ (Cohen's D, Effect Size 1.55) CM $F=14.41$, $p<.001$ (Cohen's D, Effect Size 1.72)	information-alone intervention did not have a significant impact on any outcome measures. The 8 week CBT group intervention was associated with improvements on all measures and changes were maintained at the 3-month follow-up assessment. These results may have been produced as a result of participants being primed by psycho-education. The

	<p>age 35.77 (SD: 14.40), range 18-67</p> <p>71% female, 29% male</p> <p>Ethnicity not reported</p>					<p>PS F=17.72, p<.001 (Cohen's D, Effect Size 1.91)</p> <p>Depression, Anxiety, Stress F=12.51, p<.001 (Cohen's D, Effect Size 1.59)</p> <p>Baseline to 3 month follow up</p> <p>clinical perfectionism F=16.06, p<.001 (Cohen's D, Effect Size 1.90)</p> <p>CM F=12.80 p<.001 (Cohen's D, Effect Size 1.64)</p> <p>PS F=17.88 p<.001 (Cohen's D, Effect Size 1.93)</p> <p>Depression, Anxiety, Stress F=11.83 p<.001 (Cohen's D, Effect Size 1.55)</p>	<p>information-alone condition may have</p> <p>increased participants' readiness to take part in the intervention and may have been partially responsible for producing effective treatment results from group CBT. 7 individuals who had met diagnostic criteria for social phobia at baseline did not meet criteria at follow up.</p>	
Stoeber, et al (2014)	<p>100 Participants</p> <p><i>Undergraduate students</i></p> <p>Age range 18-45, Mean age 21.35, SD: 3.11</p> <p>50% female 50% male</p> <p>Ethnicity not reported</p>	Mixed experimental design	<p>Self-Orientated (SO) Subscale - Multidimensional Perfectionism Scale (Hewitt & Flett, 2004)</p> <p>Socially Prescribed Perfection (SPP) Subscale - Multidimensional Perfectionism Scale (Hewitt & Flett, 2004)</p>	<p>State form - State-Trait Anxiety Inventory, Short Version (STAI-S)</p> <p>(Spielberger et al. 1983; Marteau and Bekker, 1992)</p>	<p>Depression subscale - Profile of Mood States, Short Version (McNair, Lorr, & Droppleman, 1971;</p> <p>Shacham's, 1983)</p> <p>Feeling Angry subscale - State-Trait Anger Expression Inventory (STAEI) (Spielberger, 1999)</p>	<p>This study investigated the effects of two forms of perfectionism – self oriented perfectionism and socially prescribed perfectionism – on</p> <p>reactions to repeated failure (versus repeated success) examining three negative emotions: anxiety, depression, and anger.</p>	<p>moderated regression analyses - initial failure on anxiety</p> <p>Step 1,</p> <p>self-oriented perfectionism, socially prescribed perfectionism, and feedback R2=.32, p<.001</p> <p>Step 2</p> <p>interactions of self-oriented perfectionism x feedback, socially prescribed perfectionism x feedback R2=.04, p=not sig</p> <p>moderated regression analyses - repeated failure on</p>	<p>Following an initial failure, SPP showed increased anxiety and SOP showed no increased anxiety.</p> <p>SOP predicted increased anxiety, suggesting SOP may show resilience with one failure but that this</p> <p>is not sustained when multiple failure is experienced. SOP associated with being highly self-critical, and repeat failure may be perceived as a threat and increase anxiety.</p>

							<p>anxiety</p> <p>Step 1. (initial failure) $R^2=.63, p<.001$</p> <p>Step 2 self-oriented perfectionism, socially prescribed perfectionism, and feedback $R^2=.32, p<.001$</p> <p>Step 3 interactions of self-oriented perfectionism x feedback, socially prescribed perfectionism x feedback $R^2=.07, p<.01$</p>	
<p>Besser, Flett, & Hewitt (2004)</p>	<p>200 Participants</p> <p><i>College Students</i> <i>Mean age 21.75,</i> <i>SD: 3.08</i></p> <p><i>50% female, 50% male</i> <i>Ethnicity not reported</i></p>	<p>Mixed experimental design</p>	<p>Multidimensional Perfectionism Scale (MPS) (Hewitt & Flett, 1991, 2004)</p>	<p>Visual Analogue Scale (VAS) (Albersnagel, 1988)</p>	<p>Cognitive and Performance Appraisals</p>	<p>Explored self-oriented perfectionism as vulnerability factor involving negative cognitive and affective reactions following failure experiences that reflect</p> <p>poorly on the self. Socially evaluative cues were minimized by having the participant receive feedback via computer while alone</p>	<p>MANCOVA</p> <p>task difficulty x feedback, covariate anxiety ($F(1,192)=20:18, p<.0001$)</p> <p>CORRELATIONS</p> <p>SPP X pre anxiety ($r=.24, p<.001$) SPP X post anxiety ($r=.19, p<.006$)</p> <p>SOP X pre anxiety ($r=.09$) SOP x post anxiety ($r=.23, p<.001$)</p> <p>Hierarchical Multiple Regressions Anxiety affect: After controlling for pre-task anxiety affect ($b=.53, p<.0001, F(1,198)=77:96, p<.0001$), a significant increase in anxious</p>	<p>SPP was associated with pre-task and post-task anxiety, whilst SOP was only associated with post task anxiety. SOP was associated with significant increases in anxiety regardless of whether in the positive or negative feedback group, task difficulty and actual performance.</p>

							<p>affect was found for participants who received negative feedback and for those high in self-oriented perfectionism ($b = .22$, $p < .0001$ and $b = .19$, $p < .001$ respectively; $F(5,194)=23:00$, $p < .0001$).</p> <p>No significant two-way or three-way interactions were obtained. The final model explained significantly 38% of the variance in post-task anxiety ($F(10, 189)=11:58$, $p < .0001$).</p>	
Besser et al (2008)	<p>200 Participants</p> <p><i>College Students</i></p> <p><i>Age range not reported, Mean age 23.63, SD: 2.92</i></p> <p><i>50% female, 50% male</i></p> <p><i>Ethnicity not reported</i></p>	Mixed experimental design	The Multidimensional Perfectionism Scale (MPS) (Hewitt & Flett 1991, 2004) Adapted Perfectionistic Cognitions Inventory (Flett, et al.,1998; Besser et al 2008)	Visual Analogue Scale (VAS) (Albersnagel, 1988)	<p>Adapted - Current Thoughts Scale (Heatherton & Polivy, 1991)</p> <p>Adapted - Automatic Thoughts Questionnaire (Hollon & Kendall, 1980)</p> <p>Adapted - Positive subscale - Automatic Thoughts Questionnaire (Ingram & Wisnicki 1988)</p> <p>Manipulation checks</p> <p>reaction times and errors</p>	<p>Examined possible fluctuations among perfectionists in state self-esteem as a function of performance feedback. Examined how perfectionism combines with performance feedback and task difficulty to influence physiological responses</p>	<p>Hierarchical Multiple Regressions</p> <p>After controlling for pre-task anxiety ($b = .59$, $p = .0001$, $F[1,198] = 105.03$, $p = .0001$), a significant decrease in anxiety was found for participants who performed the easy task ($b = -.16$, $p = .01$; $F[5,194] = 22.92$, $p = .0001$). There were no significant effects for trait perfectionism nor were significant two-way interactions detected. The final regression explained significantly 38% (adjusted) of the variance in post-task anxiety ($F[33,166] = 4.71$, $p = .0001$).</p>	<p>in the two negative feedback groups, PCI was associated significantly with increased anxiety. Trait perfectionism interacted with experimental conditions to influence anxiety.</p> <p>High SPP was associated with increases in anxiety in individuals with lower confidence but who received positive feedback. Also, high SPP was associated with increased anxiety in individuals with higher confidence but who received negative feedback.</p> <p>high SOP was associated with increased post-task anxiety in individuals who had lower objective performance and lower initial confidence. Low SOP was also associated with increased post</p>

task anxiety in individuals who had good objective performance and lower initial confidence. Additional findings suggested that level of self-confidence is a factor that moderates the

Specialist Unit for Review Evidence (SURE)

Questions to assist with the critical appraisal of randomised controlled trials and other experimental studies¹

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Citation:
Study Design:

	Yes	Can't tell	No
1. Does the study address a clearly focused question/hypothesis			
Population/Problem?			
Intervention?			
Comparator/control?			
Outcomes? Can you identify the primary outcome?			
2. Was the population randomised? If YES, were appropriate methods used? Eg: random number tables, opaque envelopes Note: The following methods are not appropriate: alternating participants coin toss, birth dates, record numbers, days of the week			
3. Was allocation to intervention or comparator groups concealed? Is it possible for those allocating to know which group they are allocating people to? As above, methods such as alternating participants coin toss, birth dates, record numbers, days of the week will not allow appropriate allocation concealment.			
4. Were participants/investigators blinded to group allocation? If NO, was assessment of outcomes blinded?			
5. Were interventions (and comparisons) well described and appropriate? Aside from the intervention, were the groups treated equally? Was exposure to intervention and comparison adequate? Was contamination acceptably low?			
6. Was ethical approval sought and received? Do the authors report this?			

7. Was a trial protocol published? Was a protocol published in a journal or clinical trial registry before participants were recruited? If a protocol is available, are the outcomes reported in the paper listed in the protocol?	
8. Were the groups similar at the start of the trial? Are baseline characteristics provided and discussed (eg age, sex, social class, life style etc)? Are any statistically significant differences adjusted for? Are any differences >10%?	
9. Was the sample size sufficient? Were there enough participants? Was there a power calculation? If YES, for which outcome? Were there sufficient participants?	
10. Were participants properly accounted for? Was follow-up ≥ 80%? Were patients analysed in the groups to which they were randomised? Was an Intention to Treat analysis conducted? Was the follow-up period long enough?	
11. Data analysis Are you confident with the authors' choice and use of statistical methods? Were estimates of effect size given? Were the analytical methods appropriate? Was the precision of intervention effects (confidence intervals) given? Were they meaningful?	
12. Results Were outcome measures reliable (eg objective or subjective measures)? Were all outcome measurements complete? Were all important outcomes assessed? Are the authors' conclusions adequately supported by the results?	
13. Is any sponsorship/conflict of interest reported?	
14. Finally...consider: Did the authors identify any limitations? Are the conclusions the same in the abstract and the full text?	

This checklist should be cited as: Specialist Unit for Review Evidence (SURE) 2013. Questions to assist with the critical appraisal of randomised controlled trials and other experimental studies. Available at: http://www.cardiff.ac.uk/insrv/libraries/sure/doc/SURE_RCT_Checklist_2013.pdf

¹ Adapted and updated from the former Health Evidence Bulletins Wales (HEBW) checklist with reference to the [NICE Public Health Methods Manual](#) (2012) and previous versions of the [Critical Appraisal Skills Programme \(CASP\)](#) checklists.

Appendix 4 Quality Review

*Questions and **Scoring																			
Study Authors (Date)	1				a, b, c, d combined Score	2 Score	3 Score	4 Score	5 Score	6 Score	7 Score	8 Score	9 Score	10 Score	11 Score	12 Score	13 Score	14 Score	Total Score /34
	a	b	c	d															
Egan, et al (2014)	2	2	2	2	8	2	2	0	2	2	0	2	0	1	2	2	2	2	27
Stoeber, et al (2014)	2	2	2	2	8	1	1	1	2	2	0	1	1	2	1	2	2	2	26
Besser, Flett, & Hewitt (2004)	2	2	2	2	8	1	1	1	2	1	0	1	1	2	2	2	2	2	26
Aldea, et al (2010)	2	2	2	2	8	1	1	1	2	2	0	2	1	0	2	2	2	1	26
Arpin-Cribbie, Irvine, & Ritvo, P. (2012)	2	2	2	2	8	2	1	1	2	1	0	2	1	0	1	2	2	1	24
Arpin-Cribbie, et al (2008)	2	2	2	2	8	1	1	1	2	0	0	2	1	1	1	2	2	2	24
Schrijvers, et al (2010)	2	2	2	2	8	0	0	0	2	2	0	0	1	2	2	2	2	2	23
Besser, et al (2008)	2	2	2	2	8	1	1	1	2	1	0	1	1	2	1	2	0	1	22
Radhu, et al (2012)	2	2	2	2	8	1	1	1	1	2	0	2	0	0	1	2	2	1	22
Chabaud, Ferrand, & Maurj, J. (2010)	2	2	2	2	8	0	0	0	0	2	0	1	1	2	1	1	2	2	20
Richardson, Rice, & Devine, . (2014)	2	2	2	2	8	0	0	0	2	1	0	0	1	2	1	2	2	1	20
Cox, & Chen, (2014)	2	2	0	2	6	0	0	0	2	2	0	0	1	2	2	2	2	2	20
Laurenti, ,Bruch,Haase, (2008)	2	2	0	2	6	0	0	0	2	1	0	0	1	2	1	2	2	2	19
Brown, & Kocovski, (2014)	2	2	0	2	6	0	0	0	2	0	0	0	1	2	1	2	2	2	18
Steele, et al (2013)	2	2	0	2	6	0	0	0	1	2	0	0	0	1	2	2	2	2	18
Ashbaugh. Et al (2007)	2	2	0	2	6	0	0	0	2	0	0	0	1	0	2	2	2	2	17
Burns, Lee, & Brown, (2011)	2	2	0	2	6	0	0	0	2	1	0	0	1	0	1	2	2	1	16

*Questions to assist with critical appraisal of RCT and other experimental studies

1. Does the study address a clearly focused question/hypothesis?
 - a. Population/Problem?
 - b. Intervention?
 - c. Comparator/control?
 - d. Outcomes?
2. Was the population randomised? If Yes were appropriate methods used?
3. Was allocation to intervention or comparator group concealed?
4. Were participants/investigators blinded to group allocation? If no, was assessment of outcomes blinded?
5. Were interventions (and comparisons) well described and appropriate?
6. Was ethical approval sought and received?
7. Was a trial protocol published?
8. Were the groups similar at the start of the trial?
9. Was the sample size sufficient?
10. Were participants properly accounted for?
11. Data analysis
12. Results
13. Is any sponsorship/conflict of interest reported?
14. Finally, consider: did the authors identify any limitations? Are the conclusions the same in the abstract and the full text?

**Scoring System

Yes = 2

Unclear = 1

No = 0



**SCHOOL OF
PSYCHOLOGY, CARDIFF
UNIVERSITY ETHICS
PROFORMA**



Form version 2.4

**Guidelines for completing
this form**

- 1) You should save this document with the following type of Filename: **Username_Title.xls** where **Username** refers to the 1st Researcher's university username and **Title** refers to the project title.
- 2) All sections marked **YELLOW** should be completed.
- 3) Click on the blue and white question mark symbol for more info on an adjacent section
- 4) All supporting attachments should be either Word or PDF format. Please combine multiple documents of the same format into one.
- 5) When completed, this document and any supporting material should be emailed to psychethics@cardiff.ac.uk by the **permanent member of staff** associated with the project. Please ensure that emails are sent via the Cardiff University Network using your Cardiff email address.

Project Type

- Staff Project
- Postgraduate Project
- Undergraduate Project

Submission Type

- Standard
- Level 2 Practical
- Generic

NB. Undergraduate projects MUST be Standard Submission Type

If project comes under supervisor's generic approval, please provide the EC reference number. For non-human studies please insert the relevant Home Office Project Licence reference here (if applicable).

Submission date

Title of Project

Applicant's Email Address

	Name of researcher(s) (Please list all researchers on separate line with the applicant first)	Status (e.g. staff, UG/PG, external RA)
1	Andrew Vidgen	staff
2		
3		
4		
5		
6		
7		
8		
9		
10		

Name of supervisor (for student research)

Name of permanent member of staff associated with the project

Mailname of permanent member of staff (e.g. JonesA@cardiff.ac.uk)

Andrew Vidgen	Andrew.vidgen@wales.nhs.uk
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		YES	NO	NOT APPLICABLE
1	I will describe the main experimental procedures to participants in advance, so that they are informed about what to expect.	<input checked="" type="radio"/> YES	<input type="radio"/> NO	<input type="radio"/> N/A
		<input checked="" type="radio"/> YES	<input type="radio"/> NO	<input type="radio"/> N/A

- 2 I will tell participants that their participation is voluntary and that they may withdraw from the research at any time and for any reason.
- 3 I will obtain written consent for participation (this includes consent to be observed in observational studies).
- 4 The data are to be stored anonymously (i.e. the identity of the person IS NOT linked directly or indirectly with their data).
- 5 I will debrief participants at the end of their participation (i.e. give them a brief explanation of the study and an explicit opportunity to comment and ask questions).
- 6 With questionnaires, I will give participants the option of omitting questions they do not want to answer.
- 7 The research is observational without consent and/or involves any covert recording.
- 8 The research involves deliberately misleading participants (excluding mild deception through omission).
- 9 The research asks questions or includes tasks that are likely to elicit negative affect in participants (e.g. anxiety, sadness, disgust, distress). *(If yes, please include a description of the steps in place to put participants back into their original state.)*
- 10 The research includes participants taking part from outside of the School of Psychology, who may be relatively unfamiliar with psychological research and practice (e.g. online studies).
- 11 Participants will be recruited through another department or institution (e.g. business, school, government, third-sector organisation, research survey group)? *(If yes, please include a letter asking permission to recruit from the relevant authority and/or information about the institution's recruitment practices.)*

12 Do participants fall into any of the following special groups? If they do, please refer to BPS guidelines, and tick box B below.

Note that you may also need to obtain satisfactory Disclosure and Barring Service clearance (formerly known as CRB), or equivalent for overseas students.

I will be recruiting:

a Children and/or vulnerable adults.

If yes is ticked then 12b needs to be completed.

YES
 NO
 N/A

Check to confirm

<p>b I confirm that the University's Safeguarding Children and Vulnerable Adults Policy 2010 has been read and understood; and I have attached the completed Guidance for Researcher's Checklist.</p> <p>c Patients recruited through the NHS (NHS ethical approval will be required).</p> <p>d People lacking capacity to give consent (NHS ethical approval will be required)</p> <p>e People in custody. (NOMS approval will be required.)</p> <p>f People engaged in illegal activities, for example drug taking.</p>	
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<p>13a The research involves the collection or use of human tissue (including, but not limited to, blood, saliva and bodily waste fluids).</p> <p><i>If yes is ticked then a copy of the submitted application form and any supporting documentation must be emailed to the Human Tissue Act Compliance Team (HTA@cf.ac.uk). A decision will only be made once these documents have been received. 13b also needs to be completed.</i></p> <p>HTA@cf.ac.uk</p> <p>13b I confirm that the relevant Human Tissue Act considerations, in accordance with University policy and School requirements, have been taken into account for the proposed research. I confirm that, where appropriate, the University's Safeguarding Children and Vulnerable Adults Policy 2010 has been read and understood. I confirm that, where appropriate, the University's Safeguarding Children and Vulnerable Adults Policy 2010 has been read and understood.</p>	<input type="checkbox"/> Check to confirm
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<p>14 The research involves the use of a drug, controlled substance or medical product, including alcohol, tobacco or caffeine.</p> <p><i>If yes and the drug is not alcohol, tobacco or caffeine, then you should inform the Research Governance team and include their guidance in the proposal.</i></p> <p style="text-align: right;">resgov@cf.ac.uk 029 20 879131</p> <p style="text-align: center;">Contact details:</p>	<input type="radio"/> YES <input checked="" type="radio"/> NO
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Note: Guidance on Box A or Box B submission and supporting documentation:
If you have ticked NO to any of Q1-6 or YES to any of Q7-11 then EITHER choose Box A below, address the relevant ethical issues in a separate word document and include a consent form and debrief sheet, OR choose Box B below.

If you ticked YES to Q12-14 or there are any other ethical concerns with the proposed research then complete a full Box B proposal. Otherwise, simply choose Box A and provide a summary of the proposed research.

PLEASE SELECT EITHER BOX A OR BOX B BELOW AND PROVIDE THE DETAILS REQUIRED IN SUPPORT OF YOUR APPLICATION THEN SIGN THE FORM.

<p>A. I consider that this project has no significant ethical implications to be brought before the School Research Ethics Committee.</p>	<input type="radio"/> Check to confirm
<p>Give a brief description of the experiment (approximately 200 words). Include study rationale and theoretical constructs as well as brief information about: participants (e.g. number, age, sex, recruitment method, group assignment), apparatus and materials (e.g., stimuli, names of questionnaire) and procedure (e.g., what will happen to participants). Any exclusions must be scientifically justified. <i>Tip: To insert line breaks within a cell use Alt+Enter on a PC and Cmd+Option+Return on a Mac.</i></p>	

Previously approved project: EC.14.08.05.3830R2. Please may I request the approval for 2 minor amendments to my ethics proposal.

1. The first amendment is regarding the control group neutral task changing from listing animals to answering questions regarding beverages.
2. The second amendment is regarding timing participants checking behaviour.

These changes can be found on highlighted on pages: 9, 45 and 46 within my application.

If any of the above information is missing, your application will be returned to you.

<p>B I consider that this project may have ethical implications that should be brought before the School Research Ethics Committee, and/or it will be carried out with children or other vulnerable populations.</p>	<input checked="" type="radio"/> Check to confirm
<p>If you have checked BOX B, please provide all the further information listed below in a separate attachment. Please number the pages.</p>	
<p>i Title of project</p>	

- ii Purpose of project and its academic rationale.
 - iii Brief description of methods and measurements.
 - iv Participants: recruitment methods, number, age, gender, exclusion/inclusion criteria.
 - v Consent and participant information arrangements, debriefing.
 - vi A clear but concise statement of the ethical considerations raised by the project and how you intend to deal with them.
 - vii Estimated start date and duration of project.
- This form should be submitted to the School Research Ethics Committee for consideration.

If any of the above information is missing, your application will be returned to you.

15a I confirm that the relevant health and safety measures, in accordance with University policy and School requirements, have been taken into account for the proposed research.	<input checked="" type="checkbox"/> Check to confirm
15b <i>If 15a is confirmed, please include the relevant Risk Assessment Receipt number.</i>	1402475585_4 37

16 I confirm that the relevant equality and diversity considerations, in accordance with University policy and School requirements, have been taken into account for the proposed research.	<input checked="" type="checkbox"/> Check to confirm
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17 I am familiar with the BPS Guidelines for ethical practices in psychological research (and have discussed them with the other researchers involved in the project).	<input checked="" type="checkbox"/> Check to confirm
--	--

INFORMATION FOR PERMANENT MEMBER OF STAFF ONLY

I confirm as the permanent member of staff, by forwarding this documentation to the Ethics Committee, I have read this application and consider it suitable for ethical review.

Appendix 6 Ethical Approval Granted

From: psychethics [mailto:psychethics@cardiff.ac.uk]
Sent: 26 September 2014 15:23
To: Louise Fermandel (Lo114782)
Cc: Andrew Vidgen (Cardiff and Vale UHB - Psychology Training)
Subject: Ethics Feedback - EC.14.08.05.3830R2

Dear Louise,

The Ethics Committee has considered your revised postgraduate project proposal: Self enhancement, Perfectionism and the role of psychological distress (EC.14.08.05.3830R2).

The project has now been approved.

