

Self-worth Protection in Student  
Achievement Behaviour

by  
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Statement

This thesis contains no material which has been accepted for the award of any other degree or diploma in any tertiary institution, and to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference is made in the text of the thesis.

Signed E. G. Thompson.

Edward George Thompson

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### Abstract

The investigation pursued in this thesis tested three assumptions of the self-worth theory of achievement motivation (Beery, 1975; Covington, 1984a, 1984b; Covington & Beery, 1976; Covington & Omelich, 1979b). This theory states that faced with failure which constitutes a threat to self-esteem, certain students will withhold effort in order to protect a sense of self-worth. This occurs by being able to attribute poor performance to a factor other than low ability.

The following assumptions of self-worth theory were tested in the investigation which comprised this thesis.

1. First, self-worth theory assumes that certain students will respond differently in situations of high versus low intellectual evaluative threat. Following failure which allows no opportunity to externalise the cause of failure to a nonability-related factor (a situation of high evaluative threat), poor performance will result. On the other hand, where a mitigating excuse for poor performance is available (a situation of low evaluative threat), performance will be enhanced.
2. Second, self-worth theory assumes that the performance effects identified in "1", above, are associated with individuals who have low and uncertain ability estimates (Covington & Omelich, 1985; Nicholls, 1984).
3. Third, self-worth theory assumes that self-worth students do not attribute poor performance in situations of high evaluative threat to lack of ability. This assumption is consistent with the view that the poor performance of self-worth protective students in situations of high evaluative threat is due to withdrawal of effort.

The investigation of self-worth protection in this thesis began with an operational definition which involved deteriorated performance following failure and subsequent enhanced performance following a mitigating excuse which allowed students to explain failure without implicating low ability. In order to develop an experimental manipulation which incorporated these

performance criteria, Experiment 1 reported normative data in relation to some 130 remote associate problems enabling the construction of a difficult (failure) set, an easy (practice) set and three parallel sets of intermediate difficulty. Experiment 2 then tested and confirmed the effectiveness of the failure and face-saving manipulations which comprised the experimental manipulation used in Experiment 3.

Experiment 3 investigated the relationship between a number of personality variables and self-worth protection. The results of this experiment revealed that self-worth protective students were best identified on the basis of low academic self-esteem and uncertain global self-evaluations.

In Experiments 4 and 5, the operational definition of self-worth protection changed. In these experiments, low academic self-esteem and uncertain global self-esteem were used to assign self-worth protective students to experimental groups. Experiment 4 re-examined the performance of self-worth protective students after being exposed to failure in situations where a mitigating excuse was either available or not available. This experiment provided evidence of the generalisation of self-worth protection across different performance measures.

Experiment 5 then examined the attributional behaviour of self-worth protective students. The results from this experiment failed to provide evidence that the poor performance of self-worth protective students following failure is associated with lower internality attributions.

On these grounds, the performance, but not attributional findings from these experiments were seen to provide support for the assumptions of self-worth theory tested in this thesis. On the basis of individual difference variables, performance effects and attributional behaviour found to be associated with self-worth protective students, recommendations were made whereby the achievement-limiting behaviours of these students might be forestalled.



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## Table of Contents

	<u>Page</u>
Chapter 1 <u>Self-worth Protection in Achievement Behaviour</u>	
1.1    An overview of the investigation pursued in this thesis	1
1.2    A terminological note	9
Chapter 2 <u>Differential Performance Outcomes in Situations of High and Low Evaluative Threat</u>	
2.1    Variables related to differential performance outcomes in situations of high and low evaluative threat	11
2.2    Review	20
Chapter 3 <u>Individual Difference Variables Associated with Self-worth Protection</u>	
3.1    Level and certainty of self-esteem in relation to differential performance effects in situations of high and low evaluative threat	24
3.2    Level of trait self-handicapping in relation to differential performance effects in situations of high and low evaluative threat	32
3.3    Level of test anxiety/fear of failure in relation to differential performance effects in situations of high and low evaluative threat	36

	<u>Page</u>
3.4 Gender differences in self-protective attributions and differential performance effects in situations of high and low evaluative threat	39
3.5 Review	45
 Chapter 4 <u>Self-worth Protection and Attributional Behaviour</u>	
4.1 Affective and attributional benefits associated with withdrawal of effort	49
4.2 Withdrawal of effort and preservation of self-esteem	55
4.3 Self-worth protection and attributions following success	57
4.4 Enhancing student achievement through attributional retraining	58
4.5 Review	61
 Chapter 5 <u>An Operational Definition of Self-worth Protection and Research Aims</u>	
5.1 An operational definition of self-worth protection	63
5.2 Research Aims	66
 Chapter 6 <u>Experiment One: Construction of Remote Associate Problem Sets</u>	
6.1 Introduction	69
6.2 Method	70
6.3 Results and discussion	71

	<u>Page</u>
Chapter 7 <u>Experiment Two: Assessment of Failure and</u> <u>Face-saving Manipulations</u>	
7.1    Introduction	78
7.2    Method	80
7.3    Results and discussion	82
Chapter 8 <u>Experiment Three: Characteristics of Self-worth</u> <u>Protection</u>	
8.1    Introduction	84
8.2    Method	89
8.3    Results	98
8.4    Discussion	108
Chapter 9 <u>Experiment Four: Performance Effects Associated</u> <u>with Self-worth Protection</u>	
9.1    Introduction	114
9.2    Method	117
9.3    Results	125
9.4    Discussion	132
Chapter 10 <u>Experiment Five: Self-worth Protection and</u> <u>Attributional Behaviour</u>	
10.1   Introduction	137
10.2   Method	141
10.3   Results	144
10.4   General discussion: Experiments 4 and 5	151

	<u>Page</u>
Chapter 11 <u>Summary of Findings and Implications for Further Research</u>	
Introduction	155
11.1    Support for the assumptions of self-worth protection tested in this thesis	155
11.2    Implications and further research	160
11.3    Theoretical implications	165
 Chapter 12 <u>Implications for Education</u>	
Introduction	168
12.1    Etiology of self-worth protection	169
12.2    Reducing the bases of evaluative threat	172
12.3    Minimising uncertainty in achievement contexts	173
12.4    De-emphasis of ability as a criterion of self-worth	175
12.5    Enhancing academic self-esteem	176
12.6    Attributional retraining	177
12.7    Attributional messages from teachers	179
12.8    Effective use of praise and evaluative feedback	180
12.9    Non-competitive learning structures	182
12.10    Concluding comments	185
 References	187
 Appendices	
<u>Appendix A. Experimental Materials</u>	
List of appendices	210
A1:    Instructions to subjects (Experiment 2)	211

	<u>Page</u>
A2: ABC*D experimental manipulation (Experiment 3)	212
A3: Individual difference measures (Experiment 3)	222
A4: Content analysis scoring instructions for Feather and Tiggemann's (1984) B.A.S.Q. (Experiment 3)	265
A5: Simultaneous discrimination task (Experiment 4 & 5)	266
A6: Twenty single-solution Anagrams (Experiment 4)	267
A7: Instructions to subjects (Experiments 4 & 5)	268
A8: Performance manipulation check (Experiment 5)	273
A9: Russell causal dimensions scale (Experiment 5)	274

#### Appendix B: Articles Submitted for Publication

B1 Thompson, T. (1993). Remote associate problems in performance feedback paradigms. <u>Personality and Individual Differences</u> , 14, 4-11.	276
B2 Thompson, T. (1993). Characteristics of self-worth protection. <u>British Journal of Educational Psychology</u> , 63, 469-488.	280

Page

- B3 Thompson, T. (in press). Self-worth protection:  
Implications for the classroom. Educational Review. 300

## Chapter 1

### Self-worth Protection in Achievement Behaviour

#### 1.1 Overview of the investigation pursued in this thesis

The purpose of the investigation pursued in this thesis is to test central assumptions of the self-worth theory of achievement motivation (Beery, 1975; Covington, 1984a, 1984b; Covington & Beery, 1976; Covington & Omelich, 1979b). This theory states that certain students, when faced with failure which constitutes a threat to self-esteem, will withhold effort as a means of protecting a sense of self-worth. Poor performance can thus be attributed to a factor other than lack of ability. The same students will perform better on an equivalent task in circumstances of low evaluative threat.