Please note that if any changes are made to the above project then you must notify the Ethics Committee.

Best wishes,

Natalie

School of Psychology Research Ethics Committee

Tower Building
Park Place
CARDIFF
CF10 3AT

Ffôn /Telephone: +44 (0) 29 2087 0360

Ffacs/Fax: +44 (0) 29 2087 4858

From: psychethics
Sent: 28 October 2014 11:04
To: louise.fermandel@wales.nhs.uk
Cc: Andrew Vidgen
Subject: Ethics Feedback - EC.14.08.05.3830R2A

Dear Louise,

The Ethics Committee has considered the amendment to your PG project: Self enhancement, Perfectionism and the role of psychological distress (EC.14.08.05.3830R2A).

The project has been approved.

Please note that if any changes are made to the above project then you must notify the Ethics Committee.

Best wishes,

Hannah Parker

School of Psychology Research Ethics Committee

Tower Building
Park Place
CARDIFF
CF10 3AT

Ffôn /Telephone: +44 (0) 29 2087 0360
Ffacs/Fax: +44 (0) 29 2087 4858

PARTICIPANT INFORMATION SHEET

You are invited to participate in a study which will aim to explore the values you hold, your performance on a specific task and the role of anxiety and depression. The study is being undertaken as part of a Doctorate in Clinical Psychology. To help you to decide if you would like to participate or not, this sheet will provide you with additional information on the study and what it will involve.

Please could you take some time to read the following information carefully. If this information is not clear, if you would like further information or if you have any other questions you can ask the researcher who will be happy to help. The researcher contact details can be found at the end of the information sheet.

Why is the study being done?

Research has suggested that a person's values have an impact on the way that they behave and feel. Despite research suggesting that values can have an impact on a person's psychological wellbeing and the inclusion of values in psychological therapies such as Acceptance and Commitment Therapy (ACT); the use of values within a mental health context has not been widely empirically researched.

This study will aim to explore the use of a structural concept of values, how this relates to performance on a specific task and the role of anxiety and depression.

The findings of the study will be used to further our understanding of how values might be used in a mental health context to change behaviour and reduce anxiety and depression.

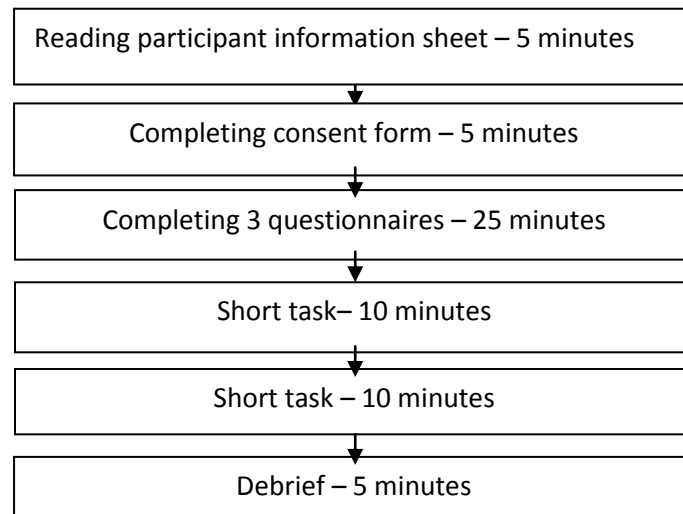
Do I have to take part?

You do not have to participate in the study. It is entirely your choice whether you decide to participate or not.

What I will I be asked to do if I do take part?

If you decide that you would like to participate in this study, you will be asked to complete a consent form. You will then be asked to fill in three questionnaires. The questionnaires will ask you questions about your values, your behaviour and your feelings. All of the questions can be answered using variety of rating scales, for example: when answering on a scale of 1 to 5, you may select '1' if you would like to answer 'not at all' and you may select '5' if you would like to answer 'very much'. After you have completed the questionnaires, you will be asked complete two short

tasks. Once you have completed the tasks, you will be given a debrief sheet and an opportunity to ask any questions you may have.



The total time taken to complete the study will be approximately one hour.

What are the possible disadvantages of taking part?

There are minimal anticipated disadvantages of participating in the study. You will be asked to give an hour of your time and you will be paid by receiving either a cash payment or course credit. Payment type will be agreed when signing up. There is also a small possibility that you may become distressed when completing the questionnaires or at any time during the study. If this does happen, you are free to withdraw from the study and you may also speak to the researcher or research supervisor conducting the study.

What are the possible benefits of taking part?

You will receive a small payment for your time. Although you may not benefit personally from the study, your participation will contribute to a study that may improve the support available for people who experience mental health difficulties.

What will happen to the information I provide?

All information collected about you during the course of the research is strictly confidential and only accessible to the lead researcher. Your consent form will be the only paperwork that identifies you by your name. This is why your consent will be sought prior to and separately to you being asked to complete any questionnaires. The consent forms will be available only to the lead researcher and they will be stored separately from your other data in a locked filing cabinet.

Each participant will be allocated a participant identification number which will be used to ensure that all data collected can be kept confidentially but can still be

identified as coming from a particular participant to ensure data can be matched and analysed accurately. Any information you provide will be made anonymous at the point of collection.

Any information gathered will only be used for the purposes of this study.

What will happen if I don't want to continue taking part?

You are free to withdraw from the study at any time without giving a reason and there will be no adverse consequences. In this case, any information collected from you will not be used in the research and will be destroyed.

What will happen when the study ends?

All information gathered will be analysed and the results will be written up into a research study report. No identifying data will be used in the written report. This means that it will not be possible to trace any of the information you provide back to you personally.

This report will be used as part of a Doctorate in Clinical Psychology thesis. All information will be stored securely at Cardiff University for a minimum of 12 months before being destroyed. Only the anonymous data may be kept indefinitely. There is a possibility that the report may be used in future published articles.

Who is carrying out and funding the study?

The study is being conducted by Louise Fermandel (Trainee Clinical Psychologist) as part of a Doctorate thesis. The Doctorate course is funded by the National Health Service (NHS) and accredited by Cardiff University. The study is being supervised by Dr Andrew Vidgen (Consultant Clinical Psychologist).

Who has reviewed the study?

The study has been reviewed and approved by an ethics committee panel at Cardiff University.

What if there is a problem or I have any concerns about the study?

If you have any problems or concerns about any aspect of the study, you can speak directly to the researcher or research supervisor or contact them on the details below.

Who can I contact for further information?

If you would like any further information or have any queries please contact:

Researcher: Louise Fermandel (Trainee Clinical Psychologist/Post graduate student)

Email: Louise.fermandel@wales.nhs.uk

Tel: 029 2087058

Research Supervisor: Dr Andrew Vidgen (Consultant Clinical Psychologist)

Email: andrew.vidgen@wales.nhs.uk

Tel: 029 20870582

Thank you for taking the time to read this information sheet.

PARTICIPANT INFORMATION SHEET

You are invited to participate in a study which will aim to explore the values you hold, your performance on a specific task and the role of anxiety and depression. The study is being undertaken as part of a Doctorate in Clinical Psychology. To help you to decide if you would like to participate or not, this sheet will provide you with additional information on the study and what it will involve.

Please could you take some time to read the following information carefully. If this information is not clear, if you would like further information or if you have any other questions you can ask the researcher who will be happy to help. The researcher contact details can be found at the end of the information sheet.

Why is the study being done?

Research has suggested that a person's values have an impact on the way that they behave and feel. Despite research suggesting that values can have an impact on a person's psychological wellbeing and the inclusion of values in psychological therapies such as Acceptance and Commitment Therapy (ACT); the use of values within a mental health context has not been widely empirically researched.

This study will aim to explore the use of a structural concept of values, how this relates to performance on a specific task and the role of anxiety and depression.

The findings of the study will be used to further our understanding of how values might be used in a mental health context to change behaviour and reduce anxiety and depression.

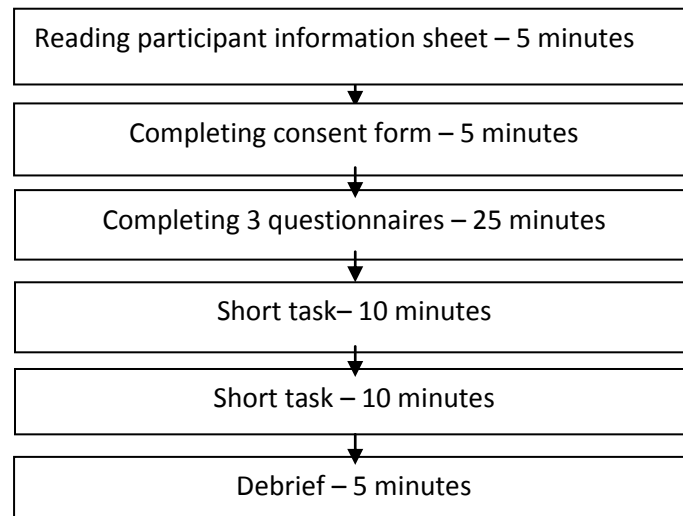
Do I have to take part?

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If you decide that you would like to participate in this study, you will be asked to complete a consent form. You will then be asked to fill in three questionnaires. The questionnaires will ask you questions about your values, your behaviour and your feelings. All of the questions can be answered using variety of rating scales, for example: when answering on a scale of 1 to 5, you may select '1' if you would like to answer 'not at all' and you may select '5' if you would like to answer 'very much'. After you have completed the questionnaires, you will be asked complete two short

tasks. Once you have completed the tasks, you will be given a debrief sheet and an opportunity to ask any questions you may have.



The total time taken to complete the study will be approximately one hour.

What are the possible disadvantages of taking part?

There are minimal anticipated disadvantages of participating in the study. You will be asked to give an hour of your time and you will be entered in to a prized draw for your time. There is also a small possibility that you may become distressed when completing the questionnaires or at any time during the study. If this does happen, you are free to withdraw from the study and you may also speak to the researcher or research supervisor conducting the study.

What are the possible benefits of taking part?

You will be entered into a prized draw for your time. Although you may not benefit personally from the study, your participation will contribute to a study that may improve the support available for people who experience mental health difficulties.

What will happen to the information I provide?

All information collected about you during the course of the research is strictly confidential and only accessible to the lead researcher. Your consent form will be the only paperwork that identifies you by your name. This is why your consent will be sought prior to and separately to you being asked to complete any questionnaires. The consent forms will be available only to the lead researcher and they will be stored separately from your other data in a locked filing cabinet.

Each participant will be allocated a participant identification number which will be used to ensure that all data collected can be kept confidentially but can still be identified as coming from a particular participant to ensure data can be matched and

analysed accurately. Any information you provide will be made anonymous at the point of collection.

Any information gathered will only be used for the purposes of this study.

What will happen if I don't want to continue taking part?

You are free to withdraw from the study at any time without giving a reason and there will be no adverse consequences. In this case, any information collected from you will not be used in the research and will be destroyed.

What will happen when the study ends?

All information gathered will be analysed and the results will be written up into a research study report. No identifying data will be used in the written report. This means that it will not be possible to trace any of the information you provide back to you personally.

This report will be used as part of a Doctorate in Clinical Psychology thesis. All information will be stored securely at Cardiff University for a minimum of 12 months before being destroyed. Only the anonymous data may be kept indefinitely. There is a possibility that the report may be used in future published articles.

Who is carrying out and funding the study?

The study is being conducted by Louise Femandel (Trainee Clinical Psychologist) as part of a Doctorate thesis. The Doctorate course is funded by the National Health Service (NHS) and accredited by Cardiff University. The study is being supervised by Dr Andrew Vidgen (Consultant Clinical Psychologist).

Who has reviewed the study?

The study has been reviewed and approved by an ethics committee panel at Cardiff University.

What if there is a problem or I have any concerns about the study?

If you have any problems or concerns about any aspect of the study, you can speak directly to the researcher or research supervisor or contact them on the details below.

Who can I contact for further information?

If you would like any further information or have any queries please contact:

Researcher: Louise Fermandel (Trainee Clinical Psychologist/Post graduate student)

Email: Louise.fermandel@wales.nhs.uk

Tel: 029 2087058

Research Supervisor: Dr Andrew Vidgen (Consultant Clinical Psychologist)

Email: andrew.vidgen@wales.nhs.uk

Tel: 029 20870582

Thank you for taking the time to read this information sheet.

CONSENT FORM

If you have read the participant information sheet and would like to participate in the study, please read each statement below. If you agree with the statement, please tick the corresponding box.

- I confirm that I have received, read and understood the participant information sheet for the study.

- I have been given the opportunity to consider the information provided and to ask any questions I had.

- Any questions I had have been answered satisfactorily.

- I understand that I am free to ask further questions at any time.

- I understand that my participation in this study is entirely voluntary and that I am free to withdraw from the study at any time without giving reason.

- I understand that should I choose to withdraw from the study there will be no adverse consequences.

- I understand that my participation is anonymous; I do not have to provide my name when completing the questionnaires and my responses will be recorded without any identifiable information.

- I give permission to the researcher to use any data collected from the study in a written report and possibly within a published article.

- I _____ (NAME) consent to participate in the study conducted by Louise Fermandel (Trainee Clinical Psychologist, School of Psychology, Cardiff University), under the supervision of Andrew Vidgen (Clinical Psychologist/Core staff member of the South Wales Doctorate in Clinical Psychology, School of Psychology, Cardiff University).

Signed:

Date:

DEBRIEF SHEET

Thank you for taking part in this study.

This debriefing sheet will give you further information about the purpose of the research. Please feel free to ask any questions that you may have.

What were the aims of the study?

This study aimed to explore the impact of priming values on perfectionist behaviour. This study also aimed to explore the impact of discrepancies within values on self-reported anxiety and depression.

What are the details about the tasks completed?

The Perceived Values Questionnaire (PVQ) measures the values that an individual holds most strongly. The other questionnaires you completed at the start of the study were used to measure perfectionism, anxiety and depression. These questionnaires would not be used to diagnose a psychological condition but might be used in clinical settings to help gather information about thoughts, behaviours and feelings. A high score on these questionnaires does not provide the basis for the existence of a particular condition as we would expect to see a large range of scores within the general population.

After completing the questionnaires, you will have been assigned to one of three groups. If you were in an experimental group, you will have been asked to complete a task providing reasons why certain values are important to you. The task was administered as a priming task to bring certain values to mind. There were two different versions of this task; you will have been administered only one of these versions depending upon the group that you were randomly assigned to. If you were in the control group, you will have been asked to complete a neutral task regarding beverages.

The second task you were asked to complete involved searching for and identifying a specific letter in an array of different letters and numbers. Your performance on this task was measured through accuracy and speed. Your checking behaviour was also measured; we recorded whether you took up or declined the offer of checking your work and we timed any checking behaviour.

It was important that some mild deception was used in the study so that we could gain results as true to life as possible. Being aware of everything that was being measured could have had an effect on some of the answers that you provided and the way that you completed the tasks.

What are the research hypotheses?

We hypothesise that perfectionism may be linked to certain values and that when these values are activated; behaviour linked with perfectionism will be increased. We also hypothesised that when opposing values are activated; behaviour linked with perfectionism will be decreased.

We hypothesise that discrepancies within a person's values may be linked to the amount of anxiety and depression they report.

Relevant reading

For further information related to this research you may wish to read the following articles:

Schwartz, S. H., Cieciuch, J., Vecchione, M., Davidov, E., Fischer, R., Beierlein, C., Ramos, A., Verkasalo, M., Lönnqvist, J-E., Demirutku, K., Dirilen-Gumus, O., Konty, M. (2012). Refining the theory of basic individual values. *Journal of Personality and Social Psychology*, 103, 4, 663-688.

Maio, G. R. (2010). Mental Representations of Social Values. In Zanna, M. P. (2010) Eds. *Advances in Experimental Social Psychology*, Vol. 42, Burlington: Academic Press, 1-43.

Contact Details

If you have any questions or concerns about this research then please contact us on the details below. You can also contact us if you would like a summary of the project findings.

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Appendix 10 Demographic Questionnaire

Please indicate your ethnic group by choosing ONE section (A,B,C,D,E or F) and then ticking the appropriate circle or writing in the space provided. You may choose to not state your ethnic group.

A. Asian or Asian British

- Indian
- Pakistani
- Bangladeshi

Any other Asian background, please state.....

B. Black or Black British

- Caribbean
- African

Any other Asian background, please state.....

C. Chinese or Chinese British

- Chinese

Any other Chinese background, please state.....

D. Mixed

- White and Asian Indian
- White and Asian Pakistani
- White and Asian Bangladeshi
- White and Black Caribbean
- White and Black African
- White and Chinese

Any other Mixed background, please state.....

E. Other ethnic group

Any other background, please state.....

F. White

- British
- Irish

Any other White background, please state.....

- Ethnic group not stated

Portrait Value Questionnaire (PVQ): Male

Instructions:

Here we briefly describe some people. Please read each description and think about how much each person:

- (a) Is actually like you (e.g. has the beliefs and/or behaves as you actually do in reality).
- (b) Is ideally like you (e.g. has the beliefs and/or behaves as you would ideally wish to).
- (c) Is what you should be like (e.g. has the beliefs and/or behaves as you should do, but do not always do in reality)

Put an **X** in the box to the right that shows how much the person in the description is like you.

Question	Answer				
1) Thinking up new ideas and being creative is important to him. He likes to do things in his own original way.	Not at all 1	2	Somewhat 3	4	Very much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should</u> you be like this person?					
2. It is important to him to be rich. He wants to have a lot of money and expensive things.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should</u> you be like this person?					
3. He thinks it is important that every person in the world be treated equally. He believes everyone should have equal opportunities in life.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should</u> you be like this person?					

4. It's very important to him to show his abilities. He wants people to admire what he does.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should you</u> be like this person?					
5. It is important to him to live in secure surroundings. He avoids anything that might endanger his safety.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should you</u> be like this person?					
6. He thinks it is important to do lots of different things in life. He always looks for new things to try.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should you</u> be like this person?					
7. He believes that people should do what they're told. He thinks people should follow rules at all times, even when no-one is watching.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should you</u> be like this person?					
8. It is important to him to listen to people who are different from him. Even when he disagrees with them, he still wants to understand them.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should you</u> be like this person?					
9. He thinks it's important not to ask for more than what you have. He believes that people should be satisfied with what they have.	Not at all 1	2	Somewhat 3	4	Very Much 5

a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should you</u> be like this person?					
10. He seeks every chance he can to have fun. It is important to him to do things that give him pleasure.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should you</u> be like this person?					
11) It is important to him to make his own decisions about what he does. He likes to be free to plan and to choose his activities for himself.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should you</u> be like this person?					
12. It's very important to him to help the people around him. He wants to care for their well-being.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should you</u> be like this person?					

13. Being very successful is important to him. He likes to impress other people.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should you</u> be like this person?					
14. It is very important to him that his country be safe. He thinks the state must be on watch against threats from within and without.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should you</u> be like this person?					

15. He likes to take risks. He is always looking for adventures.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should you</u> be like this person?					
16. It is important to him always to behave properly. He wants to avoid doing anything people would say is wrong.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should you</u> be like this person?					
17. It is important to him to be in charge and tell others what to do. He wants people to do what he says.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should you</u> be like this person?					
18) It is important to him to be loyal to his friends. He wants to devote himself to people close to him.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should you</u> be like this person?					
19. He strongly believes that people should care for nature. Looking after the environment is important to him.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should you</u> be like this person?					

20. Religious belief is important to him. He tries hard to do what his religion requires.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should you</u> be like this person?					
21. It is important to him that things be organized and clean. He really does not like things to be a mess.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should you</u> be like this person?					
22) He thinks it's important to be interested in things. He likes to be curious and to try to understand all sorts of things.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should you</u> be like this person?					
23) He believes all the worlds' people should live in harmony. Promoting peace among all groups in the world is important to him.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should you</u> be like this person?					
24. He thinks it is important to be ambitious. He wants to show how capable he is.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should you</u> be like this person?					
25. He thinks it is best to do things in traditional ways. It is important to him to keep up the customs he has learned.	Not at all 1	2	Somewhat 3	4	Very Much 5

a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should you</u> be like this person?					
26. Enjoying life's pleasures is important to him. He likes to 'spoil' himself.	Not at all		Somewhat		Very Much
	1	2	3	4	5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should you</u> be like this person?					

27. It is important to him to respond to the needs of others. He tries to support those he knows.	Not at all		Somewhat		Very Much
	1	2	3	4	5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should you</u> be like this person?					
28. He believes he should always show respect to his parents and to older people. It is important to him to be obedient.	Not at all		Somewhat		Very Much
	1	2	3	4	5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should you</u> be like this person?					
29. He wants everyone to be treated justly, even people he doesn't know. It is important to him to protect the weak in society.	Not at all		Somewhat		Very Much
	1	2	3	4	5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					

c) How much <u>should</u> you be like this person?					
30. He likes surprises. It is important to him to have an exciting life.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should</u> you be like this person?					
31. He tries hard to avoid getting sick. Staying healthy is very important to him.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should</u> you be like this person?					
32. Getting ahead in life is important to him He strives to do better than others	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should</u> you be like this person?					
33. Forgiving people who have hurt him is important to him. He tries to see what is good in them and not to hold a grudge.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should</u> you be like this person?					

34. It is important to him to be independent. He likes to rely on himself.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					

c) How much <u>should</u> you be like this person?					
35. Having a stable government is important to him. He is concerned that the social order be protected.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should</u> you be like this person?					
36. It is important to him to be polite to other people all the time. He tries never to disturb or irritate others.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like you is this person					
b) <u>Ideally</u> , how much would you be like this person					
c) How much <u>should</u> you be like this person?					
37. He really wants to enjoy life. Having a good time is very important to him.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should</u> you be like this person?					
38. It is important to him to be humble and modest. He tries not to draw attention to himself	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should</u> you be like this person?					
39. He always wants to be the one who makes the decisions. He likes to be the leader.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should</u> you be like this person?					
40. It is important to him to adapt to nature and to fit into it. He believes that people should not change nature.	Not at all 1	2	Somewhat 3	4	Very Much 5

					5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should</u> you be like this person?					

Thank you for your participation in this research.

Portrait Value Questionnaire (PVQ): Female

Instructions:

Here we briefly describe some people. Please read each description and think about how much each person:

- (d) Is actually like you (e.g. has the beliefs and/or behaves as you actually do in reality).
- (e) Is ideally like you (e.g. has the beliefs and/or behaves as you would ideally wish to).
- (f) Is what you should be like (e.g. has the beliefs and/or behaves as you should do, but do not always do in reality)

Put an **X** in the box to the right that shows how much the person in the description is like you.

Question	Answer				
1) Thinking up new ideas and being creative is important to her. She likes to do things in her own original way.	Not at all 1	2	Somewhat 3	4	Very much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should</u> you be like this person?					
2. It is important to her to be rich. She wants to have a lot of money and expensive things.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should</u> you be like this person?					
3. She thinks it is important that every person in the world be treated equally. She believes everyone should have equal opportunities in life.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should</u> you be like this person?					
4. It's very important to her to show her abilities. She wants people to admire what she does.	Not at all 1	2	Somewhat 3	4	Very Much 5

					5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should you</u> be like this person?					
5. It is important to her to live in secure surroundings. She avoids anything that might endanger her safety.	Not at all	2	Somewhat	4	Very Much
	1		3		5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should you</u> be like this person?					
6. She thinks it is important to do lots of different things in life. She always looks for new things to try.	Not at all	2	Somewhat	4	Very Much
	1		3		5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should you</u> be like this person?					
7. She believes that people should do what they're told. She thinks people should follow rules at all times, even when no-one is watching.	Not at all	2	Somewhat	4	Very Much
	1		3		5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should you</u> be like this person?					
8. It is important to her to listen to people who are different from her. Even when she disagrees with them, she still wants to understand them.	Not at all	2	Somewhat	4	Very Much
	1		3		5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should you</u> be like this person?					
9. She thinks it's important not to ask for more than what you have. She believes that people should be satisfied with what they have.	Not at all	2	Somewhat	4	Very Much
	1		3		5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					

c) How much <u>should</u> you be like this person?					
10. She seeks every chance she can to have fun. It is important to her to do things that give her pleasure.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should</u> you be like this person?					
11) It is important to her to make her own decisions about what she does. She likes to be free to plan and to choose her activities for herself.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should</u> you be like this person?					
12. It's very important to her to help the people around her. She wants to care for their well-being.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should</u> you be like this person?					
13. Being very successful is important to her. She likes to impress other people.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should</u> you be like this person?					
14. It is very important to her that her country be safe. She thinks the state must be on watch against threats from within and without.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should</u> you be like this person?					
15. She likes to take risks. She is always looking for adventures.	Not at all 1	2	Somewhat 3	4	Very Much 5

a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should</u> you be like this person?					
16. It is important to her always to behave properly. She wants to avoid doing anything people would say is wrong.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should</u> you be like this person?					
17. It is important to her to be in charge and tell others what to do. She wants people to do what she says.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should</u> you be like this person?					
18) It is important to her to be loyal to her friends. She wants to devote herself to people close to her.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should</u> you be like this person?					
19. She strongly believes that people should care for nature. Looking after the environment is important to her.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should</u> you be like this person?					

20. Religious belief is important to her. She tries hard to do what her religion requires.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should you</u> be like this person?					
21. It is important to her that things be organized and clean. She really does not like things to be a mess.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should you</u> be like this person?					
22) She thinks it's important to be interested in things. She likes to be curious and to try to understand all sorts of things.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should you</u> be like this person?					
23) She believes all the worlds' people should live in harmony. Promoting peace among all groups in the world is important to her.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should you</u> be like this person?					
24. She thinks it is important to be ambitious. She wants to show how capable she is.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should you</u> be like this person?					
25. She thinks it is best to do things in traditional ways. It is important to her to keep up the customs she has learned.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					

c) How much <u>should you</u> be like this person?					
26. Enjoying life's pleasures is important to her. She likes to 'spoil' herself.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should you</u> be like this person?					

27. It is important to her to respond to the needs of others. She tries to support those she knows.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should you</u> be like this person?					
28. She believes she should always show respect to her parents and to older people. It is important to her to be obedient.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should you</u> be like this person?					
29. She wants everyone to be treated justly, even people she doesn't know. It is important to her to protect the weak in society.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should you</u> be like this person?					
30. She likes surprises. It is important to her to have an exciting life.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					

c) How much <u>should</u> you be like this person?					
31. She tries hard to avoid getting sick. Staying healthy is very important to her.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should</u> you be like this person?					
32. Getting ahead in life is important to her She strives to do better than others	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should</u> you be like this person?					
33. Forgiving people who have hurt her is important to her. She tries to see what is good in them and not to hold a grudge.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should</u> you be like this person?					

34. It is important to her to be independent. She likes to rely on herself.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should</u> you be like this person?					
35. Having a stable government is important to her. She is concerned that the social order be protected.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should</u> you be like this person?					

36. It is important to her to be polite to other people all the time. She tries never to disturb or irritate others.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like you is this person					
b) <u>Ideally</u> , how much would you be like this person					
c) How much <u>should you</u> be like this person?					
37. She really wants to enjoy life. Having a good time is very important to her.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should you</u> be like this person?					
38. It is important to her to be humble and modest. She tries not to draw attention to herself	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should you</u> be like this person?					
39. She always wants to be the one who makes the decisions. She likes to be the leader.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should you</u> be like this person?					
40. It is important to her to adapt to nature and to fit into it. She believes that people should not change nature.	Not at all 1	2	Somewhat 3	4	Very Much 5
a) How much <u>are you</u> like this person?					
b) <u>Ideally</u> , how much would you be like this person?					
c) How much <u>should you</u> be like this person?					

Thank you for your participation in this research.

Appendix 12 Measure of Constructs Underlying Perfectionism (M-CUP)

M-CUP

Please read each of the following items carefully and mark the response that best corresponds to your agreement or disagreement using the following scale. Please circle the appropriate number. There are no right or wrong answers.

1	2	3	4	5
Strongly Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Strongly Agree

1. I am a person who sets high standards for myself	1	2	3	4	5
2. I like things to be neat	1	2	3	4	5
3. I expect others to excel at whatever they do	1	2	3	4	5
4. I feel great when I do well at something	1	2	3	4	5
5. I often don't live up to my own standards	1	2	3	4	5
6. I often feel that people make excessive demands of me	1	2	3	4	5
7. Neatness is of great importance to me	1	2	3	4	5
8. I often check my work carefully to make sure there are no mistakes	1	2	3	4	5
9. I feel great satisfaction when I feel I have perfected something	1	2	3	4	5
10. I rarely feel that what I have done is good enough	1	2	3	4	5
11. Others expect me to be perfect	1	2	3	4	5
12. I have very high goals	1	2	3	4	5
13. Things should always be put away in their place	1	2	3	4	5
14. I often check my work several times to find any mistakes	1	2	3	4	5
15. It is important to me that the people I am close to are successful	1	2	3	4	5
16. After completing a task, I feel happy	1	2	3	4	5
17. No matter how well I do, I still feel that I could have done better	1	2	3	4	5
18. When I make a mistake, I feel really bad	1	2	3	4	5
19. People expect perfection of me	1	2	3	4	5
20. I will not do something if I cannot do it perfectly	1	2	3	4	5

21. I want things to always be in order	1	2	3	4	5
22. I really don't like to see people close to me make mistakes	1	2	3	4	5
23. I get excited when I do a good job	1	2	3	4	5
24. It feels like my best is never good enough	1	2	3	4	5
25. People expect me to succeed at everything I do	1	2	3	4	5
26. I have to do things perfectly-or I shouldn't do them at all	1	2	3	4	5
27. I tend to set very high standards for myself	1	2	3	4	5
28. I like things to always be organized	1	2	3	4	5
29. I have high standards for the people who are important to me	1	2	3	4	5
30. Doing a great job is really rewarding	1	2	3	4	5
31. I become upset when I make a mistake	1	2	3	4	5
32. People expect high levels of performance from me	1	2	3	4	5
33. I won't do things if I can't do them perfectly	1	2	3	4	5
34. I definitely have high standards	1	2	3	4	5
35. I like to be orderly in the way I do things	1	2	3	4	5
36. It takes me a long time to do something because I check my work many times	1	2	3	4	5
37. I always want high quality work from others	1	2	3	4	5
38. My performance rarely meets my standards	1	2	3	4	5
39. There's no point in doing something if I cannot do it perfectly	1	2	3	4	5
40. I expect high levels of performance from myself	1	2	3	4	5
41. I try to be a very neat person	1	2	3	4	5
42. I feel satisfied when I accomplish something	1	2	3	4	5
43. I become very frustrated when I do not do something perfectly	1	2	3	4	5
44. I set extremely high standards for myself	1	2	3	4	5
45. I try to always be very organized	1	2	3	4	5
46. When I look over something, I often check over the small details	1	2	3	4	5
47. I expect a lot from my friends	1	2	3	4	5
48. I experience positive feelings after I achieve something	1	2	3	4	5

49. I feel I often fall short of the kind of person I want to be	1	2	3	4	5
50. I feel crushed after I make a mistake	1	2	3	4	5
51. If one thing goes wrong, I feel that I cannot do anything right	1	2	3	4	5
52. I feel that I am an organized person	1	2	3	4	5
53. I may check my work several times to make sure the details are correct	1	2	3	4	5
54. I feel pleasure when I complete tasks	1	2	3	4	5
55. I often feel dissatisfied with my work/performance	1	2	3	4	5
56. I feel like my best is never good enough for other people	1	2	3	4	5
57. I feel like a complete failure if I do not do something perfectly	1	2	3	4	5
58. I feel satisfied with my work after I do something well	1	2	3	4	5
59. People expect a lot from me	1	2	3	4	5
60. If I notice I made a mistake in my work, I feel like I failed the whole task	1	2	3	4	5
61. I always feel like there is something wrong in my work/performance	1	2	3	4	5

Scoring:

No items are reverse scored.

Order: 2, 7, 13, 21, 28, 35, 41, 45, 52

Satisfaction: 4, 9, 16, 23, 30, 42, 48, 54, 58

Details and Checking: 8, 14, 36, 46, 53

Perfectionism toward Others: 3, 15, 22, 29, 37, 47

High Standards: 1, 12, 27, 34, 40, 44

Black and White Thinking about Tasks and Activities: 20, 26, 33, 39

Perceived Pressure from Others: 6, 11, 19, 25, 32, 59

Dissatisfaction: 5, 10, 17, 24, 38, 49, 55, 56, 61

Reactivity to Mistakes: 18, 31, 43, 50, 51, 57, 60

Appendix 13 Hospital Anxiety and Depression Scale (HADS)

Hospital Anxiety and Depression Scale (HADS)

Tick the box beside the reply that is closest to how you have been feeling in the past week.
Don't take too long over your replies: your immediate is best.

D	A		D	A	
		I feel tense or 'wound up':			I feel as if I am slowed down:
3		Most of the time	3		Nearly all the time
2		A lot of the time	2		Very often
1		From time to time, occasionally	1		Sometimes
0		Not at all	0		Not at all
		I still enjoy the things I used to enjoy:			I get a sort of frightened feeling like 'butterflies' in the stomach:
0		Definitely as much	0		Not at all
1		Not quite so much	1		Occasionally
2		Only a little	2		Quite Often
3		Hardly at all	3		Very Often
		I get a sort of frightened feeling as if something awful is about to happen:			I have lost interest in my appearance:
3		Very definitely and quite badly	3		Definitely
2		Yes, but not too badly	2		I don't take as much care as I should
1		A little, but it doesn't worry me	1		I may not take quite as much care
0		Not at all	0		I take just as much care as ever
		I can laugh and see the funny side of things:			I feel restless as I have to be on the move:
0		As much as I always could	3		Very much indeed
1		Not quite so much now	2		Quite a lot
2		Definitely not so much now	1		Not very much
3		Not at all	0		Not at all
		Worrying thoughts go through my mind:			I look forward with enjoyment to things:
3		A great deal of the time	0		As much as I ever did
2		A lot of the time	1		Rather less than I used to
1		From time to time, but not too often	2		Definitely less than I used to
0		Only occasionally	3		Hardly at all
		I feel cheerful:			I get sudden feelings of panic:
3		Not at all	3		Very often indeed
2		Not often	2		Quite often
1		Sometimes	1		Not very often
0		Most of the time	0		Not at all
		I can sit at ease and feel relaxed:			I can enjoy a good book or radio or TV program:
0		Definitely	0		Often
1		Usually	1		Sometimes
2		Not Often	2		Not often
3		Not at all	3		Very seldom

Please check you have answered all the questions

Scoring:

Total score: Depression (D) _____ Anxiety (A) _____

0-7 = Normal

8-10 = Borderline abnormal (borderline case)

11-21 = Abnormal (case)

Appendix 14 Priming Task A

Importance of values –Group 1 Gender: M / F Age: Participant No:

List as many reasons as you can as to why:

It is important to be successful

It is important to be ambitious

It is important to be capable

It is important to be influential

Appendix 15 Priming Task B

Importance of values –Group 2 Gender: M / F Age: Participant No:

List as many reasons as you can as to why:

It is important to be helpful

It is important to be forgiving

It is important to be loyal

It is important to be responsible

Appendix 16 Neutral Task

Importance of values – Group 3 Gender: M / F Age: Participant No:

List as many reasons as you can as to why:

People drink coffee

People drink tea

People drink cola

People drink milk

Appendix 17 Behavioural Task

3	E	F	C	3	T	S	E	F	C	V	E	B
J	2	N	G	V	C	E	F	Z	P	F	W	E
F	H	B	E	F	F	P	U	Y	T	F	C	U
H	N	8	O	I	U	K	H	3	T	H	U	F
F	C	V	B	Y	E	S	Z	U	P	G	B	E
F	F	E	D	C	F	U	G	N	U	F	C	S
Q	O	P	K	U	2	N	Y	E	F	B	V	E
F	F	T	U	G	B	7	E	F	C	S	F	P
O	U	E	K	L	U	T	F	B	N	H	3	T
F	L	H	T	8	F	V	P	O	I	K	L	J
T	G	H	N	E	F	E	V	T	H	E	F	H
V	U	B	E	J	U	N	G	8	C	E	F	Z
P	F	U	8	B	E	F	F	P	U	Y	T	F
C	V	U	H	N	J	O	I	U	K	H	P	T
H	7	D	F	C	V	B	Y	E	S	F	F	P
8	B	E	F	F	E	D	1	V	5	G	N	U
F	C	S	Q	L	P	K	F	4	N	Y	E	F
B	V	E	F	F	T	U	G	B	J	E	F	C
S	F	P	O	U	E	K	L	U	T	F	B	N
H	U	T	F	G	H	T	R	F	V	P	O	I
K	2	J	T	F	H	9	P	E	F	C	H	T
H	E	F	C	V	E	B	L	U	N	G	V	F
C	E	F	Z	P	F	U	H	B	E	F	F	P
4	Y	T	F	C	V	U	H	N	9	8	I	U
K	H	P	T	H	U	D	F	C	V	B	Y	E
S	3	F	P	G	B	E	F	F	E	D	C	F
F	G	N	U	F	C	S	Q	3	P	K	S	G

R T F H U I B V G O L N H
F N H D G S T Y E B N C K
I F G A H Y F E V D B C F
S E O K H A P Q L N F B C
Y F F B A H S F E T 8 G F
3 4 5 F G H Y E 2 1 C F I
O K U F G H N J U T R D F
P O K H E E F B H T F R Y
H U F H G D E A R C G R T
E X C V B H U T G H J I U
Y T O P L F 9 8 G F 5 D 4
3 H 7 6 J N C F 3 E F G T
F P O L I U N C H F F U G
F H E V C B S G E T 3 7 H
D B C U T Y 9 1 J D N C H
E P L K F H E V A X U G F
N C I U 8 1 E X 1 N D J O
U T H F P I N A K U F E 3
G E K H B U Y F C V F P L
O I K N H 3 6 G V B A C G
F R E V P O L I U F H I U
N J K M N H V G D F 6 5 4
3 L P F H N B F D E Q P O
U N I P O P L O U H G N F
B V C 6 3 D E E L U I K F
1 E H 1 I 9 K P F 9 N K R
L D F K A T F I H N L E A

Appendix 18 Behavioural Form

Task Time:

Would you like to check your answers?

Yes/No

Check Time:

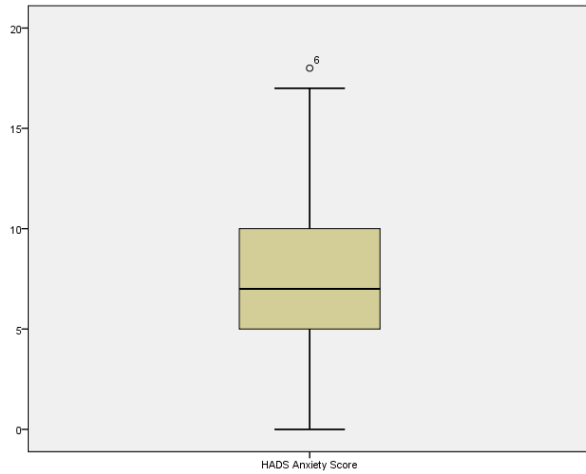
Task Accuracy:

Check Accuracy:

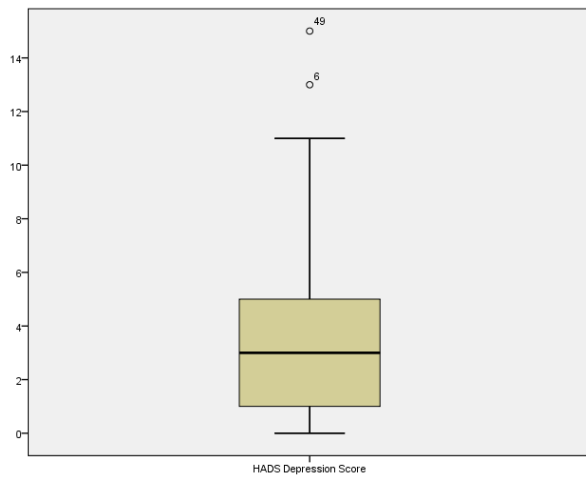
Appendix 19 - Box Plots for Outliers (HADS, PVQ, MCUP)

HADS Scores

HADS Anxiety Scores

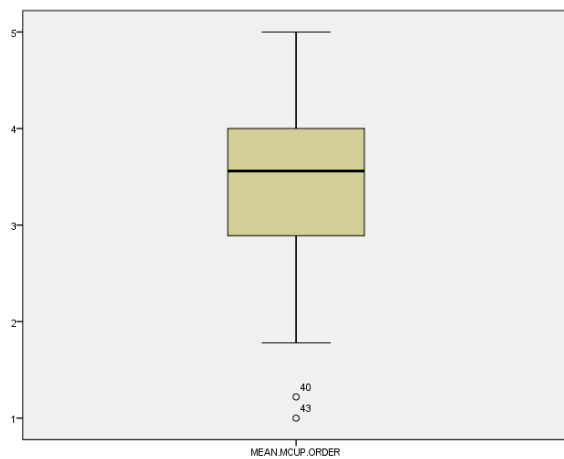


HADS Depression Scores

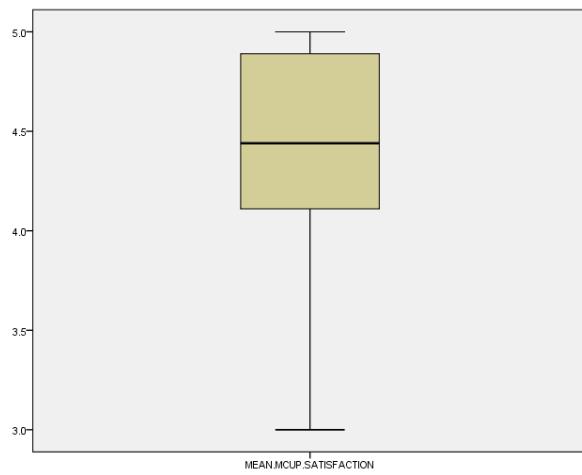


MCUP Scores

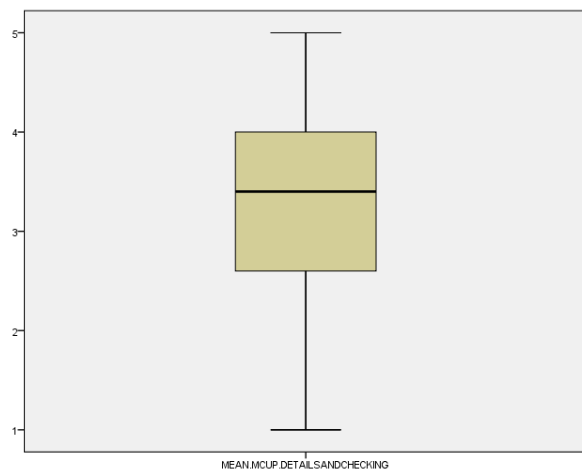
MCUP Order subscale scores



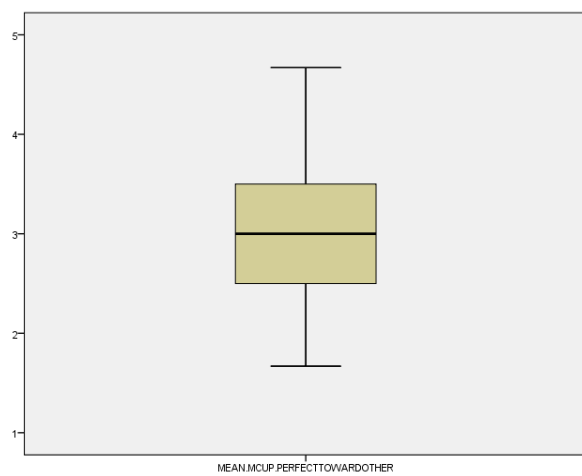
MCUP satisfaction subscale scores



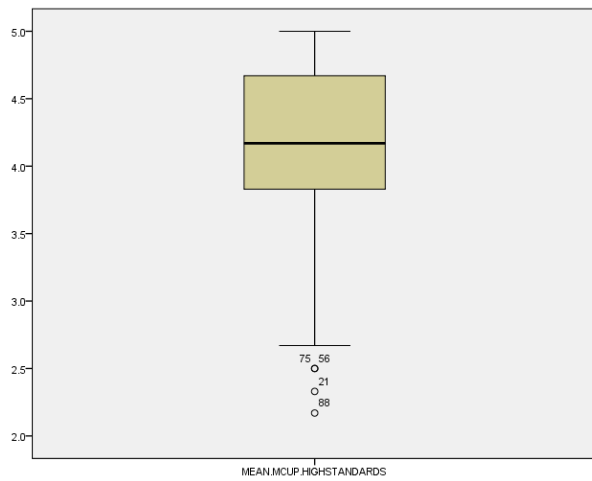
MCUP details and checking subscale scores



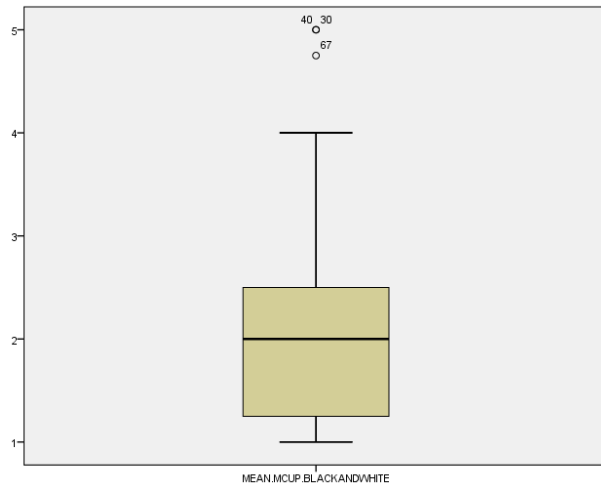
MCUP perfection towards others subscale scores