In Chapters 3 and 4, evidence for self-worth theory is reviewed, together with evidence which guides predictions leading to the experimental studies which follow. This review is structured in terms of several key assumptions of self-worth theory. As the review of evidence in relation to each of these assumptions unfolds, it will become apparent that the evidence in relation to each of the assumptions of self-worth theory is incomplete. These assumptions, which become the basis of the research questions guiding the investigation pursued in this thesis, are the following:

1. Self-worth theory assumes that certain individuals will respond quite differently in situations of high versus low intellectual evaluative threat. Following failure which allows no opportunity to externalise the cause of failure to a factor other than ability (a situation of high evaluative threat), poor performance will result. On the other hand, where a mitigating excuse for poor performance is available - one which allows the cause of



poor performance to be attributed to a nonability-related factor - performance will be enhanced. This is a situation of low evaluative threat. This difference in performance between situations of high and low evaluative threat is thus a stable person response style of a particular subgroup of individuals which is expected to generalise across different performance situations.

2. While the personality characteristics which distinguish self-worth protective students are not well established, they are suggested by Covington (Covington, 1984b; Covington & Omelich, 1985) and Nicholls (1984) to be low and uncertain ability estimates. Nicholls (1984) reasons that persons with low but uncertain ability estimates will prefer tasks that are described as high in difficulty relative to those described as moderately difficult. This is because tasks high in normative difficulty offer the prospect of demonstrating high ability as well as the certainty of avoiding confirmation of low ability. On the other hand, tasks of moderate normative difficulty have greater potential to reveal low ability, so that the probability of a self-protective reduction of effort should be high.
3. A third assumption of self-worth theory is that an attributional benefit is associated with self-worth protective students following poor performance in situations of high evaluative threat. The assumption is that self-worth protective students do not attribute poor performance in situations of high evaluative threat to lack of ability. This attributional benefit is consistent with the assumption that self-worth protective students' poor performance in situations of high evaluative threat is due to withdrawal of effort.

While evidence for withdrawal of effort is not directly tested in this thesis, evidence is gathered that self-worth protective students do not attribute poor performance in situations of high evaluative threat to lack of ability. While the assumption that self-worth protective students do

not attribute poor performance in situations of high evaluative threat to lack of ability is critical to self-worth theory, there is no direct evidence in the existing literature that this is the case.

Within the present chapter, the section which follows clarifies the use of the term self-worth protection as used in this thesis. This term has been used to embrace a wide range of strategies such as procrastination, last minute study and low goal setting. In essence, each of these strategies involves withdrawal of effort and results in underachievement. In the investigations which comprise this thesis, self-worth protection will be initially operationalised in terms of differences in performance in conditions of high and low evaluative threat.

Chapter 2 then assesses evidence in relation to the first of the assumptions mentioned at the beginning of the previous paragraph. In this chapter, evidence for the egotism hypothesis (e.g. Frankel & Snyder, 1978; Snyder, Stephan, & Rosenfield, 1978) is reviewed. The egotism hypothesis states that deteriorated performance occurs where poor performance can be attributed to the self, and where that attribution is relevant to the individual's self-esteem. This deteriorated performance is assumed to be due to withdrawal of effort. Correspondingly, where threat to self-esteem is assuaged by an external account for poor performance (such as in the case of task difficulty, or music said to be distracting), enhanced performance will result.

Evidence in support of the egotism hypothesis is provided by studies by Frankel and Snyder (1978); Snyder, Smoller, Strenta, and Frankel (1981) and Miller (1985, 1986). These studies attest the replicability of poor performance in situations of high evaluative threat and enhanced performance where threat to self-esteem is reduced by a mitigating excuse. These studies also reveal conditions under which deteriorated performance will occur.

A feature of the egotism studies is that evidence of differential performance effects in circumstances of high and low evaluative threat is for persons unselected on the basis of individual difference variables. Despite this, the results of these studies should not be interpreted as establishing response patterns in situations of high and low evaluative threat which are common for everyone. The possibility remains that overall differences in performance between situations of high and low evaluative threat identified in the egotism studies are not general, but are largely due to effects associated with a particular subgroup of individuals. This assumption is made by self-worth theory.

Chapter 3 assesses evidence for individual difference variables associated with self-worth protection. It will become evident that while low and uncertain ability conceptions are assumed to identify self-worth protective students (Covington & Omelich, 1985; Nicholls, 1984), no study has demonstrated that these variables predict the differential performance outcomes under situations of high and low evaluative threat mentioned above. Chapter 3 will also present evidence that several additional individual difference variables may be associated with deteriorated performance in situations of high evaluative threat and enhanced performance in situations of low evaluative threat. These individual difference variables are level of test anxiety and level of trait self-handicapping. Chapter 3 also discusses evidence for gender differences in self-protective attributions and performance effects in situations of high and low evaluative threat. It will be shown that while for males there is evidence for attributional egotism and enhanced performance where a mitigating excuse for possible poor performance is available, the evidence for females in each respect is at best, uncertain. This evidence thus leaves open the issue as to whether self-worth protection correctly describes the deteriorated performance of females following failure.

Chapter 4 assesses evidence in relation to the third assumption investigated in this thesis. This is the assumption that self-worth protective students experience an attributional benefit associated with withdrawing effort in situations of high evaluative threat. In Section 4.1, evidence which bears on this assumption is reviewed. This review will present evidence that withdrawal of effort is associated with attributional and affective benefits in terms of lower attributions to inability and reduced anxiety, frustration and discouragement. In Section 4.2, evidence will also be presented that withdrawing effort acts as a buffer against diminished self-esteem.

Despite these studies, the evidence that attributional benefits exist for self-worth protective students will be shown to be inconclusive. Studies by Covington and colleagues (e.g. Covington & Omelich, 1979a, 1985) indicate that low effort offers protection against feelings of humiliation by forestalling attributions to inability. The Covington and Omelich (1985) study indicates that this attributional benefit is most marked in the case of failure-avoiding students. These students are assumed to be identified on the basis of low and uncertain ability estimates. However, the conclusiveness of the link between reduced effort and attributional benefits in studies by Covington and colleagues (e.g. Covington & Omelich, 1979b, 1979c, 1985; Covington, Spratt, & Omelich 1980) is compromised by the use of hypothetical scenarios of success and failure feedback situations. The use of hypothetical scenarios is defended by these researchers on grounds that the focus is upon theory building and the measurement of attitudes and cognitions. Experimental feedback studies involving an actual experience of failure would provide further and more conclusive evidence of both individual difference variables associated with self-worth protection, and the motivational dynamics associated

with deteriorated performance following failure. This is assumed to involve withdrawing effort as a means of protecting self-esteem.

The above limitations give rise to a number of research aims. These research aims derive from the review of evidence presented in the chapters which follow, guided by the assumptions of self-worth theory stated in Section 1.1. A more detailed account of the research aims given below, together with the operational definition that guides the first of the experimental studies examining self-worth protection, is presented in Chapter 5.

This operational definition involves differential performance outcomes in situations of high and low intellectual evaluative threat. A situation of high intellectual evaluative threat is created by exposing students to failure where no opportunity to externalise the cause of subsequent performance is provided. A situation of low intellectual evaluative threat is created by exposing students to failure where a mitigating excuse for subsequent poor performance is available, one which allows the cause of poor performance to be attributed to a nonability-related factor. Poor performance is expected following failure which allows no opportunity to externalise the cause of poor performance to a non-ability related factor, while enhanced performance is expected following failure where a mitigating excuse for poor performance is provided.

1. Using this operational definition, the first aim of the investigation pursued in this thesis is to identify personality variables associated with self-worth protection.
2. An associated aim is to establish that the difference in performance between situations of high and low intellectual evaluative threat is a person response style of a particular subgroup of individuals which generalises across different performance situations.

3. A further aim is to determine that the deteriorated performance of self-worth protective students in situations of high evaluative threat is associated with a claimed protective benefit in the form of lower attributions to internal factors.
4. A further aim is to confirm that self-worth protection describes the behaviour of females as well as males in situations of high and low intellectual evaluative threat. This implies that the attributional benefit which is assumed to be associated with self-worth protective students in circumstances of high intellectual evaluative threat applies for females as well as males.

In order to fulfil these aims, the research strategy pursued in this thesis is as follows. The first task is to develop an experimental manipulation which allows test of poor performance following failure, together with enhanced performance where a mitigating excuse is provided which allows poor performance to be explained on the basis of a nonability-related factor. These are the performance criteria assumed to identify self-worth protective students. Towards this end, Experiment 1 reports normative data in relation to some 130 remote associate problems enabling the construction of a difficult (failure) set, an easy (practice) set and several parallel sets of intermediate difficulty. From these data, an experimental manipulation is devised which incorporates three parallel sets and one failure set. This manipulation contains both failure and face-saving ingredients. Experiment 2 then tests the effectiveness of the failure and face-saving manipulations which comprise this experimental manipulation.