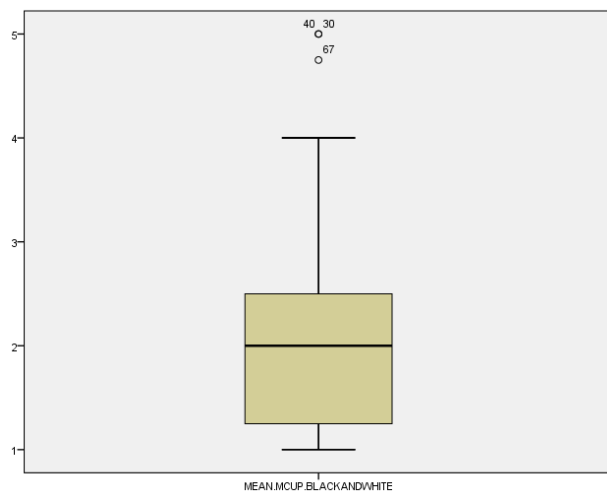
MCUP high standards subscale scores



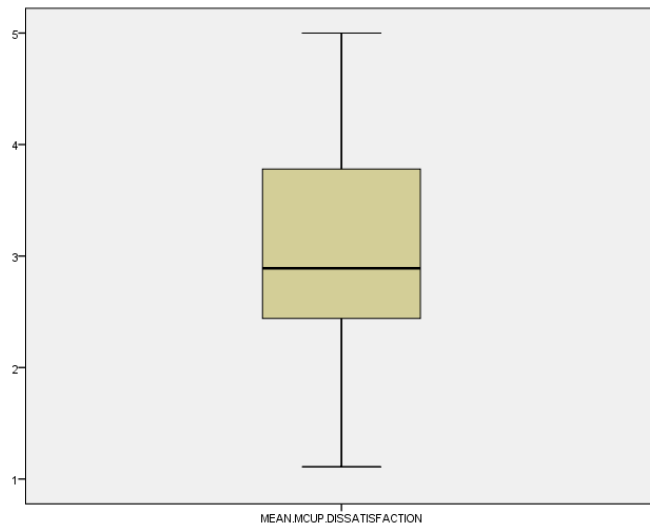
MCUP black and white thinking subscale scores



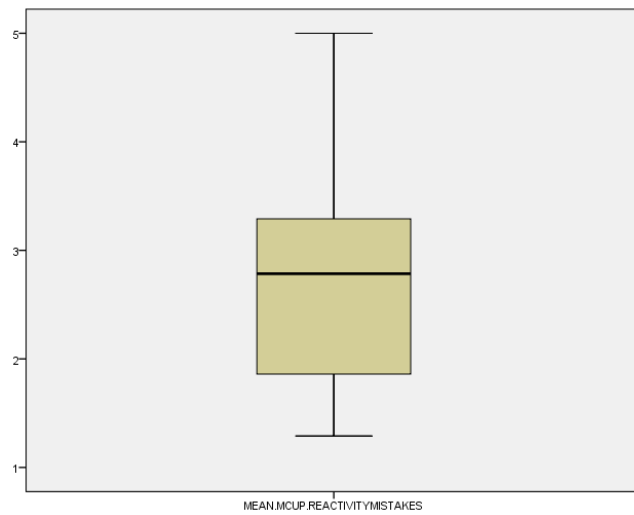
MCUP perceived pressure subscale scores



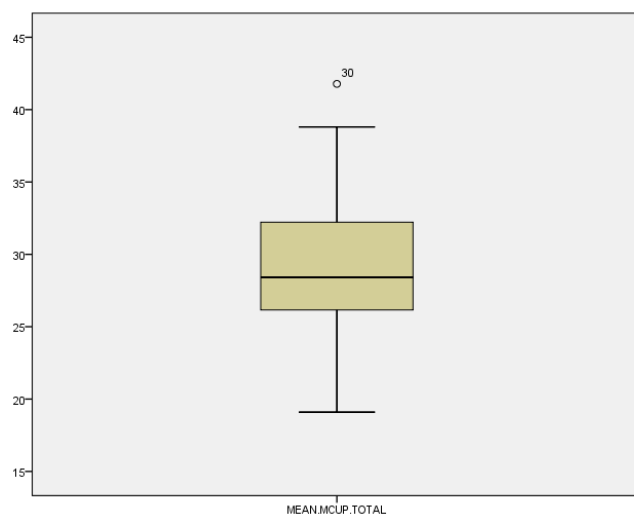
MCUP dissatisfaction subscale scores



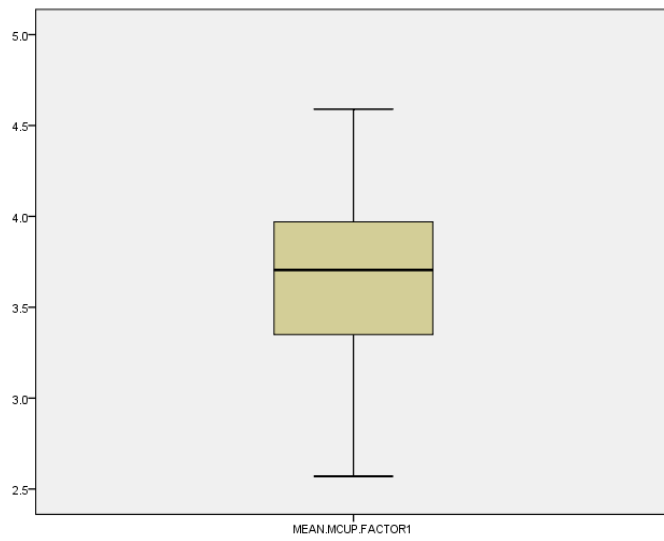
MCUP Reactivity subscale scores



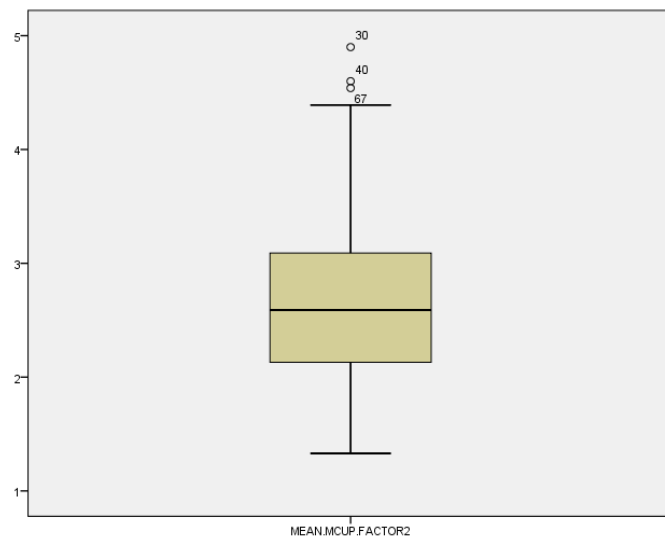
MCUP total scores



MCUP factor 1 scores

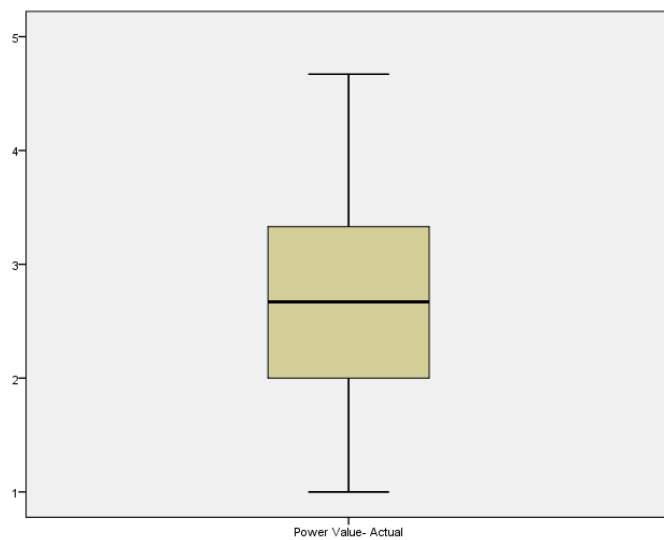


MCUP factor 2 scores

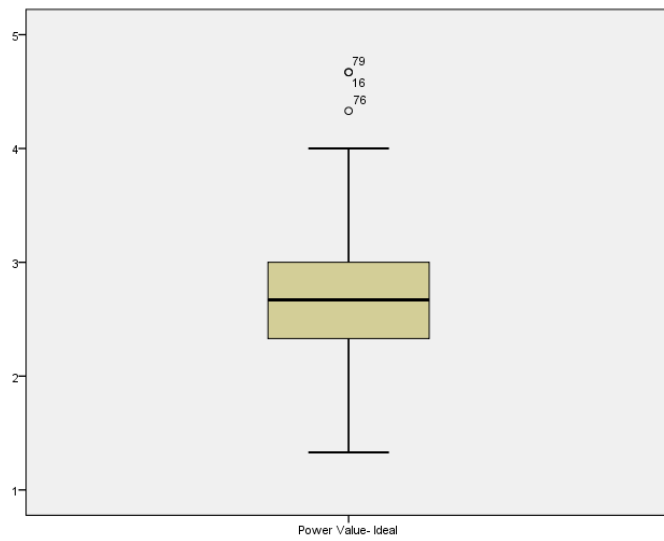


PVQ scores

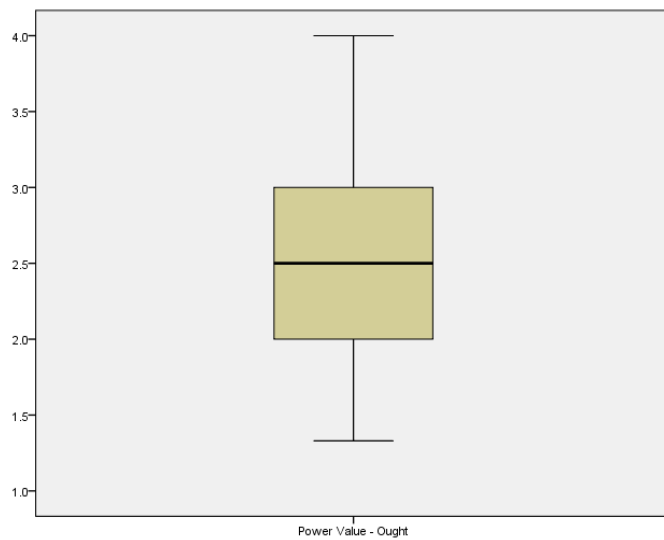
Power Value – Actual scores



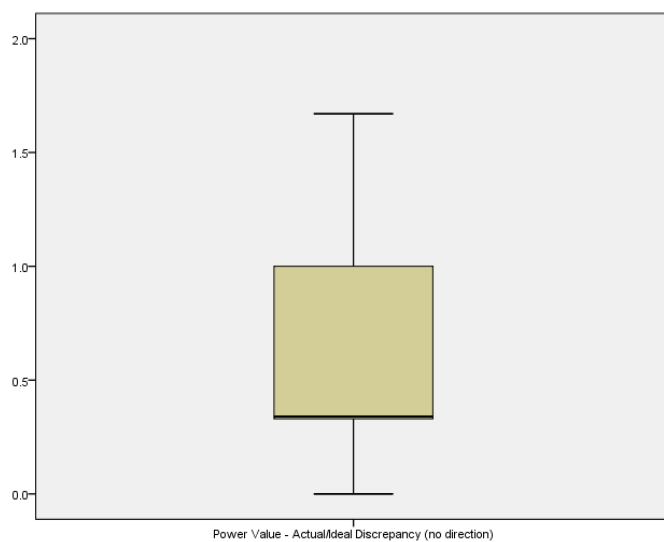
Power Value – Ideal scores



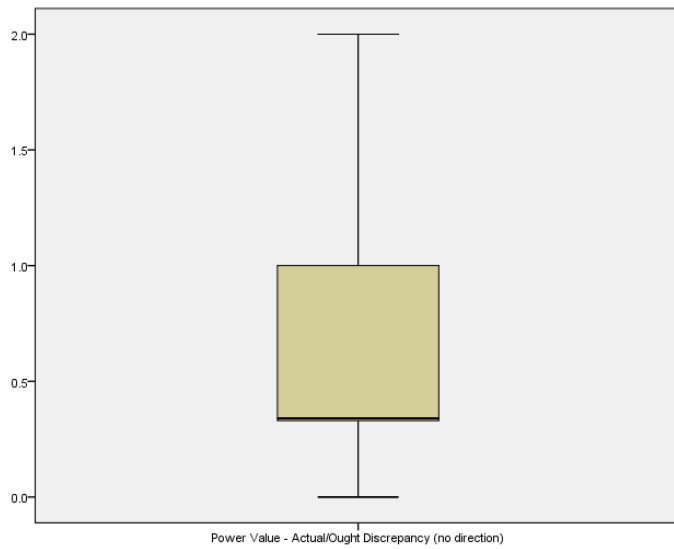
Power Value – Ought scores



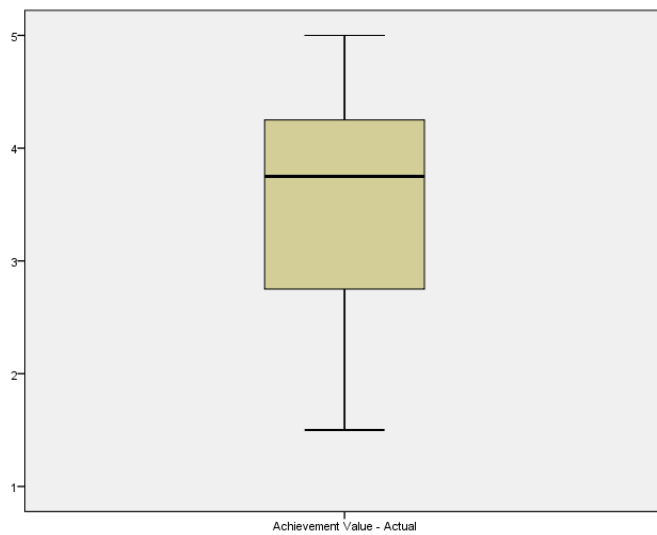
Power Value – Actual/Ideal Discrepancy scores



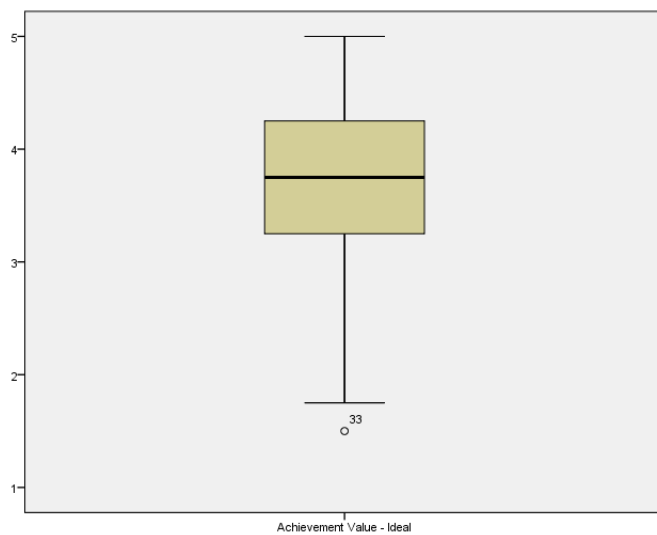
Power Value – Actual/Ought Discrepancy scores



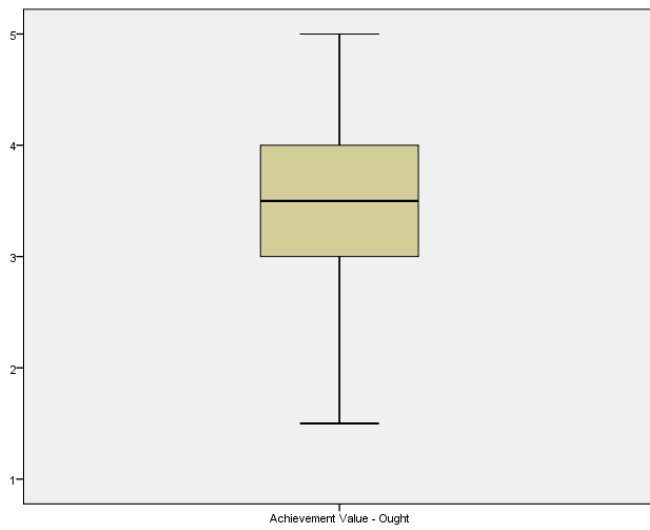
Achievement Value – Actual scores



Achievement Value – Ideal scores



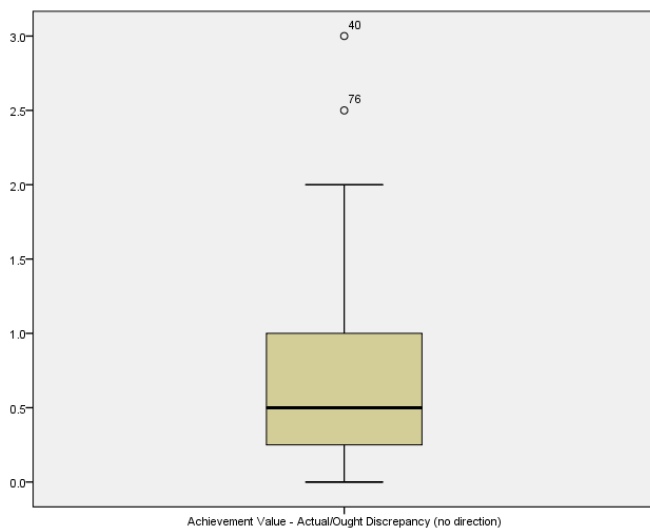
Achievement Value – Ought scores



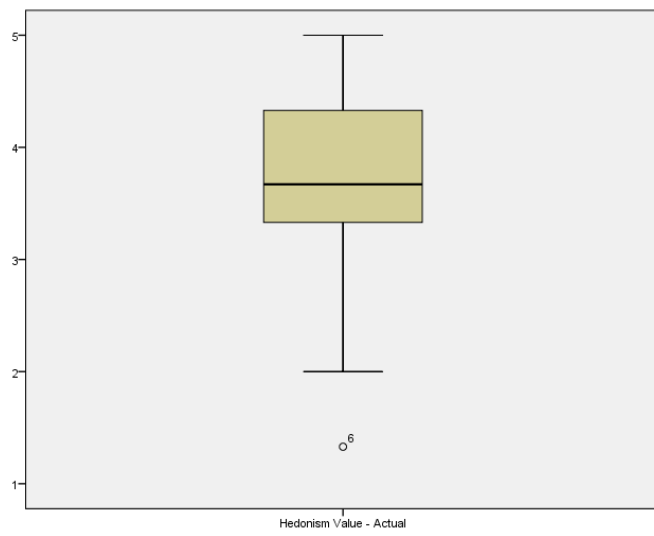
Achievement Value – Actual/Ideal Discrepancy scores



Achievement Value – Actual/Ought Discrepancy scores



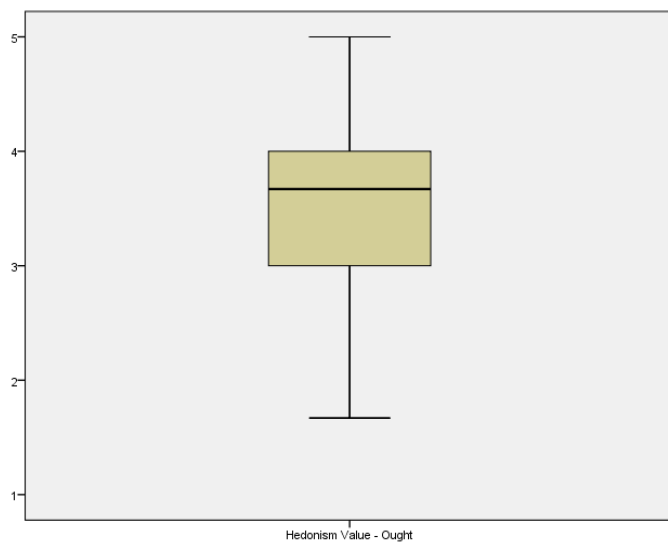
Hedonism Value – Actual scores



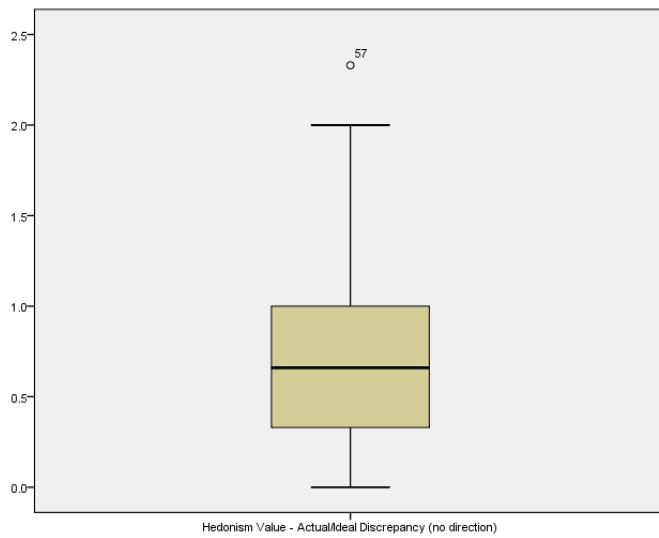
Hedonism Value – Ideal scores



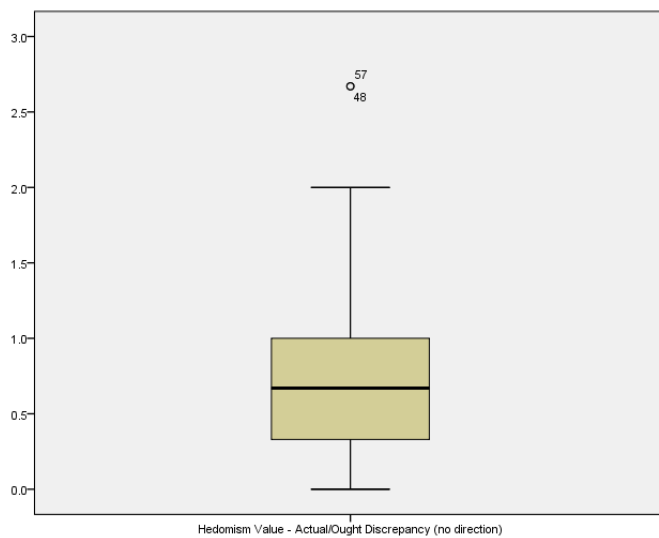
Hedonism Value – Ought scores



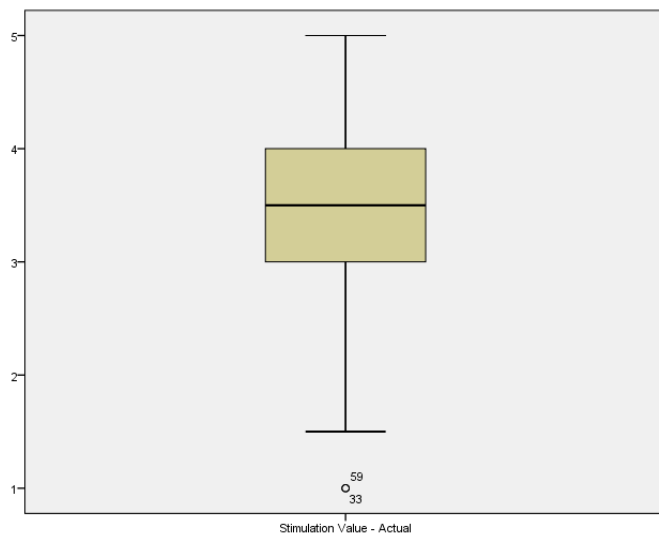
Hedonism Value – Actual/Ideal Discrepancy scores