Experiment 3 is the first experiment which tests a major assumption of self-worth theory. Due to ambiguity surrounding the individual difference variables which are assumed to identify self-worth protective students, the initial operational definition which guides the investigation

pursued in this thesis is based on performance criteria. By these means, Experiment 3 seeks to determine which, among a range of individual difference variables, best discriminate self-worth protective students from all other performance groups identified through the experimental manipulation described above. Experiment 3 thus allows the first of the above-mentioned objectives to be realised.

In the two experiments which follow Experiment 3, the operational definition of self-worth protection changes. In these experiments, the individual difference variables shown to identify self-worth protective students in Experiment 3 will be used to assign these students to experimental groups.

Experiment 4 re-examines the performance of self-worth protective students in situations of high and low evaluative threat using different academic performance measures to those used in Experiment 3. In Experiment 4, students are exposed to noncontingent failure on a number of simultaneous discrimination problems and then assessed in terms of their ability to solve 20 anagrams. This experiment thereby provides evidence of the generalisation of self-worth protectiveness across different performance measures, thus addressing the third research objective. Experiment 4 also addresses the second research objective by investigating whether the same personality characteristics can be shown to be associated with self-worth protection in two different academic performance situations.

Experiment 5 then addresses the fourth research objective by examining the attributional behaviour of self-worth protective students following success and failure outcomes. This experiment allows test of the assumption that the deteriorated performance of self-worth protective students following failure is associated with reduced internality attributions. Evidence in this regard will determine whether the

deteriorated performance of self-worth protective students following failure is associated with withdrawal of effort.

Experiments 3, 4 and 5 allow the fifth and final objective to be realised. This involves determining whether self-worth protection correctly describes the deteriorated performance of both males and females following failure. Through these means, support for assumptions central to self-worth theory will be evaluated.

## 1.2 A Terminological Note

The term self-worth protection as used in this thesis refers to students who manifest a failure-avoidant achievement orientation. Covington (Covington & Beery, 1976; Covington, 1984a, 1984b; Covington & Omelich, 1991) has nevertheless used the term self-worth protection in a somewhat broader sense, to cover a range of self-protective strategies used by a number of achievement motive groups. Four motive groups are identified by Covington and Omelich (1991). These are failure-avoiding students, failure-accepting students, success-oriented students and overstrivers. The principal interest of the investigation guiding this thesis is with failure-avoiding students. These students' tactics, unlike those of overstrivers and success-oriented students, are manifest in underachievement. Moreover, the means by which failure-avoiding students avoid failure, which include tactics such as low goal setting, procrastination and last minute study, are all in essence effort-reduction strategies.

The fourth motive group identified by Covington and Omelich (1985, 1991), known as failure-accepting students, is somewhat ambiguously defined in the Covington and Omelich (1991) study. This motive group, according to Covington and Omelich (1991), may be dissimilar to the other motive groups in that their indifference to achievement concerns may be borne out of neither denial nor resignation, but may instead arise from



"alternative value systems that minimise the importance of competitive achievement" (p. 103).

Due to the ambiguous status of failure-accepting students in terms of their achievement orientation, and the fact that the self-protective strategies of overstrivers are not manifest in underachievement, the sole focus of the investigation which guides this thesis is upon failure-avoiding students. The terms "self-worth protection" and "failure-avoidance" are thus used interchangeably in this thesis. The nature of these students' achievement orientation, as well as the strategies of self-worth protection by which they are known, will become evident in the review which follows in the present chapter and in Chapters 2 and 3.

Finally, comment concerning use of the term self-worth by Covington and colleagues relative to the terms academic and global self-esteem may be helpful. While it is apparent, based on comments by Covington, that the strategies of self-worth protection act principally to protect academic self-esteem, the benefits of self-worth protection may also generalise to global self-esteem. This is due to the presumed salience of ability proven through competitive effort as a criterion of self-worth.

## Chapter 2

### Differential Performance Outcomes in Situations of High and Low Evaluative Threat

#### 2.1 Variables related to differential performance outcomes in situations of high and low evaluative threat.

In the discussion which follows, evidence for the egotism hypothesis (Frankel & Snyder, 1978; A. Miller, 1985, 1986; Snyder et al., 1981) is reviewed. The egotism hypothesis holds in common with self-worth theory the proposition that impaired performance following failure is a result of the individual's desire to avoid threats to self-esteem. Both the egotism hypothesis and self-worth theory also share a prediction of enhanced performance where threat to self-esteem is removed by a mitigating excuse which allows possible poor performance to be explained on the basis of a nonability-related factor. However while self-worth theory associates this effect with a particular subgroup of individuals, the egotism hypothesis postulates this as an outcome which is general across people in situations of high and low intellectual evaluative threat.

In an early study conceived as a test of the egotism hypothesis, Frankel and Snyder (1978) teased apart egotism and learned helpless explanations through a manipulation of apparent task difficulty. Following exposure to either solvable or unsolvable discrimination problems, subjects were informed that a subsequent set of anagrams was either "extremely difficult" or "moderately difficult". For subject groups given unsolvable discrimination problems, those who were told that the anagrams were extremely difficult solved a greater number of anagrams than subjects who were informed that the anagrams were moderately difficult. Subjects exposed to unsolvable discrimination problems also showed a greater tendency to elect to solve a

fictitious third set of problems under "difficult" or "easy" conditions relative to one of "moderate difficulty". Both sets of results were interpreted by Frankel and Snyder (1978) as consistent with the egotism explanation. The 'account' provided by the description of the anagrams as extremely difficult, clearly assuaged a potential threat to self-esteem.

Frankel and Snyder (1978) suggested that failure by itself is a necessary but not sufficient condition for subsequent deteriorated performance. Threat to self-esteem constitutes a further necessary condition. In this stipulation, they concur with Snyder et al. (1978) that the potential of negative outcomes such as failure to affect self-esteem depends on two factors. First, the outcome must be attributable to the self. Second, the attribution must be relevant to the individual's self-esteem.

In a subsequent study by Pyszczynski and Greenberg (1983), level of ego-relevance (high vs. low) was crossed with expectation of success (high vs. low) in a factorial design in which level of intended effort was the main dependent variable. In the low ego-relevance condition, probability of success had no effect on level of intended effort. However, subjects in a high ego-relevance, low expectations of success condition stated an intention to withhold effort to a greater degree than subjects exposed to the same experimental manipulation of ego-relevance but who held a high expectation of success. While Pyszczynski and Greenberg (1983) viewed their results as underscoring the importance of the ego-relevance of the task, there was a *prima facie* contradiction in terms of results for the high ego-relevance, low expectancy of success condition relative to those gained by Frankel and Snyder (1978). In Frankel and Snyder's (1978) study, subjects who held a low expectancy of success performed better than those who held a moderate expectancy of success. Pyszczynski and Greenberg (1983) on the other hand, found that subjects who held a low expectancy of success stated an intention to reduce effort relative to those who held a higher expectancy of success.

Pyszczynski and Greenberg (1983) suggested that the discrepant findings may be explained by having regard not only to the level of ego-threat, but also to the value of the desired goal. Under this account, when the level of ego-threat occasioned by anticipated failure outweighs the value of the desired goal, reductions in intended effort, along with other anticipatory defensive strategies, are more likely to occur. On the other hand, when the desired goal is very high in value, the comfort of such defensive manoeuvres may be foregone so as to enhance one's chances of attaining the desired goal.

Several alternative explanations may be advanced, however. Both explanations have to do with differences in the experimental designs of the two studies. In the Pyszczynski and Greenberg (1983) study, expectations of success were manipulated on the basis of easy or difficult six-item samples of cognitive problems completed prior to an anticipated criterion set of problems. The criterion set of problems was never completed by subjects. There was not, as in Frankel and Snyder's (1978) study, an announcement of normative task difficulty provided by an experimenter which was 'objective' in the sense that it was external to subjects' perceptions. As a consequence, subjects were not provided with a mitigating excuse with power to ameliorate damage to self-esteem in the event of poor performance in the same manner that they were in the Frankel and Snyder (1978) study. Without the possibility of an external attribution in the event of failure, an essential condition for enhanced performance was absent.