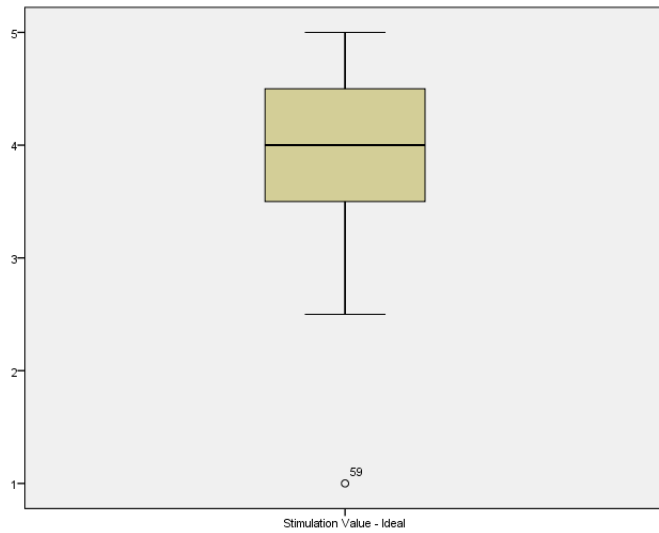
Hedonism Value – Actual/Ought Discrepancy scores



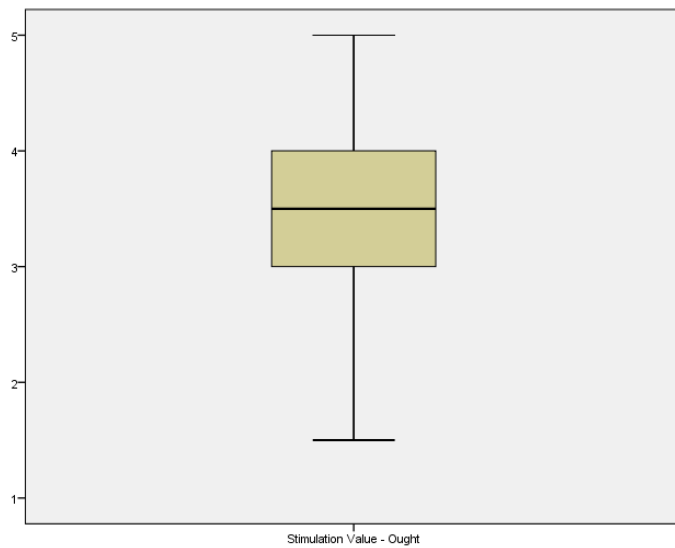
Stimulation Value – Actual scores



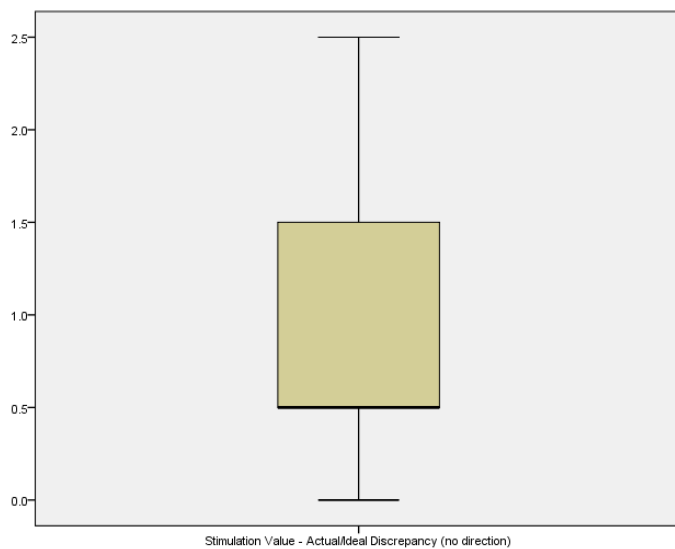
Stimulation Value – Ideal scores



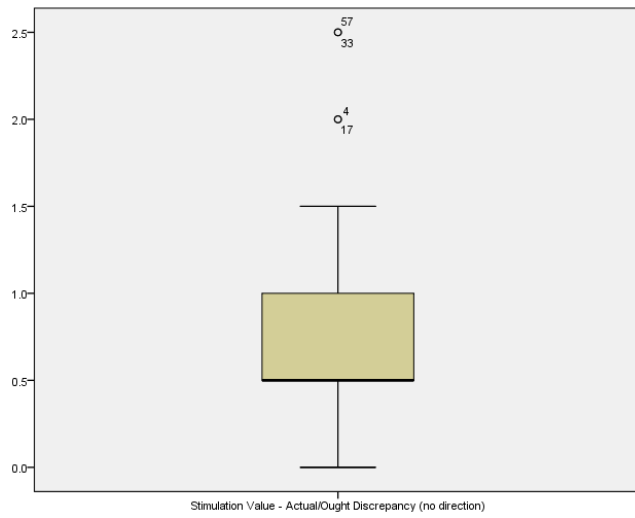
Stimulation Value – Ought scores



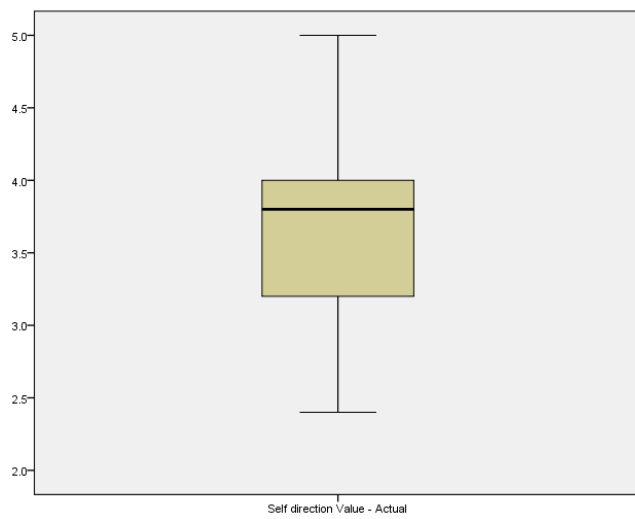
Stimulation Value – Actual/Ideal Discrepancy scores



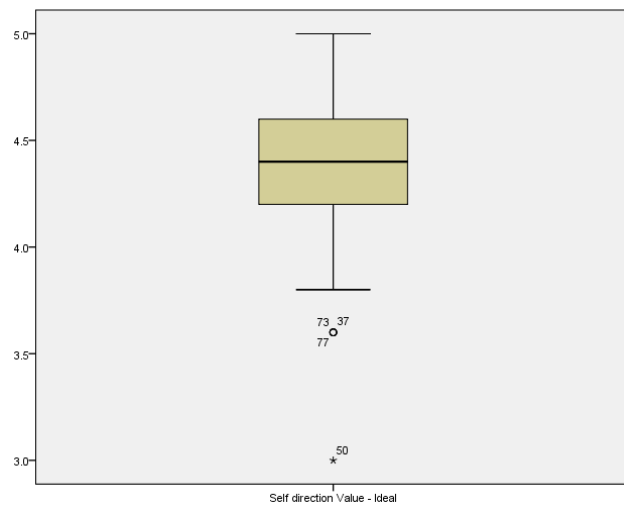
Stimulation Value – Actual/Ought Discrepancy scores



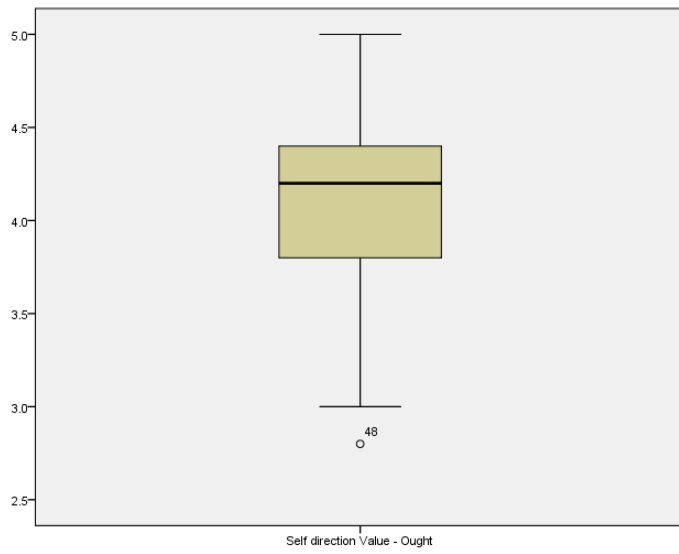
Self-direction Value – Actual scores



Self-direction Value – Ideal scores



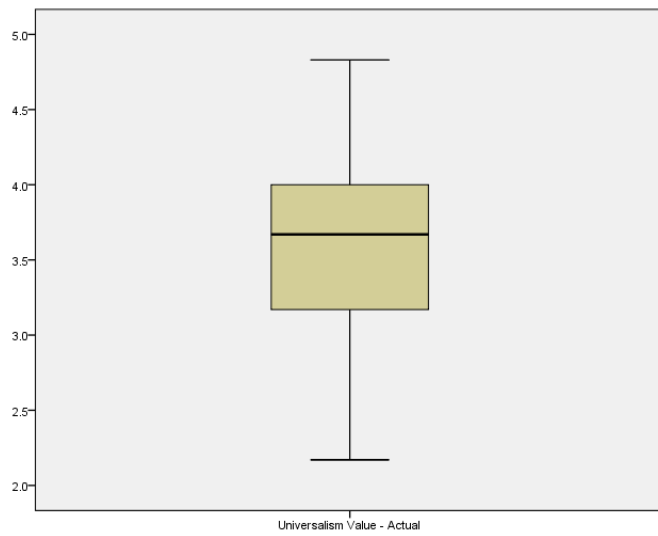
Self-direction Value – Ought scores



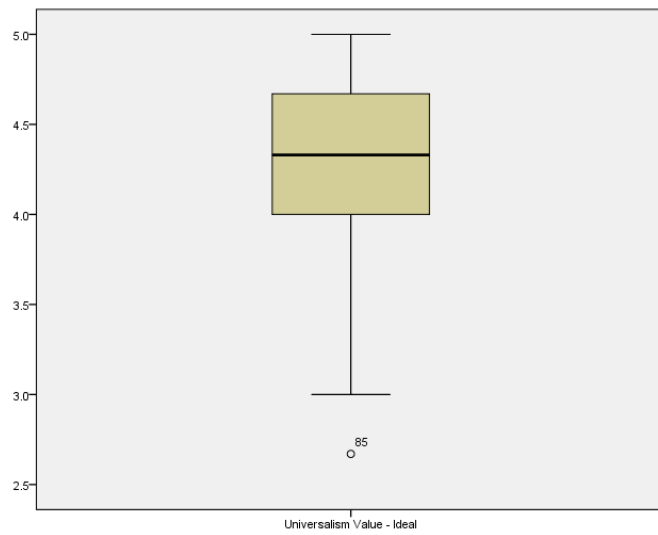
Self-Direction Value – Actual/Ideal Discrepancy scores



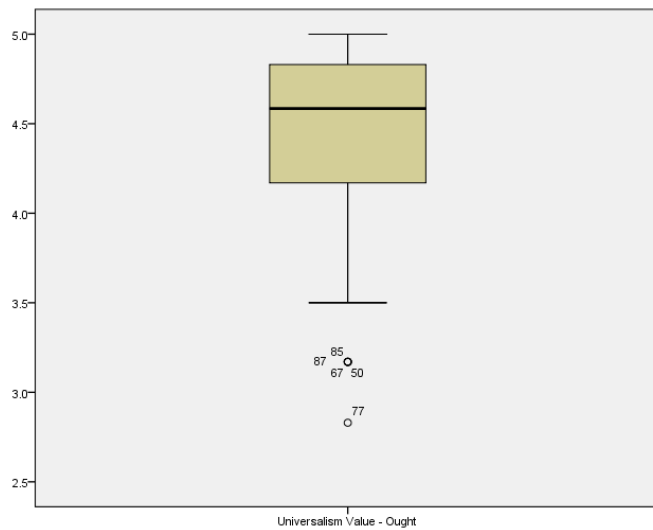
Universalism Value – Actual scores



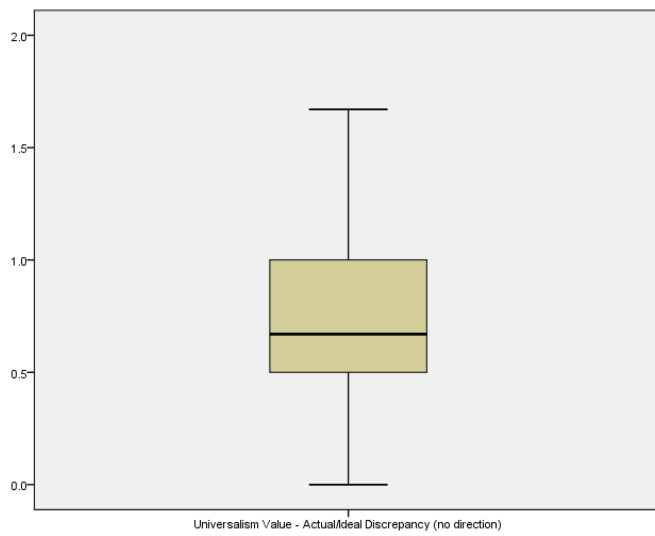
Universalism Value – Ideal scores



Universalism Value – Ought scores



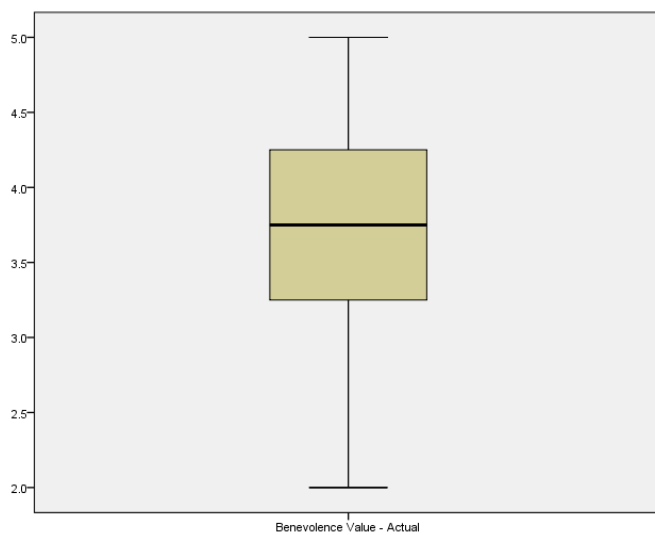
Universalism Value – Actual/Ideal Discrepancy scores



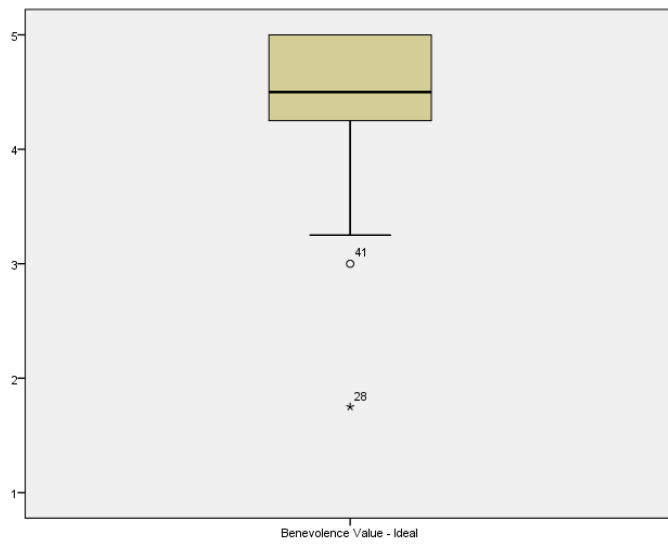
Universalism Value – Actual/Ought Discrepancy scores



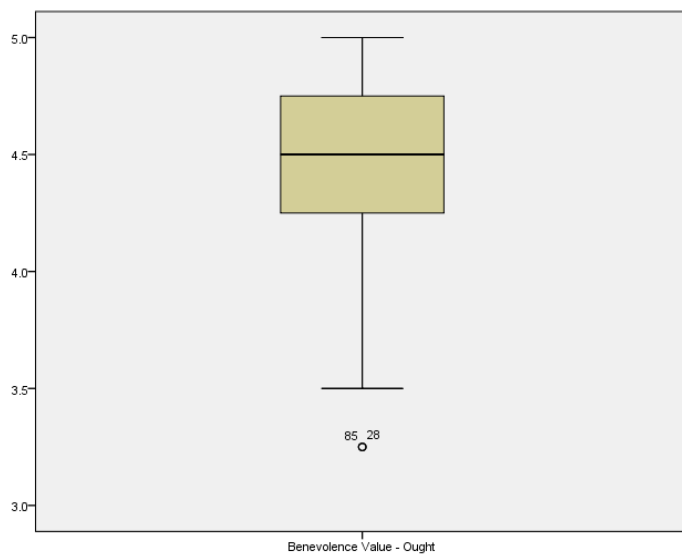
Benevolence Value – Actual Scores



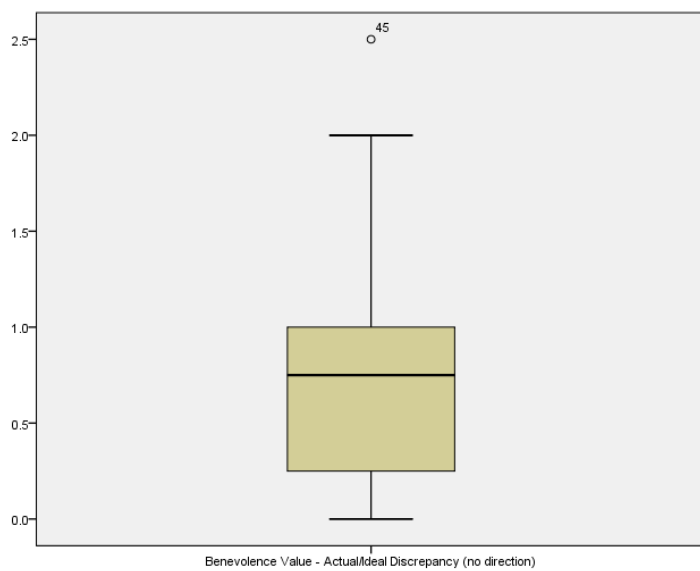
Benevolence Value – Ideal Scores



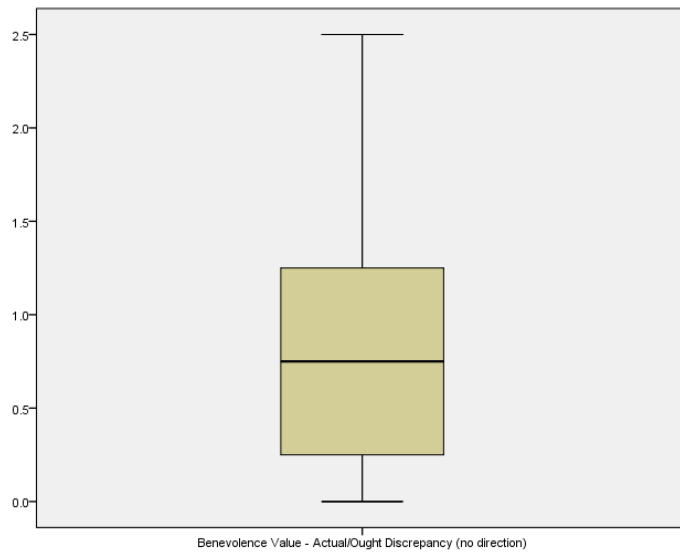
Benevolence Value – Ought Scores



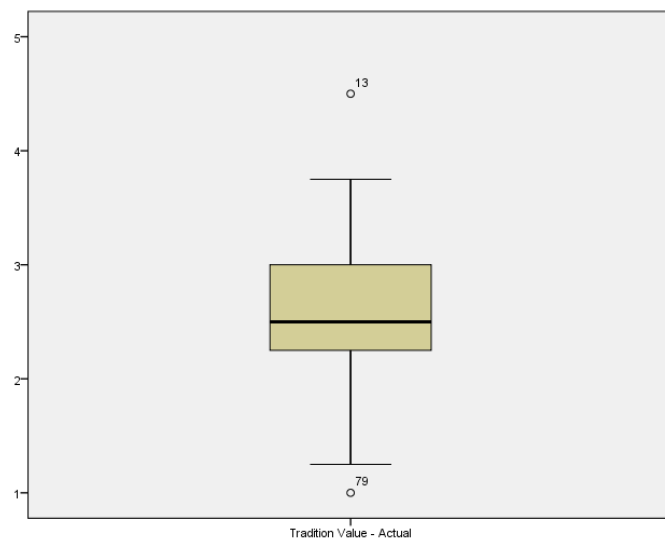
Benevolence Value – Actual/Ideal Discrepancy scores



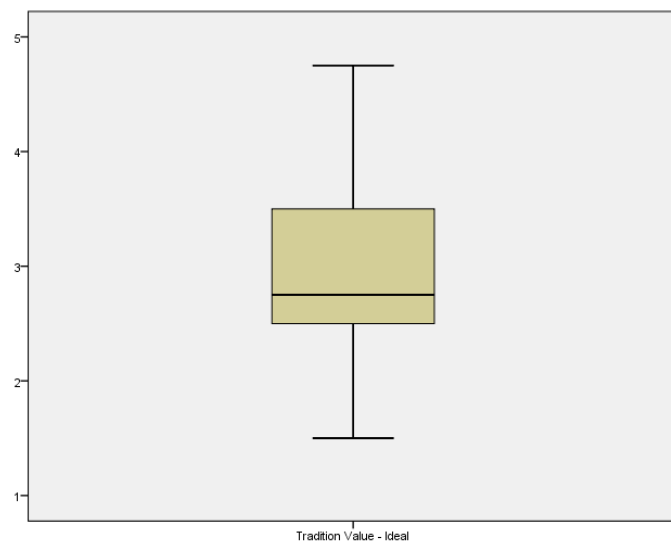
Benevolence Value – Actual/Ought Discrepancy scores



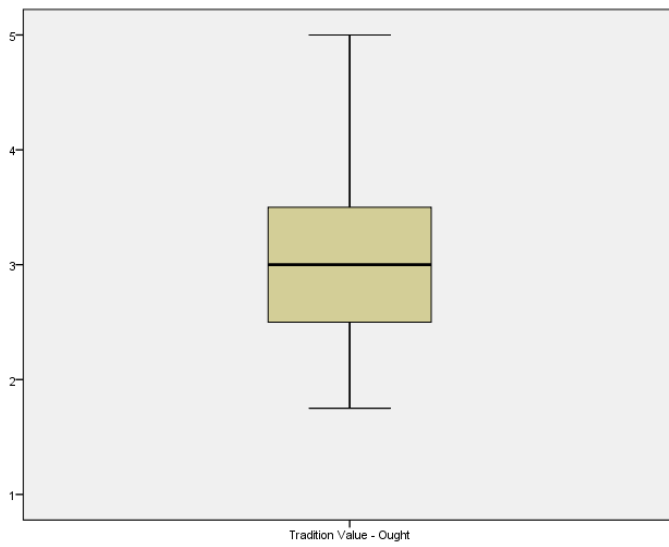
Tradition Value – Actual scores



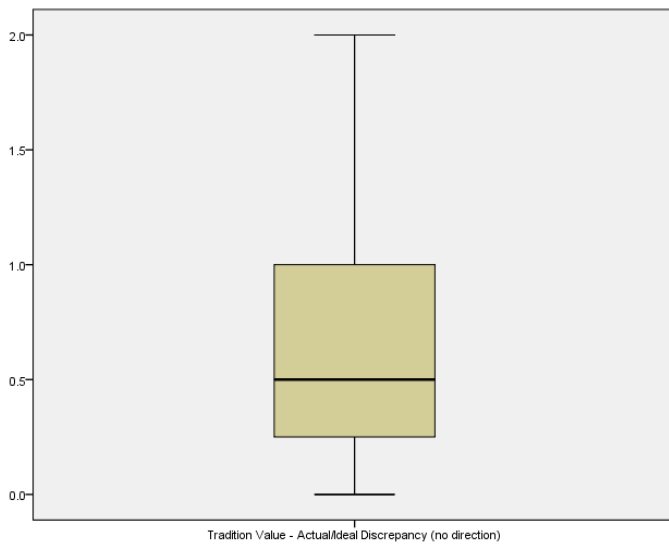
Tradition Value – Ideal scores



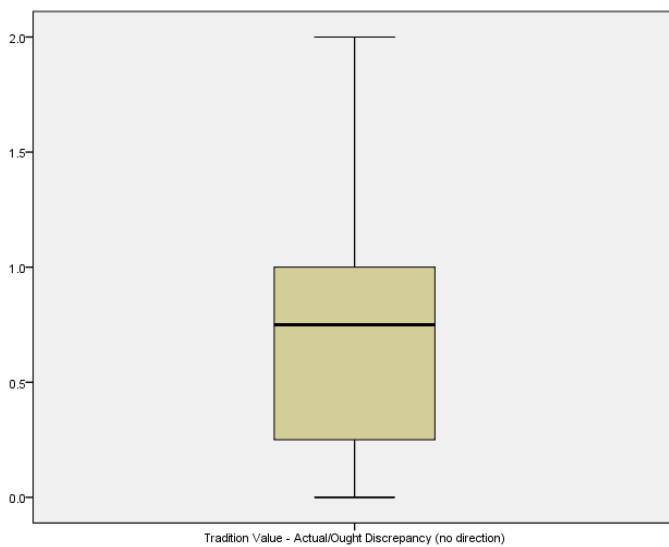
Tradition Value – Ought scores



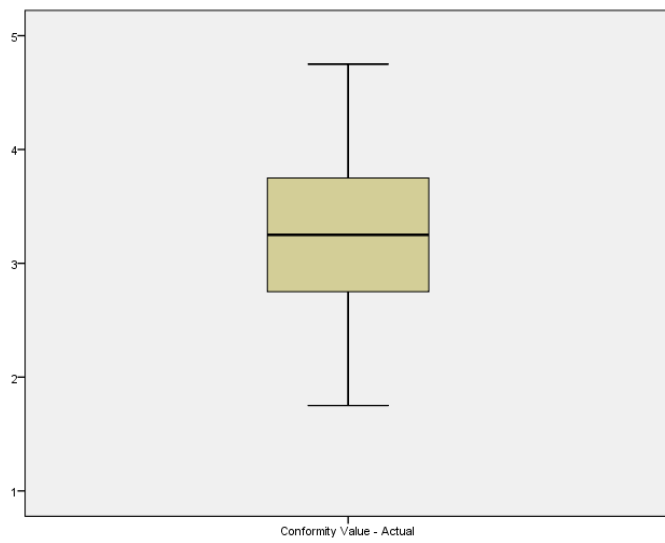
Tradition Value – Actual/Ideal Discrepancy scores



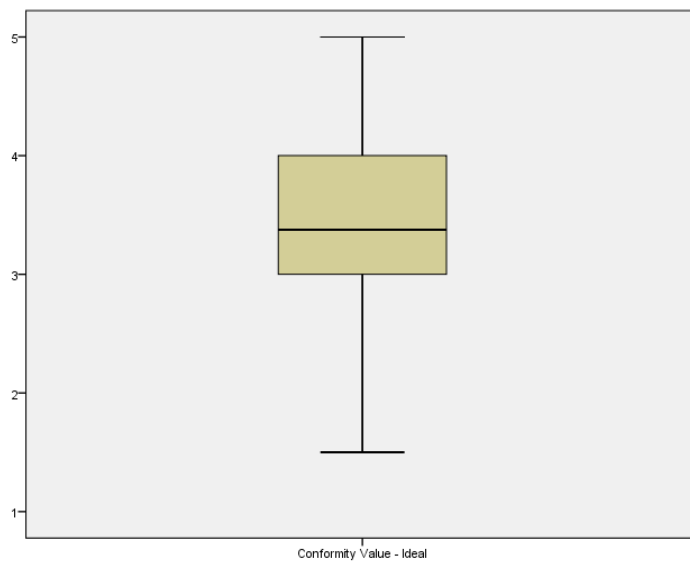
Tradition Value – Actual/Ought Discrepancy scores



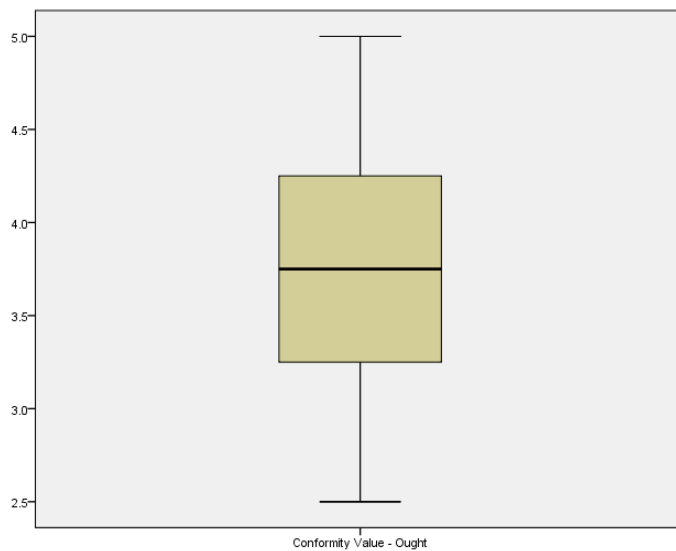
Conformity Value – Actual scores



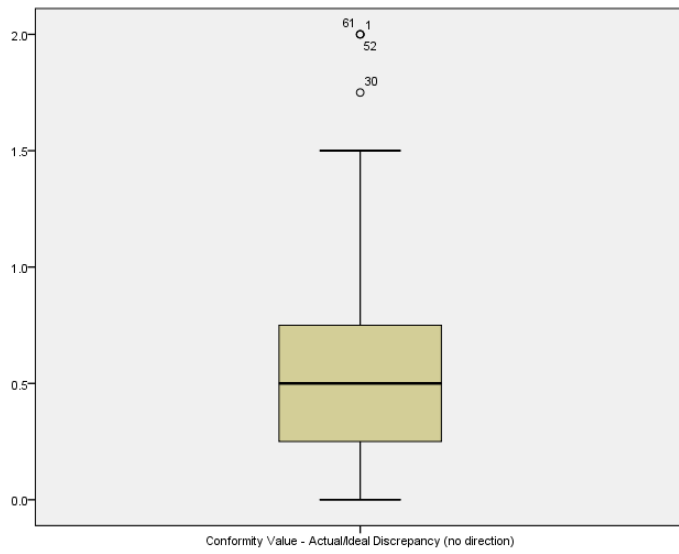
Conformity Value – Ideal scores



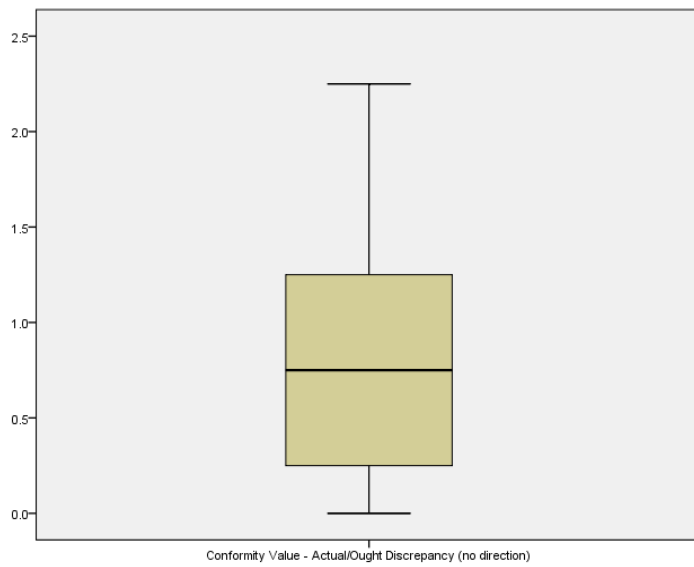
Conformity Value – Ought scores



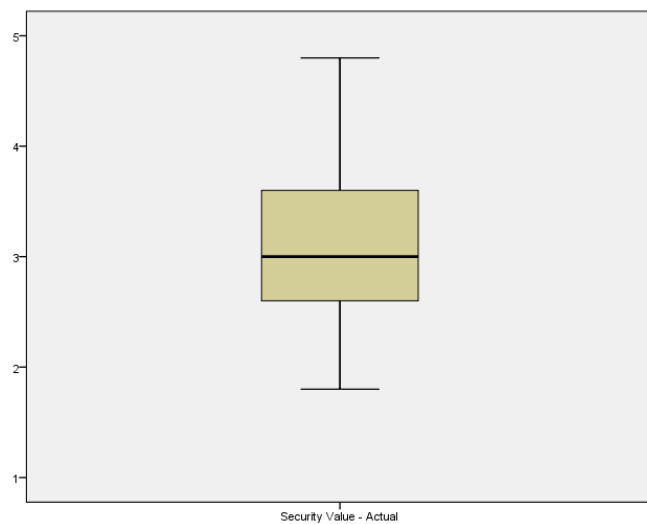
Conformity Value – Actual/Ideal Discrepancy scores



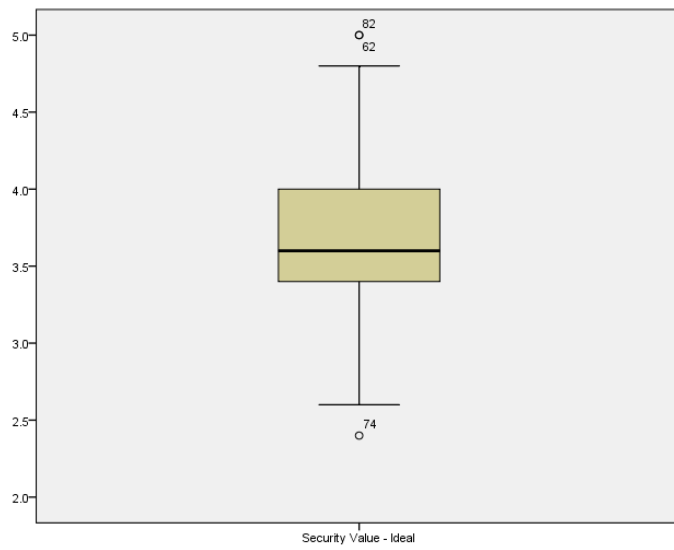
Conformity Value – Actual/Ought Discrepancy scores



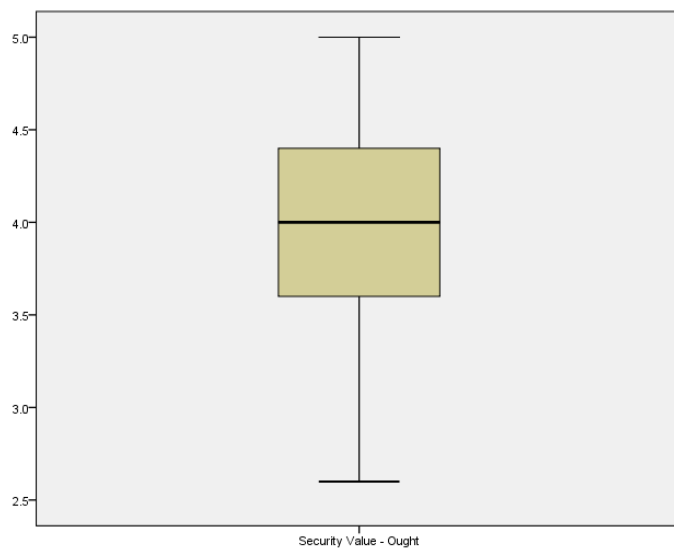
Security value – Actual scores



Security value – Ideal scores



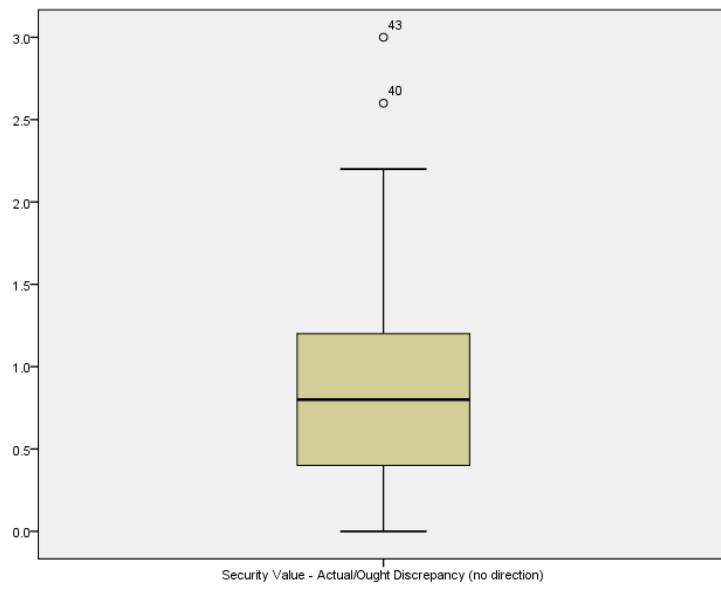
Security value – Ought scores



Security Value – Actual/Ideal Discrepancy scores

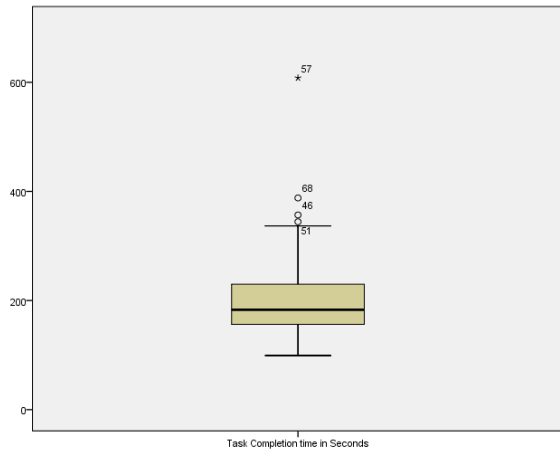


Security Value – Actual/Ought Discrepancy scores

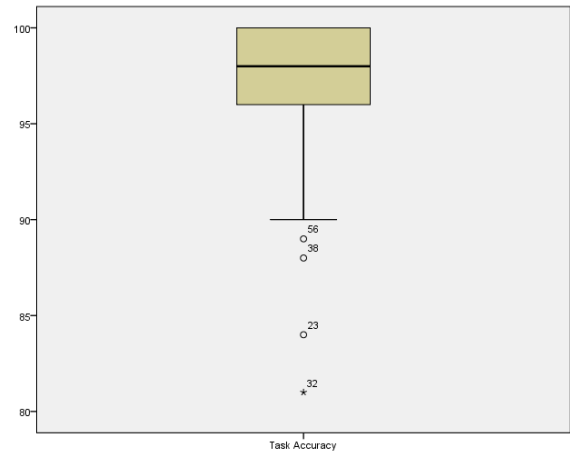


Appendix 20 - Box Plots for Outliers (Behaviour Measures)

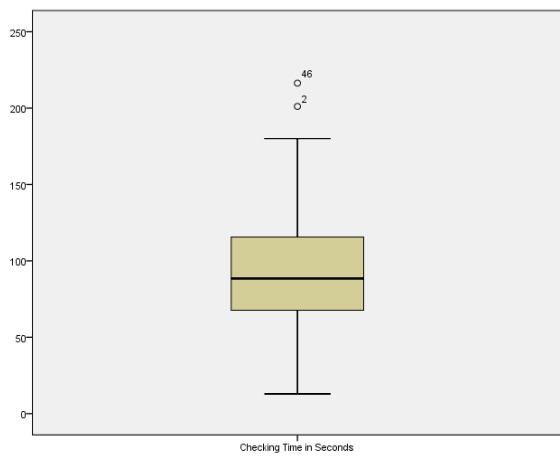
Task Completion Times



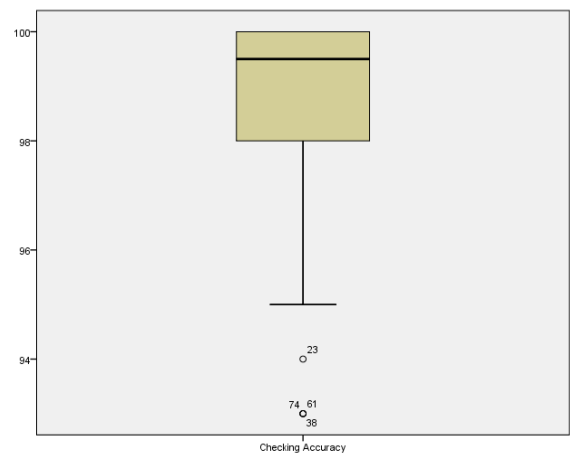
Task Accuracy



Checking Time



Checking Accuracy



Appendix 21 Tests of normality

HADS – Total sample

	Tests of Normality					
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
HADS Anxiety Score	.134	90	.000	.968	90	.026
HADS Depression Score	.190	90	.000	.885	90	.000
HADS Total	.131	90	.001	.944	90	.001

a. Lilliefors Significance Correction

HADS – Between groups

	Priming Group	Tests of Normality					
		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
HADS Anxiety Score	Group 1 - Prime Achievement	.133	30	.187	.933	30	.058
	Group 2 - Prime Benevolence	.120	30	.200*	.964	30	.395
	Group 3 - Control	.197	30	.004	.925	30	.037
HADS Depression Score	Group 1 - Prime Achievement	.253	30	.000	.860	30	.001
	Group 2 - Prime Benevolence	.184	30	.011	.944	30	.113
	Group 3 - Control	.210	30	.002	.826	30	.000
HADS Total	Group 1 - Prime Achievement	.182	30	.012	.913	30	.018
	Group 2 - Prime Benevolence	.125	30	.200*	.963	30	.364
	Group 3 - Control	.188	30	.008	.880	30	.003

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

MCUP – Total sample

	Tests of Normality					
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
MEAN.MCUP.ORDER	.100	90	.027	.975	90	.078
MEAN.MCUP.SATISFACTI ON	.137	90	.000	.927	90	.000

MEAN.MCUP.DETAILSAND CHECKING	.107	90	.013	.974	90	.067
MEAN.MCUP.PERFECTTO WARDOTHER	.078	90	.200*	.975	90	.078
MEAN.MCUP.HIGHSTAND ARDS	.109	90	.011	.922	90	.000
MEAN.MCUP.BLACKAND WHITE	.160	90	.000	.880	90	.000
MEAN.MCUP.PERCEIVED PRESSURE	.132	90	.001	.963	90	.011
MEAN.MCUP.DISSATISFA CTION	.118	90	.004	.976	90	.091
MEAN.MCUP.REACTIVITY MISTAKES	.143	90	.000	.949	90	.001
MEAN.MCUP.TOTAL	.097	90	.034	.977	90	.119
MEAN.MCUP.FACTOR1	.060	90	.200*	.987	90	.542
MEAN.MCUP.FACTOR2	.107	90	.013	.956	90	.004

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

MCUP – Between groups

Tests of Normality

	Priming Group	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
MEAN.MCUP.ORDER	Group 1 - Prime Achievement	.187	30	.009	.962	30	.339
	Group 2 - Prime Benevolence	.077	30	.200*	.983	30	.894
	Group 3 - Control	.111	30	.200*	.942	30	.101
MEAN.MCUP.SATISFACTIO N	Group 1 - Prime Achievement	.212	30	.001	.889	30	.005
	Group 2 - Prime Benevolence	.133	30	.187	.923	30	.032
	Group 3 - Control	.141	30	.133	.918	30	.025
MEAN.MCUP.DETAILSANDC HECKING	Group 1 - Prime Achievement	.195	30	.005	.938	30	.079
	Group 2 - Prime Benevolence	.116	30	.200*	.963	30	.368
	Group 3 - Control	.097	30	.200*	.982	30	.865
MEAN.MCUP.PERFECTTOW ARDOTHER	Group 1 - Prime Achievement	.110	30	.200*	.966	30	.448
	Group 2 - Prime Benevolence	.123	30	.200*	.953	30	.200
	Group 3 - Control	.078	30	.200*	.974	30	.642
MEAN.MCUP.HIGHSTANDA RDS	Group 1 - Prime Achievement	.175	30	.019	.926	30	.037
	Group 2 - Prime Benevolence	.123	30	.200*	.922	30	.030
	Group 3 - Control	.145	30	.110	.895	30	.007

MEAN.MCUP.BLACKANDWHITE	Group 1 - Prime Achievement	.140	30	.141	.919	30	.026
	Group 2 - Prime Benevolence	.233	30	.000	.836	30	.000
	Group 3 - Control	.209	30	.002	.851	30	.001
MEAN.MCUP.PERCEIVEDPRESSURE	Group 1 - Prime Achievement	.129	30	.200*	.968	30	.487
	Group 2 - Prime Benevolence	.160	30	.049	.946	30	.136
	Group 3 - Control	.129	30	.200*	.949	30	.160
MEAN.MCUP.DISSATISFACTION	Group 1 - Prime Achievement	.102	30	.200*	.984	30	.927
	Group 2 - Prime Benevolence	.133	30	.189	.967	30	.470
	Group 3 - Control	.127	30	.200*	.954	30	.216
MEAN.MCUP.REACTIVITYMISTAKES	Group 1 - Prime Achievement	.147	30	.096	.934	30	.064
	Group 2 - Prime Benevolence	.154	30	.067	.948	30	.150
	Group 3 - Control	.177	30	.017	.951	30	.175
MEAN.MCUP.TOTAL	Group 1 - Prime Achievement	.156	30	.060	.951	30	.176
	Group 2 - Prime Benevolence	.122	30	.200*	.953	30	.200
	Group 3 - Control	.139	30	.143	.984	30	.911
MEAN.MCUP.FACTOR1	Group 1 - Prime Achievement	.147	30	.098	.971	30	.555
	Group 2 - Prime Benevolence	.081	30	.200*	.966	30	.437
	Group 3 - Control	.133	30	.183	.956	30	.245
MEAN.MCUP.FACTOR2	Group 1 - Prime Achievement	.125	30	.200*	.943	30	.112
	Group 2 - Prime Benevolence	.104	30	.200*	.939	30	.086
	Group 3 - Control	.191	30	.007	.934	30	.064