A second explanation may also be advanced. This explanation accents the certainty with which expectations of success or failure were held. As noted, expectations of success in the Pyszczynski and Greenberg (1983) study were manipulated on the basis of easy or difficult six-item samples from the anticipated criterion set of problems. However in Frankel and Snyder's (1978) study, subjects were exposed to noncontingency on a multiple discrimination task and then given normative information concerning the difficulty level of a

different set of problems (anagrams) which followed. It is thus reasonable to assume that subjects in the Pyszczynski and Greenberg (1983) study would have predicted poor performance with greater certainty, given their greater surety of incompetence established on the basis of performance on problems comprising the criterion measure than would subjects in Frankel and Snyder's (1978) study, for whom grounds for optimism may not have been entirely extinguished. These differences in the experimental designs of the two studies constitute a further factor which may account for differences between the results of the two studies. In the Frankel and Snyder (1978) study, greater uncertainty concerning future performance outcome coupled with provision of a mitigating excuse in the event of poor performance may have licensed egotistical optimism, while in the Pyszczynski and Greenberg (1983) study, the greater certainty with which future outcome predictions could be made may have given rise to a more pessimistic prediction of future performance, reflected in an intention to withdraw effort in the face of low expectations of success.

It should be noted that the Pyszczynski and Greenberg (1983) study left open the issue as to whether an intention to withdraw effort in fact results in deteriorated performance. This issue was addressed in research by Rhodewalt and Fairfield (1991). Involving an essentially similar design to the Pyszczynski and Greenberg (1983) study, these researchers manipulated both level of ego-relevance of the task (high vs. low) and level of expected difficulty (high vs. low). As in the Pyszczynski and Greenberg (1983) study, level of expected difficulty was established by prior exposure to a sample of six easy or difficult practice tasks taken from the criterion task, this being Cattell and Cattell's (1960) Culture Fair Test of g. Two experiments comprised their investigation. In Experiment 1, level of ego-relevance and level of task difficulty were crossed with gender and high versus low scores on Jones and Rhodewalt's (1982) Self-handicapping Scale. Results from

Experiment 1 revealed that subjects with high self-handicapping scores who anticipated taking a difficult test of intelligence not only indicated that they intended to withhold effort on the test, but subsequently manifested poorer performance. This was so irrespective of the level of ego-relevance of the test (high vs. low). Subjects with low self-handicapping scores did not differ in terms of their level of intended effort on the basis of whether they expected an easy or difficult test, and showed enhanced performance when expecting a difficult test relative to an easy test.

Experiment 2 sought to address the possibility that withdrawing effort in anticipation of failure is not a self-protective strategy but rather an indication of low self-esteem individuals giving up in the face of challenge.

Accordingly, level of trait self-esteem was assessed in Experiment 2, which involved an essentially similar design to that of Experiment 1. Experiment 2 found level of self-esteem to covary with intended effort but was independent of test performance.

In several studies with younger-aged subjects, Miller (1985, 1986) gained results consistent with the egotism hypothesis. Discussion of these studies occurs in Section 3.4 which considers gender differences in withdrawal of effort in situations of high intellectual evaluative threat, as well as self-protective attributions. Likewise Snyder et al. (1981) gained results consistent with the egotism hypothesis but contrary to learned helplessness theory. These researchers found that subjects exposed to unsolvable discrimination problems who then worked on anagrams with music said to be distracting solved more anagrams and with shorter mean latencies than subjects exposed to the same pretest conditions but who subsequently worked on anagrams without music. Despite the replicability of the performance deficit associated with high as opposed to low ego-threat reflected in findings by Frankel and Snyder (1978), Miller (1985, 1986) and Snyder et al. (1981), the egotism hypothesis has not been without its critics.

Kofta and Sedek (1989a) gathered evidence which failed to support the egotism hypothesis, concluding that the deterioration in performance which follows exposure to noncontingency does not result from voluntary withdrawal of effort in the face of an ego-threatening task, but from generalisation of uncontrollability. This conclusion depended upon an experimental design in which subjects were exposed to noncontingency either with or without explicit failure feedback. Following pretreatment and prior to the test phase, subjects were given two types of further information. They were informed either that performance depended on skill, or informed that performance depended partly on skill and partly on chance factors. These design aspects were premised on the following assumptions.

First, it was assumed that explicit failure feedback was necessary to arouse threat to self-esteem and thereby, withdrawal of effort as a defensive manoeuvre in reaction to this threat. Exposure to noncontingency without explicit labelling of subjects' performance as "failure" would not constitute the same level of threat and would not, as a result, give rise to withdrawal of effort. Consequently, under the egotism hypothesis, greater performance deficits were expected where noncontingent feedback was accompanied by explicit failure feedback relative to feedback which involved mere exposure to noncontingency without explicit failure information. Second, as chance factors are able to provide a reasonable defence to self-esteem, performance in the skill-plus-chance condition was expected to be enhanced relative to the skill condition, given the reduction in threat to self-esteem offered through this ready-made account.

Results failed to support either of the assumptions made under the egotism hypothesis. Substantial performance deficits were produced following noncontingent feedback alone, with no greater deficits occurring where explicit failure information accompanied noncontingent feedback. Providing subjects with information that performance on the test tasks

depended partly on skill and partly on chance rather than upon skill alone, actually attenuated performance deficits, again contrary to predictions made under the egotism hypothesis. Under the egotism hypothesis, the skill-plus-chance task description would presumably have assuaged threat to self-esteem, thereby resulting in enhanced performance. This was not the case. As a consequence, Kofta and Sedek (1989a) viewed their results as "readily interpretable in the generalisation-of-uncontrollability framework" (p. 10).

These results drew reaction from Snyder and Frankel (1989) and in turn, a reply from Kofta and Sedek (1989b). Snyder and Frankel's (1989) response was based, in part, on Kofta and Sedek's (1989a) assumption that noncontingent feedback alone (without explicit failure feedback) would not be viewed as failure and thereby, would not constitute a threat to self-esteem. However, Snyder and Frankel (1989) maintained that subjects receiving noncontingent feedback without failure information would likely have interpreted their performance as failure without explicit labelling to this effect by the experimenter. Their defence is helped by the observation that noncontingent feedback without explicit failure information can effectively threaten self-esteem, as is evident in research investigating self-handicapping behaviour (e.g. Berglas & Jones, 1978; Kolditz & Arkin, 1982). As will be apparent later in this section, the creation of uncertainty is an important variable related to individuals' propensity to self-handicap in situations of evaluative threat.

A second major critique levelled by Snyder and Frankel (1989) against Kofta and Sedek's (1989a) study was directed at the differential effectiveness of the "skill" versus "chance-plus-skill" task descriptions. Kofta and Sedek (1989a) assumed that failure on a task requiring skill would be more threatening than failure on a task that required both skill and chance. Hence, greater withdrawal of effort was seen as less necessary in the skill-plus-chance condition which allowed an external attribution for poor performance.



Greater deterioration in performance would thus be evident in the skill condition relative to that evident in the skill-plus-chance condition.

Snyder and Frankel (1989) nonetheless queried the effectiveness of the "chance plus skill" task description in assuaging threat to self-esteem given that subjects remained unaware as to which of the three levels of difficulty they would be exposed to: "easier", "more difficult" or "impossible". While in the case of exposure to "impossible" problems the "chance-plus-skill" description might be assumed to cushion the impact on self-esteem, the same could not be assumed for either the "easier" or "more difficult" task descriptions. However, as subjects had no guarantee as to which level of difficulty they would be exposed to, they had inadequate bases for assuming withdrawal of effort would be an effective defence for self-esteem.

In reply to these objections, Kofta and Sedek (1989b) pointed out that the effectiveness of explicit failure feedback as an important additional source of threat to self-esteem (over and above mere exposure to noncontingency) was supported through significant results on two single-item affective measures plumbing "level of self-dissatisfaction" and "being in a bad mood". To Snyder and Frankel's (1989) charge of the inappropriateness of the task descriptions, Kofta and Sedek (1989b) defended the effectiveness of the "chance plus skill" task description through reference to their finding of differential performance effects associated with the "chance plus skill" versus "skill" manipulations. Greater performance impairment was evident under the partly chance-controlled condition, a result which they viewed as opposite to predictions derived from the egotism model but consistent with learned helplessness effects. Whilst Kofta and Sedek (1989b) appear to have vindicated the effectiveness of the task description labels on grounds of differential performance effects associated with the task description labels, they do not appear to have provided adequate counter to Snyder and Frankel's (1989) claim of the inappropriateness of the manipulation as a source of ego-threat.