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

PVQ – Total sample

Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Power Value- Actual	.099	90	.028	.966	90	.018
Power Value- Ideal	.117	90	.004	.958	90	.005
Power Value - Ought	.120	90	.003	.957	90	.004
Power Value - Actual/Ideal Discrepancy (no direction)	.217	90	.000	.888	90	.000
Power Value - Actual/Ought Discrepancy (no direction)	.225	90	.000	.895	90	.000
Achievement Value - Actual	.123	90	.002	.957	90	.005
Achievement Value - Ideal	.099	90	.031	.974	90	.068

Achievement Value - Ought	.142	90	.000	.968	90	.027
Achievement Value - Actual/Ideal Discrepancy (no direction)	.210	90	.000	.868	90	.000
Achievement Value - Actual/Ought Discrepancy (no direction)	.206	90	.000	.873	90	.000
Hedonism Value - Actual	.120	90	.003	.953	90	.003
Hedonism Value - Ideal	.133	90	.000	.953	90	.003
Hedonism Value - Ought	.171	90	.000	.953	90	.003
Hedonism Value - Actual/Ideal Discrepancy (no direction)	.215	90	.000	.896	90	.000
Hedonism Value - Actual/Ought Discrepancy (no direction)	.147	90	.000	.887	90	.000
Stimulation Value - Actual	.123	90	.002	.959	90	.006
Stimulation Value - Ideal	.160	90	.000	.923	90	.000
Stimulation Value - Ought	.149	90	.000	.951	90	.002
Stimulation Value - Actual/Ideal Discrepancy (no direction)	.224	90	.000	.899	90	.000
Stimulation Value - Actual/Ought Discrepancy (no direction)	.282	90	.000	.852	90	.000
Self-direction Value - Actual	.107	90	.012	.976	90	.097
Self-direction Value - Ideal	.157	90	.000	.933	90	.000
Self-direction Value - Ought	.140	90	.000	.955	90	.003
Self-direction Value - Actual/Ideal Discrepancy (no direction)	.164	90	.000	.940	90	.000
Self-direction Value - Actual/Ought Discrepancy (no direction)	.186	90	.000	.905	90	.000
Universalism Value - Actual	.118	90	.003	.972	90	.048
Universalism Value - Ideal	.175	90	.000	.927	90	.000
Universalism Value - Ought	.188	90	.000	.875	90	.000
Universalism Value - Actual/Ideal Discrepancy (no direction)	.143	90	.000	.968	90	.027
Universalism Value - Actual/Ought Discrepancy (no direction)	.123	90	.002	.958	90	.006

Benevolence Value - Actual	.142	90	.000	.963	90	.011
Benevolence Value - Ideal	.155	90	.000	.835	90	.000
Benevolence Value - Ought	.171	90	.000	.899	90	.000
Benevolence Value - Actual/Ideal Discrepancy (no direction)	.171	90	.000	.918	90	.000
Benevolence Value - Actual/Ought Discrepancy (no direction)	.142	90	.000	.946	90	.001
Tradition Value - Actual	.100	90	.027	.980	90	.175
Tradition Value - Ideal	.149	90	.000	.967	90	.022
Tradition Value - Ought	.115	90	.005	.967	90	.022
Tradition Value - Actual/Ideal Discrepancy (no direction)	.185	90	.000	.922	90	.000
Tradition Value - Actual/Ought Discrepancy (no direction)	.132	90	.001	.933	90	.000
Conformity Value - Actual	.104	90	.018	.977	90	.111
Conformity Value - Ideal	.103	90	.020	.974	90	.067
Conformity Value - Ought	.102	90	.021	.963	90	.012
Conformity Value - Actual/Ideal Discrepancy (no direction)	.209	90	.000	.871	90	.000
Conformity Value - Actual/Ought Discrepancy (no direction)	.176	90	.000	.897	90	.000
Security Value - Actual	.081	90	.195	.984	90	.330
Security Value - Ideal	.093	90	.052	.983	90	.308
Security Value - Ought	.103	90	.019	.974	90	.064
Security Value - Actual/Ideal Discrepancy (no direction)	.140	90	.000	.882	90	.000
Security Value - Actual/Ought Discrepancy (no direction)	.139	90	.000	.929	90	.000

a. Lilliefors Significance Correction

PVQ – Between groups

Tests of Normality

	Priming Group	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Power Value- Actual	Group 1 - Prime Achievement	.166	30	.034	.939	30	.085
	Group 2 - Prime Benevolence	.123	30	.200 [*]	.964	30	.394
	Group 3 - Control	.154	30	.067	.936	30	.073
Power Value- Ideal	Group 1 - Prime Achievement	.145	30	.105	.924	30	.035
	Group 2 - Prime Benevolence	.116	30	.200 [*]	.967	30	.452
	Group 3 - Control	.174	30	.021	.934	30	.064
Power Value - Ought	Group 1 - Prime Achievement	.144	30	.117	.943	30	.110
	Group 2 - Prime Benevolence	.141	30	.131	.925	30	.036
	Group 3 - Control	.212	30	.001	.935	30	.066
Power Value - Actual/Ideal Discrepancy (no direction)	Group 1 - Prime Achievement	.195	30	.005	.906	30	.012
	Group 2 - Prime Benevolence	.260	30	.000	.814	30	.000
	Group 3 - Control	.187	30	.009	.887	30	.004
Power Value - Actual/Ought Discrepancy (no direction)	Group 1 - Prime Achievement	.213	30	.001	.885	30	.004
	Group 2 - Prime Benevolence	.272	30	.000	.876	30	.002
	Group 3 - Control	.198	30	.004	.893	30	.006
Achievement Value - Actual	Group 1 - Prime Achievement	.159	30	.050	.945	30	.126
	Group 2 - Prime Benevolence	.141	30	.130	.948	30	.153
	Group 3 - Control	.123	30	.200 [*]	.948	30	.154
Achievement Value - Ideal	Group 1 - Prime Achievement	.149	30	.086	.956	30	.239
	Group 2 - Prime Benevolence	.166	30	.033	.945	30	.121
	Group 3 - Control	.084	30	.200 [*]	.974	30	.662
Achievement Value - Ought	Group 1 - Prime Achievement	.133	30	.188	.964	30	.389
	Group 2 - Prime Benevolence	.150	30	.084	.944	30	.118
	Group 3 - Control	.175	30	.020	.944	30	.118
Achievement Value - Actual/Ideal Discrepancy (no direction)	Group 1 - Prime Achievement	.202	30	.003	.846	30	.001
	Group 2 - Prime Benevolence	.227	30	.000	.843	30	.000
	Group 3 - Control	.239	30	.000	.909	30	.014
Achievement Value - Actual/Ought Discrepancy (no direction)	Group 1 - Prime Achievement	.175	30	.020	.906	30	.012
	Group 2 - Prime Benevolence	.218	30	.001	.809	30	.000
	Group 3 - Control	.285	30	.000	.845	30	.000
Hedonism Value - Actual	Group 1 - Prime Achievement	.151	30	.080	.922	30	.031
	Group 2 - Prime Benevolence	.142	30	.127	.947	30	.139
	Group 3 - Control	.166	30	.034	.940	30	.090
Hedonism Value - Ideal	Group 1 - Prime Achievement	.154	30	.067	.958	30	.270
	Group 2 - Prime Benevolence	.154	30	.067	.952	30	.188
	Group 3 - Control	.191	30	.007	.939	30	.087
Hedonism Value - Ought	Group 1 - Prime Achievement	.173	30	.022	.948	30	.148
	Group 2 - Prime Benevolence	.151	30	.077	.950	30	.170
	Group 3 - Control	.192	30	.006	.936	30	.073

Hedonism Value -	Group 1 - Prime Achievement	.213	30	.001	.873	30	.002
Actual/Ideal Discrepancy (no direction)	Group 2 - Prime Benevolence	.197	30	.004	.872	30	.002
	Group 3 - Control	.271	30	.000	.881	30	.003
Hedonism Value -	Group 1 - Prime Achievement	.179	30	.015	.919	30	.026
Actual/Ought Discrepancy (no direction)	Group 2 - Prime Benevolence	.192	30	.006	.920	30	.026
	Group 3 - Control	.153	30	.071	.845	30	.000
Stimulation Value - Actual	Group 1 - Prime Achievement	.161	30	.046	.930	30	.050
	Group 2 - Prime Benevolence	.181	30	.013	.952	30	.192
	Group 3 - Control	.158	30	.054	.948	30	.147
Stimulation Value - Ideal	Group 1 - Prime Achievement	.172	30	.023	.911	30	.015
	Group 2 - Prime Benevolence	.212	30	.001	.917	30	.022
	Group 3 - Control	.137	30	.157	.924	30	.033
Stimulation Value - Ought	Group 1 - Prime Achievement	.153	30	.071	.942	30	.105
	Group 2 - Prime Benevolence	.156	30	.062	.940	30	.090
	Group 3 - Control	.189	30	.008	.939	30	.087
Stimulation Value -	Group 1 - Prime Achievement	.174	30	.021	.911	30	.016
Actual/Ideal Discrepancy (no direction)	Group 2 - Prime Benevolence	.308	30	.000	.846	30	.001
	Group 3 - Control	.188	30	.009	.872	30	.002
Stimulation Value -	Group 1 - Prime Achievement	.263	30	.000	.878	30	.003
Actual/Ought Discrepancy (no direction)	Group 2 - Prime Benevolence	.315	30	.000	.810	30	.000
	Group 3 - Control	.265	30	.000	.852	30	.001
Self-direction Value - Actual	Group 1 - Prime Achievement	.120	30	.200 [*]	.971	30	.555
	Group 2 - Prime Benevolence	.135	30	.169	.960	30	.314
	Group 3 - Control	.118	30	.200 [*]	.970	30	.547
Self-direction Value - Ideal	Group 1 - Prime Achievement	.203	30	.003	.928	30	.044
	Group 2 - Prime Benevolence	.185	30	.010	.911	30	.016
	Group 3 - Control	.141	30	.135	.935	30	.069
Self-direction Value - Ought	Group 1 - Prime Achievement	.177	30	.017	.942	30	.106
	Group 2 - Prime Benevolence	.190	30	.007	.918	30	.024
	Group 3 - Control	.152	30	.075	.925	30	.036
Self-direction Value -	Group 1 - Prime Achievement	.180	30	.014	.909	30	.014
Actual/Ideal Discrepancy (no direction)	Group 2 - Prime Benevolence	.187	30	.009	.918	30	.024
	Group 3 - Control	.149	30	.088	.934	30	.064
Self-direction Value -	Group 1 - Prime Achievement	.174	30	.021	.893	30	.006
Actual/Ought Discrepancy (no direction)	Group 2 - Prime Benevolence	.181	30	.014	.926	30	.039
	Group 3 - Control	.206	30	.002	.877	30	.002
Universalism Value - Actual	Group 1 - Prime Achievement	.179	30	.015	.924	30	.034
	Group 2 - Prime Benevolence	.124	30	.200 [*]	.979	30	.797
	Group 3 - Control	.168	30	.031	.963	30	.363
Universalism Value - Ideal	Group 1 - Prime Achievement	.209	30	.002	.940	30	.094
	Group 2 - Prime Benevolence	.169	30	.029	.902	30	.009
	Group 3 - Control	.216	30	.001	.885	30	.004
Universalism Value - Ought	Group 1 - Prime Achievement	.210	30	.002	.803	30	.000

	Group 2 - Prime Benevolence	.206	30	.002	.872	30	.002
	Group 3 - Control	.194	30	.005	.899	30	.008
Universalism Value -	Group 1 - Prime Achievement	.130	30	.200*	.946	30	.128
Actual/Ideal Discrepancy (no	Group 2 - Prime Benevolence	.127	30	.200*	.972	30	.605
direction)	Group 3 - Control	.182	30	.012	.941	30	.094
Universalism Value -	Group 1 - Prime Achievement	.125	30	.200*	.934	30	.064
Actual/Ought Discrepancy (no	Group 2 - Prime Benevolence	.098	30	.200*	.966	30	.434
direction)	Group 3 - Control	.212	30	.001	.917	30	.023
	Group 1 - Prime Achievement	.154	30	.068	.944	30	.120
Benevolence Value - Actual	Group 2 - Prime Benevolence	.094	30	.200*	.975	30	.696
	Group 3 - Control	.235	30	.000	.895	30	.006
	Group 1 - Prime Achievement	.162	30	.043	.886	30	.004
Benevolence Value - Ideal	Group 2 - Prime Benevolence	.189	30	.008	.806	30	.000
	Group 3 - Control	.153	30	.072	.880	30	.003
	Group 1 - Prime Achievement	.181	30	.013	.921	30	.029
Benevolence Value - Ought	Group 2 - Prime Benevolence	.195	30	.005	.897	30	.007
	Group 3 - Control	.179	30	.015	.867	30	.001
Benevolence Value -	Group 1 - Prime Achievement	.222	30	.001	.905	30	.011
Actual/Ideal Discrepancy (no	Group 2 - Prime Benevolence	.167	30	.033	.928	30	.044
direction)	Group 3 - Control	.180	30	.014	.878	30	.003
Benevolence Value -	Group 1 - Prime Achievement	.169	30	.028	.932	30	.056
Actual/Ought Discrepancy (no	Group 2 - Prime Benevolence	.161	30	.045	.954	30	.221
direction)	Group 3 - Control	.144	30	.113	.911	30	.016
	Group 1 - Prime Achievement	.102	30	.200*	.966	30	.442
Tradition Value - Actual	Group 2 - Prime Benevolence	.150	30	.083	.959	30	.291
	Group 3 - Control	.216	30	.001	.931	30	.053
	Group 1 - Prime Achievement	.140	30	.136	.973	30	.622
Tradition Value - Ideal	Group 2 - Prime Benevolence	.184	30	.011	.920	30	.027
	Group 3 - Control	.157	30	.056	.965	30	.419
	Group 1 - Prime Achievement	.113	30	.200*	.962	30	.357
Tradition Value - Ought	Group 2 - Prime Benevolence	.229	30	.000	.917	30	.023
	Group 3 - Control	.129	30	.200*	.977	30	.740
	Group 1 - Prime Achievement	.195	30	.005	.924	30	.035
Tradition Value - Actual/Ideal	Group 2 - Prime Benevolence	.181	30	.013	.902	30	.009
Discrepancy (no direction)	Group 3 - Control	.171	30	.025	.912	30	.016
	Group 1 - Prime Achievement	.194	30	.006	.932	30	.056
Tradition Value - Actual/Ought	Group 2 - Prime Benevolence	.226	30	.000	.907	30	.012
Discrepancy (no direction)	Group 3 - Control	.147	30	.099	.905	30	.011
	Group 1 - Prime Achievement	.141	30	.135	.937	30	.075
Conformity Value - Actual	Group 2 - Prime Benevolence	.107	30	.200*	.976	30	.712
	Group 3 - Control	.130	30	.200*	.957	30	.261
	Group 1 - Prime Achievement	.126	30	.200*	.956	30	.248
Conformity Value - Ideal	Group 2 - Prime Benevolence	.155	30	.062	.957	30	.252

	Group 3 - Control	.125	30	.200*	.936	30	.070
	Group 1 - Prime Achievement	.128	30	.200*	.960	30	.316
Conformity Value - Ought	Group 2 - Prime Benevolence	.114	30	.200*	.973	30	.631
	Group 3 - Control	.133	30	.184	.944	30	.116
Conformity Value -	Group 1 - Prime Achievement	.215	30	.001	.868	30	.001
Actual/Ideal Discrepancy (no	Group 2 - Prime Benevolence	.215	30	.001	.840	30	.000
direction)	Group 3 - Control	.187	30	.009	.883	30	.003
Conformity Value -	Group 1 - Prime Achievement	.154	30	.067	.903	30	.010
Actual/Ought Discrepancy (no	Group 2 - Prime Benevolence	.214	30	.001	.829	30	.000
direction)	Group 3 - Control	.204	30	.003	.921	30	.028
	Group 1 - Prime Achievement	.114	30	.200*	.984	30	.927
Security Value - Actual	Group 2 - Prime Benevolence	.119	30	.200*	.961	30	.332
	Group 3 - Control	.095	30	.200*	.967	30	.470
	Group 1 - Prime Achievement	.141	30	.133	.977	30	.745
Security Value - Ideal	Group 2 - Prime Benevolence	.168	30	.030	.951	30	.176
	Group 3 - Control	.099	30	.200*	.969	30	.520
	Group 1 - Prime Achievement	.148	30	.092	.912	30	.017
Security Value - Ought	Group 2 - Prime Benevolence	.145	30	.106	.954	30	.217
	Group 3 - Control	.124	30	.200*	.952	30	.194
	Group 1 - Prime Achievement	.125	30	.200*	.939	30	.086
Security Value - Actual/Ideal	Group 2 - Prime Benevolence	.145	30	.106	.924	30	.034
Discrepancy (no direction)	Group 3 - Control	.202	30	.003	.799	30	.000
	Group 1 - Prime Achievement	.131	30	.200*	.933	30	.059
Security Value - Actual/Ought	Group 2 - Prime Benevolence	.188	30	.008	.908	30	.013
Discrepancy (no direction)	Group 3 - Control	.173	30	.023	.875	30	.002

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Behavioural Measures – Total sample

	Tests of Normality					
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Task Completion time in Seconds	.158	52	.002	.719	52	.000
Task Accuracy	.231	52	.000	.810	52	.000
Checking Time in Seconds	.153	52	.004	.945	52	.018
Checking Accuracy	.259	52	.000	.729	52	.000

a. Lilliefors Significance Correction

Behavioural Measures – Between groups

Tests of Normality

	Priming Group	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Task Completion time in Seconds	Group 1 - Prime Achievement	.118	22	.200*	.963	22	.551
	Group 2 - Prime Benevolence	.178	17	.157	.874	17	.025
	Group 3 - Control	.261	13	.016	.731	13	.001
Task Accuracy	Group 1 - Prime Achievement	.177	22	.070	.903	22	.034
	Group 2 - Prime Benevolence	.249	17	.006	.845	17	.009
	Group 3 - Control	.291	13	.004	.797	13	.006
Checking Time in Seconds	Group 1 - Prime Achievement	.129	22	.200*	.957	22	.425
	Group 2 - Prime Benevolence	.178	17	.158	.888	17	.042
	Group 3 - Control	.227	13	.064	.908	13	.173
Checking Accuracy	Group 1 - Prime Achievement	.253	22	.001	.678	22	.000
	Group 2 - Prime Benevolence	.272	17	.002	.811	17	.003
	Group 3 - Control	.364	13	.000	.722	13	.001

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Appendix 22 Tests of homogeneity

HADS

Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
HADS Anxiety Score	Based on Mean	. ^a			
	Based on Mean	2.461	2	87	.091
	Based on Median	1.813	2	87	.169
HADS Total	Based on Median and with adjusted df	1.813	2	73.272	.170
	Based on trimmed mean	2.063	2	87	.133

a. There are not enough unique spread/level pairs to compute the Levene statistic.

MCUP

Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
MEAN.MCUP.ORDER	Based on Mean	.695	2	87	.502
	Based on Median	.609	2	87	.546
	Based on Median and with adjusted df	.609	2	75.129	.547
	Based on trimmed mean	.636	2	87	.532
	Based on Mean	.102	2	87	.903
MEAN.MCUP.SATISFACTI ON	Based on Median	.097	2	87	.908
	Based on Median and with adjusted df	.097	2	73.050	.908
	Based on trimmed mean	.091	2	87	.913
	Based on Mean	.685	2	87	.507
MEAN.MCUP.DETAILSAND CHECKING	Based on Median	.180	2	87	.836
	Based on Median and with adjusted df	.180	2	78.677	.836
	Based on trimmed mean	.583	2	87	.560
MEAN.MCUP.PERFECTTO WARDOTHER	Based on Mean	.355	2	87	.702
	Based on Median	.327	2	87	.722
	Based on Median and with adjusted df	.327	2	80.614	.722

	Based on trimmed mean	.350	2	87	.706
	Based on Mean	3.678	2	87	.029
MEAN.MCUP.HIGHSTAND	Based on Median	3.060	2	87	.052
ARDS	Based on Median and with adjusted df	3.060	2	63.768	.054
	Based on trimmed mean	3.310	2	87	.041
	Based on Mean	.886	2	87	.416
MEAN.MCUP.BLACKANDW	Based on Median	.721	2	87	.489
HITE	Based on Median and with adjusted df	.721	2	83.147	.489
	Based on trimmed mean	.886	2	87	.416
	Based on Mean	.519	2	87	.597
MEAN.MCUP.PERCEIVEDP	Based on Median	.542	2	87	.583
RESSURE	Based on Median and with adjusted df	.542	2	82.334	.583
	Based on trimmed mean	.525	2	87	.593
	Based on Mean	1.349	2	87	.265
MEAN.MCUP.DISSATISFA	Based on Median	1.223	2	87	.299
CTION	Based on Median and with adjusted df	1.223	2	81.729	.300
	Based on trimmed mean	1.279	2	87	.283
	Based on Mean	.013	2	87	.987
MEAN.MCUP.REACTIVITY	Based on Median	.045	2	87	.956
MISTAKES	Based on Median and with adjusted df	.045	2	84.216	.956
	Based on trimmed mean	.015	2	87	.985
	Based on Mean	1.797	2	87	.172
	Based on Median	1.763	2	87	.178
MEAN.MCUP.TOTAL	Based on Median and with adjusted df	1.763	2	84.850	.178
	Based on trimmed mean	1.790	2	87	.173
	Based on Mean	1.685	2	87	.191
	Based on Median	1.443	2	87	.242
MEAN.MCUP.FACTOR1	Based on Median and with adjusted df	1.443	2	83.539	.242
	Based on trimmed mean	1.625	2	87	.203
	Based on Mean	1.034	2	87	.360
	Based on Median	.940	2	87	.395
MEAN.MCUP.FACTOR2	Based on Median and with adjusted df	.940	2	85.992	.395
	Based on trimmed mean	1.031	2	87	.361

Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
Power Value- Actual	Based on Mean	.032	2	87	.968
	Based on Median	.074	2	87	.929
	Based on Median and with adjusted df	.074	2	86.417	.929
	Based on trimmed mean	.040	2	87	.961
Power Value- Ideal	Based on Mean	.566	2	87	.570
	Based on Median	.696	2	87	.501
	Based on Median and with adjusted df	.696	2	83.883	.501
	Based on trimmed mean	.621	2	87	.540
Power Value - Ought	Based on Mean	.061	2	87	.940
	Based on Median	.132	2	87	.877
	Based on Median and with adjusted df	.132	2	74.603	.877
	Based on trimmed mean	.043	2	87	.958
Achievement Value - Actual	Based on Mean	.195	2	87	.823
	Based on Median	.180	2	87	.836
	Based on Median and with adjusted df	.180	2	81.445	.836
	Based on trimmed mean	.311	2	87	.734
Achievement Value - Ideal	Based on Mean	.562	2	87	.572
	Based on Median	.403	2	87	.670
	Based on Median and with adjusted df	.403	2	78.562	.670
	Based on trimmed mean	.509	2	87	.603
Achievement Value - Ought	Based on Mean	.439	2	87	.646
	Based on Median	.498	2	87	.610
	Based on Median and with adjusted df	.498	2	81.956	.610
	Based on trimmed mean	.477	2	87	.622
Hedonism Value - Actual	Based on Mean	.153	2	87	.858
	Based on Median	.094	2	87	.910
	Based on Median and with adjusted df	.094	2	75.469	.910
	Based on trimmed mean	.114	2	87	.892
Hedonism Value - Ideal	Based on Mean	.796	2	87	.454
	Based on Median	.481	2	87	.620