The reply offered by Kofta and Sedek (1989b) thus appears only to partly satisfy objections raised by Snyder and Frankel (1989).

Further information concerning the conditions under which individuals will voluntarily withdraw effort is given by studies of self-handicapping behaviour. This is the notion that individuals will voluntarily adopt or claim a handicap where future outcomes are uncertain and where no external account for poor performance is available.

This is illustrated in studies by C. R. Snyder and colleagues (e.g. Smith, Snyder, & Handelsman, 1982; Snyder, 1990; Snyder & Smith, 1982). These studies provide evidence that individuals will claim a handicap in intellectually evaluative situations where eventual success feedback is uncertain and without a direct experience of noncontingent success. The importance of an uncertain anticipatory set is emphasised, where the projected performance outcome is important to the individual's self-esteem. Under this conceptualisation, exposure to noncontingent success is not a necessary condition for self-handicapping behaviour. Situational variables may engender uncertainty about future performance. Illustration of the importance of both outcome uncertainty and evaluative threat is given in studies by Smith et al. (1982) and Smith, Snyder and Perkins (1983).

An emphasis on the role of noncontingent success in relation to self-handicapping is represented in an alternative operationalisation of self-handicapping originally proposed by Berglas and Jones (1978), subsequently reinforced in later publications by Berglas (1985, 1988). In studies which have followed this operationalisation, an uncertain self-image and thereby, future outcome uncertainty has been experimentally manipulated by exposure to noncontingent success (e.g. Berglas & Jones, 1978; Higgins & Harris, 1988; Kolditz & Arkin, 1982; Mayerson & Rhodewalt, 1988; Rhodewalt & Davison, 1986; Tucker, Vuchinich, & Sobell, 1981).

The differences represented in the operationalisations by Berglas and C. R. Snyder are more apparent than real, however. While the Snyder tradition stresses future outcome uncertainty and ego-threat, the approach represented by Berglas stresses uncertain self-images experimentally manipulated through noncontingent success feedback. The two forms of uncertainty are of course linked and interdependent. The manipulation of uncertainty concerning future performance outcomes challenges the certainty of self-perceptions, often in the form of perceived self-efficacy to achieve a certain outcome, while persons with uncertain self-images doubt their ability to perform efficaciously. The creation of uncertainty in either sense is associated with self-handicapping.

Whichever operationalisation is considered, studies of self-handicapping behaviour endorse the importance of an uncertain anticipatory set as sufficient to produce self-handicapping behaviour. These studies also suggest that neither prior experience of failure nor prior exposure to noncontingency are necessary to produce subsequent poor performance noted under conditions of high evaluative threat. Finally, these studies endorse the importance of threat to self-esteem.

## 2.2 Review

While the balance of evidence favours the egotism hypothesis, the exchanges between Kofta and Sedek (1989a, 1989b) and Snyder and Frankel (1989) serve to underscore the importance of an external and unambiguous account in order to assuage threat to self-esteem. Also, exposure to either noncontingency or failure is indicated as a potential source of threat to self-esteem and thereby, subsequent deterioration in performance. Nevertheless, the self-handicapping studies indicate that neither exposure to noncontingent success nor failure is necessary for self-handicapping behaviour. Rather, the role of an uncertain expectation concerning future performance outcome is underscored, together with evaluative threat.

Among the above studies there is also an indication that subjects will both state an intention to withdraw effort (the Pyszczynski & Greenberg, 1983 and Rhodewalt & Fairfield, 1991, studies) and actively withdraw effort (Rhodewalt & Fairfield, 1991) where private expectancies forebode poor performance and where an external account for poor performance is either unavailable or where the face-saving value of such an account is compromised by circumstances which allow little room for doubt that the outcome will be unfavourable (Pyszczynski & Greenberg, 1983). Where an external account is provided in the form of an announcement of normative task difficulty (e.g. Frankel & Snyder, 1978; Miller, 1985, 1986) or some other mitigating circumstance such as distracting music (e.g. Snyder et al., 1981), enhanced performance may result.

As well as underscoring the importance of both ego-relevance and level of task-difficulty as variables mediating withdrawal of effort, the Pyszczynski and Greenberg (1983) and Rhodewalt and Fairfield (1991) studies also suggest that private expectations of task difficulty are likely insufficient to eliminate the need for reduced effort in the service of self-protection. More objective information, as in the case of information concerning normative task difficulty, may be necessary to provide an effective account for future poor performance and thereby, assuage threat to self-esteem. There is also the suggestion in studies examining the egotism hypothesis that an uncertain expectation of future performance outcome is important in terms of licensing attributional egotism and thereby, enhanced performance.

With the above variables borne in mind, there is support for the assumptions held in common by both the egotism hypothesis and self-worth theory. These are that impaired performance following failure is associated with threat to self-esteem, and that enhanced performance results when threat to self-esteem is removed by a mitigating excuse which allows possible poor performance to be explained on the basis of a nonability-related factor.

However in studies by Frankel and Snyder (1978), Miller (1985, 1986), and Snyder et al. (1981), these performance effects are general across persons. Only one study reported in the discussion to date, that by Rhodewalt and Fairfield (1991) has investigated individual difference variables associated with these effects. Thus, there is as yet little evidence in studies discussed hitherto, that the differential performance effects associated with situations of high and low intellectual evaluative threat are associated with a particular subgroup of individuals as is assumed by self-worth theory. How then may the findings from studies investigating the egotism hypothesis be reconciled with this assumption of self-worth theory?

There are several ways of viewing the differential performance effects under circumstances of high and low evaluative threat noted by the egotism studies. One possibility is that these effects are universal in the sense that they apply generally to people without regard for personality variables. A second possibility is that the egotism hypothesis is correct in the sense that the differential performance effects noted in these studies hold for all people but to differing degrees according to the extent to which people possess the personality characteristic(s) in question. A third possibility is that the egotism hypothesis is not generally correct but that it applies only for a subgroup of individuals. This explanation presumes that the personality variables associated with these individuals differ from those of other people whose performance in situations of high and low evaluative threat is other than that shown by self-worth protective individuals. Either of the latter possibilities would be consistent with self-worth theory.

This being the case, it is important to identify personality variables which mediate differential performance effects in situations of high and low evaluative-threat. Evidence in this regard is given in Chapter 3. Chapter 3 reviews evidence for individual difference variables associated with poor performance in situations of high evaluative threat and enhanced

performance in situations of low evaluative threat. In this discussion it will be concluded that a number of individual difference variables may be associated with differential performance effects in situations of high versus low evaluative threat. While there is evidence to support an association between differential performance effects in situations of high and low evaluative threat and low and uncertain ability conceptions, there is also evidence which suggests that level of trait handicapping and level of test anxiety are associated with these effects. On this basis, an initial concern of the investigation pursued in this thesis is to investigate which of these variables best identifies self-worth protective students.

## Chapter 3

### Individual Difference Variables Associated with Self-worth Protection

#### 3.1 Level and certainty of self-esteem in relation to differential performance effects in situations of high and low evaluative threat

A study by Craske (1988) has indicated that students whose performance in situations of high and low evaluative threat conformed to a pattern of self-worth protectiveness, have low global self-esteem. In this study, Craske (1988) identified children of primary school age as either self-worth protective or learned helpless on the basis of two criteria. The first was deteriorated performance following failure. The second was performance following a mitigating circumstance which allowed poor performance to be explained in a way that did not implicate low ability. Students whose performance deteriorated following failure and whose subsequent performance was enhanced following a mitigating excuse were classified as self-worth protective. Those whose performance was depressed following failure and whose subsequent performance remained depressed despite the mitigating excuse were classified as learned helpless. Both groups had lower self-esteem relative to students whose performance failed to conform to either the learned helpless or self-worth protective pattern.

Is it possible to identify a further individual difference variable on the basis of which these two performance groups may be differentiated? The discussion which follows suggests that these two performance groups, while being undifferentiated in terms of their level of trait self-esteem, may be differentiated in terms of their level of self-esteem certainty. In this connection, the combined results of two studies (Harris & Snyder, 1986; Marecek & Mettee, 1972) give evidence that level of self-esteem certainty (high vs. low) has differential performance implications under circumstances

of high versus low evaluative threat. One of these studies, that by Harris and Snyder (1986), provided evidence that level of self-esteem certainty is related to self-handicapping behaviour in situations of high evaluative threat. The other study, by Marecek and Mettee (1972) established that level of self-esteem certainty for individuals with low self-esteem is associated with different levels of performance under conditions of low evaluative threat.

The Harris and Snyder (1986) study examined level of self-esteem (high vs. low) and certainty of self-esteem (high vs. low) in relation to the number of practice problems attempted and the amount of time subjects practiced before an "intelligence test". These researchers found that level of certainty of self-esteem rather than level of self-esteem was associated with self-handicapping behaviour under conditions of high evaluative threat. Uncertain males voluntarily attempted fewer problems prior to an ego-threatening test of nonverbal intelligence than did certain males and uncertain females. Two aspects of their findings are noteworthy. First, for uncertain males, a decrease in practice was associated with less of an increase in anxiety across the practice period, suggesting a self-protective affective benefit associated with not practicing. Second, uncertain subjects (both males and females) tended to underestimate the amount of time they spent practicing relative to certain subjects, a finding of particular interest in the case of females who, in Harris and Snyder's (1986) observation, may have been "capitalising on the effects of practice although cognitively misrepresenting the amount of time they actually spend preparing" (p. 456). It is important to note however, that while Harris and Snyder's (1986) uncertain males self-handicapped by not practicing, there was no evidence of actual performance decrements. The evidence is for a claimed self-handicap, with no evidence of performance-limiting consequences.

The Marecek and Mettee (1972) study involved manipulating skill versus luck perceptions of performance on a problem-solving task for high and low



self-esteem groups, with each group subdivided on the basis of level of self-esteem certainty (high vs. low). Half-way through a series of 20 trials which involved matching geometric figures on a display board, all subjects were given an inflated indication of their actual scores prior to proceeding with the remaining 10 trials. In feedback offered to subjects, actual mean scores were inflated by seven score points. The effect of this feedback, in Marecek and Mettee's (1972) words, was to "heighten the impact of success and bolster subjects' belief that their scores were quite high" (Marecek & Mettee, 1972, p. 102).

The success feedback offered by Marecek and Mettee (1972) thus appears to have created a situation of low evaluative threat, although in a different way from the egotism studies. In the Marecek and Mettee (1972) study, low evaluative threat was created on the basis of future performance expectations. In the egotism studies, low evaluative threat is manipulated on the basis of an external account for possible poor performance. In the Marecek and Mettee (1972) study, it is noteworthy that relative to baseline performance levels established during practice, the performance of uncertain, low self-esteem subjects within the skill condition improved to a level matching that of both certain and uncertain high self-esteem groups. For uncertain, low self-esteem subjects, their uncertainty with regard to self-appraisal was assumed to "minimise consistency concerns, leaving the success-deprived low self-esteem person 'hungry' for the self-produced success that will validate his refusal to fully internalise past failure tendencies" (p. 104). On the other hand, the performance of certain, low self-esteem subjects remained depressed, indicating, as Marecek and Mettee (1972) put it, that "self-determined success has a relatively counterproductive effect on the person with chronic stabilised low self-esteem". In the luck condition, only the performance of low, certain self-esteem subjects was enhanced relative to all other groups. From this study, it is evident that where uncertain, low self-esteem persons are able to

assume personal agency for an achievement outcome under conditions of low evaluative threat, enhanced performance results.

In each of these studies, it is of interest that the certainty variable is implicated in both enhanced performance under low evaluative threat (the Marecek & Mettee, 1972 study), and greater self-handicapping through reduced practice under high evaluative threat (the Harris & Snyder, 1986, study). In the Harris and Snyder (1986) study, the self-protective benefits of withdrawal of effort via reduced practice correspond to symptoms of self-worth protection noted by Beery (1975), Covington (1984b) and Covington and Beery (1976).

Two further studies (Kernis, Granneman & Barkley, 1992; Kimble, Funk & DaPolito 1990) have investigated the relationship between self-esteem certainty and self-handicapping behaviours other than withdrawal of effort and lack of practice. While these studies do not directly implicate certainty of self-esteem with either withdrawal of effort or lack of practice, they nevertheless reinforce the importance of certainty of self-esteem in relation to self-protective behaviours. In the Kimble et al. (1990) study, uncertain males self-handicapped in a situation of social evaluative threat. In the Kernis et al. (1992) study individuals with low and uncertain self-esteem were likely to use self-protective attributions in the form of excuse-making following failure on a psychology exam. The same effects were found for stability of self-esteem, with self-esteem instability related to greater-excuse making following failure (but not success) outcomes for low self-esteem individuals.

While the Harris and Snyder (1986) study underscores the salience of the self-esteem certainty variable relative to level of self-esteem, Snyder and Higgins (1988) nevertheless argue a greater propensity on the part of low self-esteem individuals to self-handicap relative to high self-esteem individuals. These researchers point out that low self-esteem individuals more frequently encounter situations where they are uncertain of their ability and as a

consequence more frequently find contexts which invite self-protective behaviour. In similar vein, Rhodewalt and Davison (1986) observe that low self-esteem individuals may self-handicap when they are uncertain about how to avoid a self-relevant, undesired outcome. Both observations identify processes which may mediate the self-protective behaviours of low self-esteem individuals.

A review by Nicholls (1984) supports an association between low and uncertain ability perceptions and preference for normatively difficult tasks. Nicholls (1984) reasons that normatively difficult tasks offer prospect of demonstrating high ability as well as the certainty of avoiding confirmation of low ability. While the expectation of persons with low but uncertain ability estimates succeeding on normatively difficult tasks is low, failure will not imply low ability. As Nicholls (1984) puts it, "the possibility that they have high ability cannot be ruled out" (p. 333). Tasks of moderate normative difficulty, on the other hand, have greater potential to reveal low ability, so that the probability of a self-protective reduction of effort should be high.

Finally, studies by Covington and Omelich (1985, 1991) gathered evidence in support of an association between low, uncertain ability perceptions and a failure-avoidant achievement orientation. In the first of these studies, the evidence was indirect. Covington and Omelich (1985) assumed a relationship between a failure-avoidance orientation and low and uncertain ability estimates on the one hand, and between low, certain ability estimates and a failure-accepting orientation on the other. These assumptions were made in the course of investigating the effects of high effort in terms of two kinds of affective reactions for failure-avoiding and failure-accepting students. These two affective reactions were humiliation (an ability-linked affect) and guilt (an affect associated with lack of effort). The purpose in doing so was to test the prediction of self-worth theory that high effort would increase humiliation via ascriptions to inability.

In this investigation, both level and certainty of ability status were experimentally manipulated. This was done by presenting students with hypothetical outcomes which varied according to stated history of success or failure on three prior exams (indicating level of ability), and on the basis of the degree of effort expended on these exams (indicating level of certainty of ability). Low, uncertain ability perceptions were thus manipulated on the basis of a history of exam failure where little effort was expended, while certain, low ability perceptions were manipulated on the basis of a history of exam failure where high effort was applied.

Students whose level and certainty of ability perceptions were manipulated in the above manner were then informed that they had failed on a fourth exam and were further informed that they had either failed after much effort or that they had failed after little effort. Reactions to this fourth failure constituted the main dependent variable in the study. Students were asked to rate, on a seven-point scale, the extent to which they saw themselves as lacking in ability as a consequence of their failure, and to rate their degrees of guilt, shame and humiliation.

While high effort decreased the guilt component of shame, it also increased humiliation. Failure-avoiding students (those assumed to have low and uncertain ability perceptions) were found to register greater humiliation at a current failure relative to failure-accepting students. This evidence suggested the importance of self-protective advantages associated with withdrawal of effort in terms of staving off perceptions of inability.

However, the results of this study cannot necessarily be generalised to real-life situations. Due to the experimental manipulation of both level and certainty of ability estimates, doubts concerning the link between low, uncertain ability estimates and failure-avoidance remain for real-life settings. While there was check of the effectiveness of the manipulation of both level and certainty of ability, the tests lacked stringency. (In fact the certainty

manipulation proved ineffective within the high self-concept of ability condition, albeit with little cost to the test of their hypotheses).

Correspondence between actual versus manipulated level of ability was assessed by gaining students' self-estimates of ability on a single seven-point Likert-type item. No information concerning the reliability and validity of these single-item measures of each variable is given.