	Based on Median and with adjusted df	.481	2	75.748	.620
	Based on trimmed mean	.731	2	87	.484
	Based on Mean	.540	2	87	.585
	Based on Median	.353	2	87	.703
Hedonism Value - Ought	Based on Median and with adjusted df	.353	2	86.408	.703
	Based on trimmed mean	.506	2	87	.605
	Based on Mean	.416	2	87	.661
	Based on Median	.490	2	87	.614
Stimulation Value - Actual	Based on Median and with adjusted df	.490	2	86.459	.614
	Based on trimmed mean	.441	2	87	.645
	Based on Mean	3.146	2	87	.048
	Based on Median	2.789	2	87	.067
Stimulation Value - Ideal	Based on Median and with adjusted df	2.789	2	57.891	.070
	Based on trimmed mean	3.195	2	87	.046
	Based on Mean	.131	2	87	.878
	Based on Median	.194	2	87	.824
Stimulation Value - Ought	Based on Median and with adjusted df	.194	2	85.529	.824
	Based on trimmed mean	.117	2	87	.890
	Based on Mean	.104	2	87	.901
	Based on Median	.164	2	87	.849
Self-direction Value - Actual	Based on Median and with adjusted df	.164	2	85.035	.849
	Based on trimmed mean	.116	2	87	.891
	Based on Mean	1.541	2	87	.220
	Based on Median	1.489	2	87	.231
Self-direction Value - Ideal	Based on Median and with adjusted df	1.489	2	82.641	.232
	Based on trimmed mean	1.512	2	87	.226
	Based on Mean	.144	2	87	.866
	Based on Median	.077	2	87	.926
Self-direction Value - Ought	Based on Median and with adjusted df	.077	2	86.761	.926
	Based on trimmed mean	.090	2	87	.914
Self-direction Value - Actual/Ideal Discrepancy (no direction)	Based on Mean	^a .			
Universalism Value - Actual	Based on Mean	1.668	2	87	.195
	Based on Median	.718	2	87	.491

	Based on Median and with adjusted df	.718	2	77.912	.491
	Based on trimmed mean	1.424	2	87	.246
	Based on Mean	.204	2	87	.816
	Based on Median	.131	2	87	.878
Universalism Value - Ideal	Based on Median and with adjusted df	.131	2	83.745	.878
	Based on trimmed mean	.188	2	87	.829
	Based on Mean	1.197	2	87	.307
	Based on Median	.921	2	87	.402
Universalism Value - Ought	Based on Median and with adjusted df	.921	2	86.518	.402
	Based on trimmed mean	1.218	2	87	.301
Universalism Value - Actual/Ideal Discrepancy (no direction)	Based on Mean	. ^a			
	Based on Mean	.814	1	58	.371
Universalism Value - Actual/Ought Discrepancy (no direction)	Based on Median	.444	1	58	.508
	Based on Median and with adjusted df	.444	1	51.056	.508
	Based on trimmed mean	.733	1	58	.396
	Based on Mean	.074	2	87	.929
	Based on Median	.061	2	87	.941
Benevolence Value - Actual	Based on Median and with adjusted df	.061	2	77.620	.941
	Based on trimmed mean	.047	2	87	.954
	Based on Mean	1.048	2	87	.355
	Based on Median	1.043	2	87	.357
Benevolence Value - Ideal	Based on Median and with adjusted df	1.043	2	52.433	.360
	Based on trimmed mean	1.005	2	87	.370
	Based on Mean	.377	2	87	.687
	Based on Median	.321	2	87	.726
Benevolence Value - Ought	Based on Median and with adjusted df	.321	2	81.571	.727
	Based on trimmed mean	.363	2	87	.697
	Based on Mean	2.694	2	87	.073
	Based on Median	1.978	2	87	.145
Tradition Value - Actual	Based on Median and with adjusted df	1.978	2	75.500	.145
	Based on trimmed mean	2.593	2	87	.081
	Based on Mean	.990	2	87	.376
Tradition Value - Ideal	Based on Median	.882	2	87	.418

	Based on Median and with adjusted df	.882	2	81.646	.418
	Based on trimmed mean	1.017	2	87	.366
	Based on Mean	.490	2	87	.615
	Based on Median	.353	2	87	.703
Tradition Value - Ought	Based on Median and with adjusted df	.353	2	86.575	.703
	Based on trimmed mean	.489	2	87	.615
	Based on Mean	2.513	2	87	.087
	Based on Median	1.732	2	87	.183
Conformity Value - Actual	Based on Median and with adjusted df	1.732	2	76.810	.184
	Based on trimmed mean	2.258	2	87	.111
	Based on Mean	.946	2	87	.392
	Based on Median	.825	2	87	.442
Conformity Value - Ideal	Based on Median and with adjusted df	.825	2	65.654	.443
	Based on trimmed mean	.854	2	87	.429
	Based on Mean	1.906	2	87	.155
	Based on Median	1.974	2	87	.145
Conformity Value - Ought	Based on Median and with adjusted df	1.974	2	86.115	.145
	Based on trimmed mean	1.943	2	87	.149
	Based on Mean	.207	2	87	.814
	Based on Median	.203	2	87	.816
Security Value - Actual	Based on Median and with adjusted df	.203	2	86.690	.816
	Based on trimmed mean	.190	2	87	.827
	Based on Mean	.344	2	87	.710
	Based on Median	.363	2	87	.697
Security Value - Ideal	Based on Median and with adjusted df	.363	2	85.766	.697
	Based on trimmed mean	.343	2	87	.710
	Based on Mean	4.116	2	87	.020
	Based on Median	4.036	2	87	.021
Security Value - Ought	Based on Median and with adjusted df	4.036	2	86.275	.021
	Based on trimmed mean	3.988	2	87	.022

a. There are not enough unique spread/level pairs to compute the Levene statistic.

Behavioural Measures

Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
Task Completion time in Seconds	Based on Mean	.559	2	87	.574
	Based on Median	.287	2	87	.751
	Based on Median and with adjusted df	.287	2	74.931	.751
	Based on trimmed mean	.522	2	87	.595
Task Accuracy	Based on Mean	6.980	2	87	.002
	Based on Median	2.014	2	87	.140
	Based on Median and with adjusted df	2.014	2	69.790	.141
	Based on trimmed mean	6.142	2	87	.003

Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
Checking Time in Seconds	Based on Mean	2.824	2	49	.069
	Based on Median	1.555	2	49	.221
	Based on Median and with adjusted df	1.555	2	29.668	.228
	Based on trimmed mean	2.330	2	49	.108
Checking Accuracy	Based on Mean	6.068	2	49	.004
	Based on Median	3.822	2	49	.029
	Based on Median and with adjusted df	3.822	2	46.112	.029
	Based on trimmed mean	5.802	2	49	.005

Appendix 23 One way ANOVA's

Age

ANOVA

Age

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	38.689	2	19.344	.364	.696
Within Groups	4623.767	87	53.147		
Total	4662.456	89			

Gender

ANOVA

Gender

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.022	2	.011	.100	.905
Within Groups	9.633	87	.111		
Total	9.656	89			

Appendix 24 Chi Square (Ethnicity)

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	15.900 ^a	10	.103
Likelihood Ratio	18.026	10	.055
Linear-by-Linear Association	4.140	1	.042
N of Valid Cases	90		

a. 15 cells (83.3%) have expected count less than 5. The minimum expected count is .33.

Appendix 25 One way ANOVA's

Anxiety

ANOVA

HADS.ANXIETY.NEW

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	42.022	2	21.011	1.404	.251
Within Groups	1302.300	87	14.969		
Total	1344.322	89			

Depression

ANOVA

HADS.DEPRESSION.NEW

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.067	2	.533	.066	.937
Within Groups	707.333	87	8.130		
Total	708.400	89			

Appendix 26 One way ANOVA's

MCUP TOTAL

ANOVA

MEAN.MCUP.TOTAL

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5.154	2	2.577	.135	.874
Within Groups	1663.377	87	19.119		
Total	1668.530	89			

MCUP FACTOR 1

ANOVA

MEAN.MCUP.FACTOR1

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.159	2	.079	.400	.672
Within Groups	17.237	87	.198		
Total	17.396	89			

MCUP FACTOR 2

ANOVA

MEAN.MCUP.FACTOR2

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.832	2	.416	.694	.502
Within Groups	52.187	87	.600		
Total	53.020	89			

Appendix 27 One way ANOVA's

ACTUAL VALUES

ANOVA

Power Value- Actual

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.119	2	1.560	2.167	.121
Within Groups	62.601	87	.720		
Total	65.720	89			

ANOVA

Achievement Value - Actual

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.851	2	.926	1.150	.322
Within Groups	70.054	87	.805		
Total	71.906	89			

ANOVA

Hedonism Value - Actual

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.287	2	.644	1.035	.359
Within Groups	54.070	87	.621		
Total	55.358	89			

ANOVA

Stimulation Value - Actual

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.072	2	.036	.038	.962
Within Groups	81.708	87	.939		
Total	81.781	89			

ANOVA

Self-direction Value - Actual

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.195	2	.097	.257	.774
Within Groups	32.929	87	.378		
Total	33.124	89			

ANOVA

Universalism Value - Actual

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.152	2	.076	.222	.801
Within Groups	29.845	87	.343		
Total	29.998	89			

ANOVA

Benevolence Value - Actual

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.372	2	.186	.409	.665
Within Groups	39.548	87	.455		
Total	39.920	89			

ANOVA

Tradition Value - Actual

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.004	2	.502	1.466	.237
Within Groups	29.802	87	.343		
Total	30.806	89			

ANOVA

Conformity Value - Actual

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.067	2	.533	1.162	.318
Within Groups	39.940	87	.459		
Total	41.006	89			

ANOVA

Security Value - Actual

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.150	2	.075	.166	.848
Within Groups	39.441	87	.453		
Total	39.592	89			

IDEAL VALUES

ANOVA

Power Value- Ideal

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.522	2	.261	.614	.544
Within Groups	37.022	87	.426		
Total	37.545	89			

ANOVA

Achievement Value - Ideal

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.101	2	.551	.928	.399
Within Groups	51.635	87	.594		
Total	52.737	89			

ANOVA

Hedonism Value - Ideal

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.803	2	.401	1.091	.341
Within Groups	32.019	87	.368		
Total	32.822	89			

ANOVA

Stimulation Value - Ideal

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.439	2	1.219	2.410	.096
Within Groups	44.017	87	.506		
Total	46.456	89			

ANOVA

Self-direction Value - Ideal

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.412	2	.206	1.828	.167
Within Groups	9.795	87	.113		
Total	10.206	89			

ANOVA

Universalism Value - Ideal

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.051	2	.025	.115	.892
Within Groups	19.301	87	.222		
Total	19.352	89			

ANOVA

Benevolence Value - Ideal

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.404	2	.202	.908	.407
Within Groups	19.371	87	.223		
Total	19.775	89			

ANOVA

Tradition Value - Ideal

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.339	2	.169	.354	.703
Within Groups	41.640	87	.479		
Total	41.978	89			

ANOVA

Conformity Value - Ideal

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.385	2	.192	.443	.644
Within Groups	37.779	87	.434		
Total	38.164	89			

ANOVA

Security Value - Ideal

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.289	2	.144	.504	.606
Within Groups	24.929	87	.287		
Total	25.218	89			

UGHT VALUES

ANOVA

Power Value - Ought

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.484	2	.242	.663	.518
Within Groups	31.767	87	.365		
Total	32.251	89			

ANOVA

Achievement Value - Ought

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.379	2	.190	.328	.722
Within Groups	50.346	87	.579		
Total	50.725	89			

ANOVA

Hedonism Value - Ought

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.029	2	.015	.033	.967
Within Groups	38.370	87	.441		
Total	38.399	89			

ANOVA

Stimulation Value - Ought

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.939	2	.969	2.173	.120
Within Groups	38.808	87	.446		
Total	40.747	89			

ANOVA

Self-direction Value - Ought

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.398	2	.199	.968	.384
Within Groups	17.904	87	.206		
Total	18.302	89			

ANOVA

Universalism Value - Ought

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.603	2	.301	1.501	.229
Within Groups	17.467	87	.201		
Total	18.070	89			

ANOVA

Benevolence Value - Ought

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.151	2	.076	.379	.686
Within Groups	17.377	87	.200		
Total	17.528	89			

ANOVA

Tradition Value - Ought

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.360	2	.180	.344	.710
Within Groups	45.554	87	.524		
Total	45.914	89			

ANOVA

Conformity Value - Ought

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.176	2	.588	1.382	.257
Within Groups	37.029	87	.426		
Total	38.206	89			

ANOVA

Security Value - Ought

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.041	2	.520	1.705	.188
Within Groups	26.551	87	.305		
Total	27.592	89			

Appendix 28 Independent T-Tests

Checking Time: Group 1 x Group 2

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means							
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
								Lower	Upper	
Checking Time in Seconds	3.680	.063	Equal variances assumed	2.227	37	.032	28.34738	12.72612	2.56181	54.13294
			variances not assumed	2.300	36.991	.027	28.34738	12.32399	3.37640	53.31835

Checking Time Group 1 x Group 3

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means							
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
								Lower	Upper	
Checking Time in Seconds	.019	.892	Equal variances assumed	1.842	34	.074	28.52305	15.48167	-2.93949	59.98560
			variances not assumed	1.796	25.496	.084	28.52305	15.88356	-4.15753	61.20363

Checking Time: Group 2 x Group 3

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means							
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
								Lower	Upper	
Checking Time in Seconds	1.599	.216	Equal variances assumed	.012	29	.991	.17567	14.77908	-30.05094	30.40228
Equal variances not assumed			.011	22.544	.991	.17567	15.30148	-31.51335	31.86470	

Checking Option: Group 1 x 2

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means							
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
								Lower	Upper	
Checking Option	6.176	.016	Equal variances assumed	-	58	.182	-.167	.123	-.414	.080
Equal variances not assumed			-	57.264	.182	-.167	.123	-.414	.080	

Checking Option: Group 1 x 3

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means							
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
								Lower	Upper	
Checking Option Equal variances assumed	7.552	.008	2.154	58	.035	-.267	.124	-.514	-.019	
Checking Option Equal variances not assumed			2.154	57.177	.035	-.267	.124	-.515	-.019	

Checking Option: Group 2 x 3

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means							
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
								Lower	Upper	
Checking Option Equal variances assumed	.236	.629	.766	58	.447	-.100	.131	-.361	.161	
Checking Option Equal variances not assumed			.766	57.997	.447	-.100	.131	-.361	.161	

Appendix 29 MANOVA's

MANOVA – Task Time and Accuracy

Multivariate Tests^a

Effect	Value	F	Hypothesis df	Error df	Sig.	
Intercept	Pillai's Trace	.999	51251.260 ^b	2.000	86.000	.000
	Wilks' Lambda	.001	51251.260 ^b	2.000	86.000	.000
	Hotelling's Trace	1191.890	51251.260 ^b	2.000	86.000	.000
	Roy's Largest Root	1191.890	51251.260 ^b	2.000	86.000	.000
Group	Pillai's Trace	.044	.976	4.000	174.000	.422
	Wilks' Lambda	.956	.975 ^b	4.000	172.000	.422
	Hotelling's Trace	.046	.974	4.000	170.000	.423
	Roy's Largest Root	.045	1.958 ^c	2.000	87.000	.147

a. Design: Intercept + Group

b. Exact statistic

c. The statistic is an upper bound on F that yields a lower bound on the significance level.

Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	Task Completion time in Seconds	8551.623 ^a	2	4275.812	1.212	.303
	Task Accuracy	32.067 ^b	2	16.033	1.662	.196
Intercept	Task Completion time in Seconds	3525366.875	1	3525366.875	999.483	.000
	Task Accuracy	851472.400	1	851472.400	88237.234	.000
Group	Task Completion time in Seconds	8551.623	2	4275.812	1.212	.303
	Task Accuracy	32.067	2	16.033	1.662	.196
Error	Task Completion time in Seconds	306865.453	87	3527.189		
	Task Accuracy	839.533	87	9.650		
Total	Task Completion time in Seconds	3840783.951	90			
	Task Accuracy	852344.000	90			
Corrected Total	Task Completion time in Seconds	315417.076	89			
	Task Accuracy	871.600	89			

a. R Squared = .027 (Adjusted R Squared = .005)

b. R Squared = .037 (Adjusted R Squared = .015)

MANOVA – Task Time and Accuracy – Age Covarite

Multivariate Tests^a

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.991	4826.355 ^b	2.000	85.000	.000
	Wilks' Lambda	.009	4826.355 ^b	2.000	85.000	.000
	Hotelling's Trace	113.561	4826.355 ^b	2.000	85.000	.000
	Roy's Largest Root	113.561	4826.355 ^b	2.000	85.000	.000
Age	Pillai's Trace	.058	2.596 ^b	2.000	85.000	.080
	Wilks' Lambda	.942	2.596 ^b	2.000	85.000	.080
	Hotelling's Trace	.061	2.596 ^b	2.000	85.000	.080
	Roy's Largest Root	.061	2.596 ^b	2.000	85.000	.080
Group	Pillai's Trace	.041	.899	4.000	172.000	.466
	Wilks' Lambda	.959	.898 ^b	4.000	170.000	.466
	Hotelling's Trace	.043	.897	4.000	168.000	.467
	Roy's Largest Root	.042	1.824 ^c	2.000	86.000	.168

a. Design: Intercept + Age + Group

b. Exact statistic

c. The statistic is an upper bound on F that yields a lower bound on the significance level.

Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	Task Completion time in Seconds	26128.717 ^a	3	8709.572	2.589	.058
	Task Accuracy	40.276 ^b	3	13.425	1.389	.252
Intercept	Task Completion time in Seconds	205826.442	1	205826.442	61.188	.000
	Task Accuracy	79642.717	1	79642.717	8238.999	.000
Age	Task Completion time in Seconds	17577.094	1	17577.094	5.225	.025
	Task Accuracy	8.210	1	8.210	.849	.359
Group	Task Completion time in Seconds	7155.357	2	3577.678	1.064	.350
	Task Accuracy	30.442	2	15.221	1.575	.213
Error	Task Completion time in Seconds	289288.359	86	3363.818		
	Task Accuracy	831.324	86	9.667		
Total	Task Completion time in Seconds	3840783.951	90			
	Task Accuracy	852344.000	90			

Corrected Total	Task Completion time in Seconds	315417.076	89		
	Task Accuracy	871.600	89		

a. R Squared = .083 (Adjusted R Squared = .051)

b. R Squared = .046 (Adjusted R Squared = .013)

MANOVA – Check Time and Accuracy

Multivariate Tests^a

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	1.000	87618.766 ^b	2.000	48.000	.000
	Wilks' Lambda	.000	87618.766 ^b	2.000	48.000	.000
	Hotelling's Trace	3650.782	87618.766 ^b	2.000	48.000	.000
	Roy's Largest Root	3650.782	87618.766 ^b	2.000	48.000	.000
Group	Pillai's Trace	.170	2.271	4.000	98.000	.067
	Wilks' Lambda	.837	2.229 ^b	4.000	96.000	.071
	Hotelling's Trace	.186	2.187	4.000	94.000	.076
	Roy's Largest Root	.113	2.770 ^c	2.000	49.000	.072

a. Design: Intercept + Group

b. Exact statistic

c. The statistic is an upper bound on F that yields a lower bound on the significance level.

Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	Checking Time in Seconds	9353.558 ^a	2	4676.779	2.662	.080
	Checking Accuracy	10.866 ^b	2	5.433	1.990	.148
Intercept	Checking Time in Seconds	425159.855	1	425159.855	242.012	.000
	Checking Accuracy	484324.868	1	484324.868	177359.765	.000
Group	Checking Time in Seconds	9353.558	2	4676.779	2.662	.080
	Checking Accuracy	10.866	2	5.433	1.990	.148
Error	Checking Time in Seconds	86081.921	49	1756.774		
	Checking Accuracy	133.807	49	2.731		
Total	Checking Time in Seconds	562905.666	52			
	Checking Accuracy	506831.000	52			
Corrected Total	Checking Time in Seconds	95435.479	51			
	Checking Accuracy	144.673	51			

a. R Squared = .098 (Adjusted R Squared = .061)

b. R Squared = .075 (Adjusted R Squared = .037)

MANOVA – Check Time and Accuracy with Age Covariate

Multivariate Tests^a

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.965	651.141 ^b	2.000	47.000	.000
	Wilks' Lambda	.035	651.141 ^b	2.000	47.000	.000
	Hotelling's Trace	27.708	651.141 ^b	2.000	47.000	.000
	Roy's Largest Root	27.708	651.141 ^b	2.000	47.000	.000
Age	Pillai's Trace	.075	1.914 ^b	2.000	47.000	.159
	Wilks' Lambda	.925	1.914 ^b	2.000	47.000	.159
	Hotelling's Trace	.081	1.914 ^b	2.000	47.000	.159
	Roy's Largest Root	.081	1.914 ^b	2.000	47.000	.159
Group	Pillai's Trace	.180	2.377	4.000	96.000	.057
	Wilks' Lambda	.828	2.332 ^b	4.000	94.000	.061
	Hotelling's Trace	.199	2.288	4.000	92.000	.066
	Roy's Largest Root	.121	2.910 ^c	2.000	48.000	.064

a. Design: Intercept + Age + Group

b. Exact statistic

c. The statistic is an upper bound on F that yields a lower bound on the significance level.

Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	Checking Time in Seconds	15795.148 ^a	3	5265.049	3.173	.032
	Checking Accuracy	10.891 ^b	3	3.630	1.303	.284
Intercept	Checking Time in Seconds	546.470	1	546.470	.329	.569
	Checking Accuracy	3627.986	1	3627.986	1301.693	.000
Age	Checking Time in Seconds	6441.590	1	6441.590	3.882	.055
	Checking Accuracy	.025	1	.025	.009	.926
Group	Checking Time in Seconds	9654.124	2	4827.062	2.909	.064
	Checking Accuracy	10.541	2	5.271	1.891	.162
Error	Checking Time in Seconds	79640.331	48	1659.174		
	Checking Accuracy	133.782	48	2.787		
Total	Checking Time in Seconds	562905.666	52			
	Checking Accuracy	506831.000	52			
Corrected Total	Checking Time in Seconds	95435.479	51			
	Checking Accuracy	144.673	51			

a. R Squared = .166 (Adjusted R Squared = .113)

b. R Squared = .075 (Adjusted R Squared = .017)