Further test of the link between level and certainty of ability perceptions and failure-avoidance was subsequently given in a later study by Covington and Omelich (1991), although here again the evidence for an association between individual difference variables and failure-avoidance might be regarded as inconclusive. The Covington and Omelich (1991) study identified a number of behaviourally distinct motive groups in terms of their locus on two orthogonal dimensions. These were hope of success and fear of failure. These groups were identified as distinct through discriminant analysis based on self-reports within three behavioural domains: ability perceptions, anxiety arousal and degree and quality of study habits, behaviours assumed to be associated with approach/avoidance tendencies. Four groups were represented in terms of high or low status on each of the two dimensions. Success-oriented students were those high in approach behaviour and low in avoidance behaviour. Overstrivers were students conflicted by both high approach behaviour and high avoidance behaviour. Failure-avoiding students were identified in terms of low approach behaviour and high avoidance behaviour, while failure-accepting students were those low in approach behaviour and low in avoidance behaviour.

These groups were also found to be differentiated in terms of a number of individual difference variables. Failure-avoiding students differed from all other groups in terms of lower task-specific ability estimates on a forthcoming psychology exam, and a lower certainty with which they held these specific estimates. They also differed from all other groups in terms of

higher trait anxiety and higher scores on a "wishful thinking" scale, one assessing unrealistic fantasies about a favourable test outcome combined with escapist hopes that course obligations would disappear. Failure-avoiding students also registered significantly higher scores on three other scales. One was a scale assessing the degree to which students externalised blame. Another scale assessed effort fears: concerns that the quantity and quality of effort would not be sufficient for success. A third scale assessed outcome fears, described by Covington and Omelich (1991) as "the subjective likelihood that failure would disrupt education and career goals" (p. 92).

As with the Covington and Omelich (1985) study, methodological shortcomings were evident in their 1991 study. Measures of both task-specific ability estimates and the degree of certainty with which these estimates were held were assessed on single self-report items for which no reliability or validity information was presented. The evidence linking these two variables with failure-avoidance is thus suggestive rather than conclusive.

While the Covington and Omelich (1991) study gives an attractive array of individual difference variables capable of differentiating failure-avoiding students from all other motive groups, it should be noted that the salience of these individual difference variables (including motivational descriptors) in terms of achievement performance has not yet been tested empirically. Several investigations are required. First, test of the achievement behaviour of failure-avoiding students in situations of high evaluative threat (i.e., where the balance between approach and avoidance tendencies is tipped in favour of avoidance) is needed. Correspondingly, examination of the achievement behaviour of these students in situations of low evaluative threat where an external account for poor performance is given is warranted. Finally, test of individual difference descriptors in relation to an operational definition with demonstrable ecological validity is required.

There is, in the above, evidence to suggest that individuals with low and uncertain self-images voluntarily self-handicap where no opportunity to externalise possible poor performance is available. This evidence is consistent with an assumed self-protective motivational orientation associated with low self-esteem individuals. In this regard, a review article by Baumeister, Tice, and Hutton (1989), as well as experimental studies by McNicoll, Annamunthodo, McCarry, and Kamal (1985) and Tice (1991), underscore the self-protective motivations of low self-esteem individuals. The study by Covington (1985) points to the nature of the self-protective benefit for individuals with low and uncertain ability estimates where failure occurs following low effort. This involves reduced feelings of humiliation.

Correspondingly, the study by Marecek and Mettee (1972) suggests that low, uncertain self-esteem is associated with an individual's preparedness to capitalise on an opportunity for self-enhancement in situations which carry minimal risk in terms of damage to self-esteem. In such situations, students whose achievement orientation is one of failure-avoidance may be prepared to trust themselves to the vicissitudes of an uncertain outcome where there is either minimal risk of failure, or where failure carries minimal damage to self-esteem, as in situations where an external account for possible poor performance is available. Where these conditions obtain, the balance between the antagonistic needs to achieve success and avoid failure may be tipped in favour of achieving success. Otherwise, the balance may favour avoidance of failure and the self-protective behaviours associated with it.

### 3.2 Level of trait self-handicapping in relation to differential performance effects in situations of high and low evaluative threat

The previous section presented evidence for a relationship between each of two individual difference variables, level of self-esteem and level of self-esteem certainty, and two failure-avoiding behaviours. These were lack of practice and withdrawal of effort. From this discussion, it will come as no

surprise that a further individual difference variable related to each of these self-handicapping behaviours is trait level of self-handicapping.

Two studies (Rhodewalt & Fairfield, 1991; Rhodewalt, Saltzman, & Wittmer, 1984) have associated level of self-handicapping with lack of practice/ withdrawal of effort. In an investigation comprised of two separate experiments, Rhodewalt and Fairfield (1991) found individuals with high self-handicapping (HSH) scores anticipating a difficult test of intellectual ability stated an intention to invest less effort than HSH individuals expecting an easy test and low self-handicapping (LSH) groups expecting either an easy or difficult test. Relative to all other subject groups, HSH individuals expecting a difficult test also showed subsequent depressed performance on the test of intellectual ability. In Experiment 2, Rhodewalt and Fairfield (1991) confirmed that individuals' preferences for self-protective attributional strategies were independent of a person's level of self-esteem.

Rhodewalt et al. (1984), investigated the practice behaviour of collegiate swimmers (Experiment 1) and golf professionals (Experiment 2) prior to swimming contests or golf tournaments which were classified as high or low in importance. The swimmers and golfers were furthermore classified in terms of their status on a measure of self-handicapping (high vs. low). These researchers found that participants in each study with high HSH scores showed evidence of withdrawal of effort through lack of practice for swimming contests and golf tournaments classified as high in importance. Prior to an important swimming contest, LSH swimmers increased both their practice attendance and the amount of time invested in practice relative to less important swimming contests. HSH swimmers did not significantly increase their practice effort on either of these indices. Similarly, HSH golfers spent less time practicing for important tournaments than for unimportant tournaments. Golfers with LSH scores, on the other hand, increased their practice for important tournaments.



While several studies suggest a conceptual overlap between self-handicapping and self-esteem (Ferrari, 1991; Rhodewalt & Fairfield, 1991; Strube, 1986), there is evidence that HSH subjects' preference for self-protective attributional strategies is independent of level of self-esteem (Rhodewalt & Fairfield, 1991, Experiment 2; Strube, 1986) and that each of these variables exerts an independent effect on task choice (Strube & Roemmele, 1985). Negative correlations between self-handicapping scores and self-esteem have been noted by Strube (1986):  $r(85) = -.52$  (for males) and  $r(81) = -.47$  (for females) with 30.2% of the variance shared between these two variables. Ferrari (1991) noted correlations of the same magnitude between self-handicapping and self-esteem and found that 30% of a sample of 50 women who chose to self-handicap prior to a bogus test claimed to be diagnostic of intelligence had significantly lower self-esteem than the remainder of the sample who chose not to self-handicap.

In the Strube and Roemmele (1985) study, subjects classified as either high or low on measures of both self-handicapping and self-esteem, chose between forms of a test which were described as either high or low in its diagnosticity of success or failure. High self-handicapping, low self-esteem subjects preferred a test form that was high in diagnosticity of success (one which maximised potential credit for success) while being low in diagnosticity of failure (enabled avoidance of blame for failure). Subjects with low self-handicapping scores, irrespective of their trait level of self-esteem, preferred the test form high in diagnosticity of both success or failure. Strube and Roemmele's (1985) findings suggest that self-handicapping and self-esteem exert independent effects, with self-handicapping determining the individual's proclivity for self-protective strategies while self-esteem influences the manner in which self-protective behaviour may be manifest. For high self-handicapping, low self-esteem subjects, their choice of test type enabled avoidance of information diagnostic of failure.

Other evidence indicates that both level of self-esteem and level of self-handicapping have a role to play in self-handicapping behaviour. The suggestion is that the self-handicapping motivations of individuals differ in terms of their level of self-esteem. Rhodewalt (1990) suggests that low self-esteem, high self-handicapping persons handicap for protective purposes, whilst high self-esteem, high self-handicapping persons handicap for acquisitive purposes. That is, high self-esteem, high self-handicapping persons handicap in order to augment positive self-attributions resulting from anticipated success. Low self-esteem, high self-handicapping individuals handicap in order to blur the connection between failure and inability. Empirical support in this regard is offered from a study by Rhodewalt, Morf, Hazlett and Fairfield (1991).

In the first of two studies comprising their investigation, Rhodewalt et al. (1991, Study 1) determined that both high self-esteem (HSE) and low self-esteem (LSE) subjects who had high self-handicapping (HSH) scores on a trait measure of self-handicapping discounted attributions to inability following failure feedback, and augmented ability attributions following success. After success feedback, only HSH-HSE subjects augmented ability attributions. These results applied for conditions in which the handicap (distracting music) was described as either slightly distracting (an ambiguous handicap) or very distracting (an unambiguous handicap). When the handicap was clearly defined as an impediment to successful performance, high self-esteem, low self-handicapping (HSE-LSH) subjects also relied on the handicap to discount failure and augment success more than did their HSE-HSH counterparts presented with an ambiguous handicap. Only LSE-LSH subjects failed to either self-protect following failure or self-enhance following success.

From this study it is evident that level of trait self-esteem, while related to self-handicapping behaviour, is an inadequate predictor of the propensity to

self-handicap by itself. While level of trait self-handicapping appears to be related to individuals' preparedness to avail themselves of attributional benefits of discounting and augmentation, differences in self-esteem appear to be related to whether or not the motive in self-handicapping is one of augmentation or discounting.

Collectively, these studies point to the predictive utility of level of self-handicapping as an individual difference measure related to both self-protective attributions and self-handicapping behaviours centrally relevant to the investigation pursued in this thesis: lack of practice and withdrawal of effort. The suggestion from the studies reviewed in this section is that deteriorated performance in situations of high evaluative threat which is motivated by a desire to defend self-esteem is associated with individuals with low self-esteem and high self-handicapping.

### 3.3 Level of test anxiety/fear of failure in relation differential performance effects in situations of high and low evaluative threat

A further individual difference variable related to failure-avoidant behaviours is test anxiety. As noted previously, Covington and Omelich (1991) found failure-avoidant students had higher trait anxiety than all other motive groups (success-oriented students, failure-accepting students and overstrivers), and higher levels of avoidance behaviour (higher fear of failure) than success-oriented and failure-accepting students.

Other evidence that self-worth protective students are distinguished in terms of high fear of failure is given by Solomon and Rothblum (1984). These researchers investigated reasons for students' procrastination in a naturalistic study. As noted earlier procrastination is one form of failure avoidant behaviour noted by Covington and colleagues (Covington, 1984b, Covington & Beery, 1976).

Solomon and Rothblum (1984) subjected the reasons students volunteered for their procrastination behaviours to factor analysis. Two factors were

found to account for most of the variance. These were Fear of Failure and Aversiveness of the Task. Fear of Failure, tapping items related to anxiety about meeting others' expectations (evaluation anxiety), concern about meeting one's own standards (perfectionism) and low self-esteem, accounted for some 49.4% of the variance. The second factor, Aversiveness of the Task, reflecting lack of energy and task unpleasantness, accounted for 18% of the variance. Anxiety and low self-esteem were found to be more characteristic of students who procrastinated as a result of fear of failure than as a result of the aversiveness of the task.

Two other studies have found level of test anxiety related to self-protective attributions (Harris, Snyder, Higgins, & Schrag, 1986) and claimed self-handicapping (Smith et al., 1982). In the former of these two studies, Harris et al. (1986) found high levels of test anxiety (and contrary to prediction, high levels of self-esteem) associated with self-protective attributions. Females high in test anxiety exposed to high evaluative stress on Part I of a test of intellectual ability stated an intention to expend less effort on Part II of the test despite the fact that they believed anxiety to be an important determinant of test performance. In addition, these subjects rated their performance on the test as less indicative of their true abilities than did low test-anxious subjects. Multiple regression analyses based on several individual difference measures (fear of failure, self-esteem) administered at an initial mass testing session revealed that test anxiety to be the best predictor of self-handicapping behaviour.

In a similar vein, Smith et al. (1982) found level of test anxiety related to self-handicapping behaviour in the form of level of self-reported effort. Female subjects high in test anxiety who were given no information concerning the effects of anxiety on performance pre-emptively claimed greater state anxiety relative to those told that anxiety had no effect on performance. Self-reported effort was reduced in an experimental condition

where anxiety was denied as a viable explanation for poor performance. Reported effort and reported state anxiety were also reliably correlated for test-anxious subjects. High trait test-anxious subjects who reported less anxiety while taking the intelligence test also reported withdrawing effort on the test.

Finally, studies by Feather (1961, 1963) and Karabenick and Youssef (1968) suggest that the performance of students who are particularly afraid of failing is improved when a task is described as very difficult. Karabenick and Youssef (1968), for example, investigated the relationship between achievement motive strength and subjective probability of success in terms of performance. In this study, individual differences in the motive to approach success were assessed using McClelland, Atkinson, Clark, and Lowell's (1953) thematic apperception test (TAT). Individual differences in the strength of the motive to avoid failure were measured using Mandler and Sarason's (1952) Test Anxiety Questionnaire (TAQ).

For tasks described as being of intermediate difficulty, persons for whom the motive to achieve success was greater than the motive to avoid failure performed better than persons for whom the motive to avoid failure was greater than the motive to achieve success. However, the performance of these two groups did not differ when the tasks were described as being either easy or difficult.

In addition, while persons classified as high in the motive to achieve success and low in the motive to avoid failure performed better on tasks described as being of intermediate difficulty than tasks described as either easy or difficult, for persons classified as low in the motive to achieve success and high in the motive to avoid failure the reverse was true. These individuals performed worse on tasks of intermediate difficulty than they did on tasks described as easy or difficult.

These results, like those investigating the egotism hypothesis, are consistent with strategic withdrawal of effort due to threat to self-esteem. This is brought about by a situation where success is not assured and where an external account for poor performance is not available. From Karabenick and Youssef's (1968) study, poor performance in a circumstance of high evaluative threat and relatively enhanced performance in situations of low evaluative threat is associated with a motive to avoid failure which exceeds the motive to approach success.

From these studies there is the suggestion that fear of failure is associated with self-worth protective behaviours (the Solomon & Rothblum, 1984 study), with self-protective attributions (Harris et al., 1986) and with claimed self-handicapping (Smith et al., 1982). There is also evidence that self-worth protective students may be characterised in terms of a high motive to avoid failure (Covington & Omelich, 1991; Karabenick & Youssef, 1968).

From the latter study, there is evidence reminiscent of the differential performance effects under circumstances of high and low evaluative threat which are taken to identify self-worth protective students. For students for whom fear of failure exceeded their motive to approach success there was poor performance when a task is described as being of intermediate difficulty relative to students whose motive to approach success exceeded their motive to avoid failure. However when tasks were described as either easy or difficult, there were no differences in the performances of the two groups.

### 3.4 Gender differences in self-protective attributions and differential performance effects in situations of high and low evaluative threat

While the review presented in the previous chapter presented evidence in support of the egotism hypothesis, there is evidence that differential performance effects in situations of high and low evaluative threat are not equally evident for both males and females. Two studies by Miller (1985, 1986) indicated gender differences in performance effects under

circumstances of low and high evaluative threat. This evidence is for younger-aged subjects (second- and sixth-grade children in the earlier study and seventh-grade children in the later study).

In the earlier of these two studies, Miller (1985) tested the egotism hypothesis for second- and sixth-grade children, finding relatively greater deterioration in performance for sixth-graders who were first exposed to noncontingent failure and then asked to solve a subsequent set of anagrams described as "moderately difficult" relative to two other conditions. In the first of these experimental conditions, children were again exposed to noncontingent failure and then asked to solve a subsequent set of anagrams described as "very high in difficulty". In the second experimental condition, children were exposed to solvable problems and then required to solve a subsequent set of anagrams described as "moderately difficult".

For second-grade children, performance was statistically undifferentiated across all three conditions, establishing the qualification that the egotism hypothesis holds only within a developmental perspective which requires an understanding of ability and effort as interdependent causes of outcomes, so that ability is to be inferred from both effort and outcome. Part of this understanding is that lack of effort destroys the direct inference of inability based on poor performance.

The pertinent feature of Miller's (1985) results in the context of the present discussion was an interaction effect for gender x condition which was independent of grade. The performance of males in solving anagrams was enhanced relative to females where anagrams were described in advance as being of "very high difficulty". This differential performance effect for males relative to females, later replicated by Miller (1986), adds support to the suggestion in findings by Craske (1985) and Dweck and Goetz (1978) that the egotism explanation of poor performance following failure may be more

appropriately applied to males, with the learned helpless explanation more appropriately applied to females.

In a subsequent study intended to investigate the effects of both the presence of an observer and gender on performance impairment following failure, Miller (1986) found that performance effects across solvable-moderate-difficulty, failure-moderate-difficulty and failure-high-difficulty conditions differed for males versus females. Whilst for males the pattern of results was consistent with an ego-threat explanation, for females the pattern of results was consistent with a learned helpless explanation. For males, a marked deterioration in performance was evident for the failure-moderate-difficulty condition relative to the two other conditions (solvable-moderate-difficulty and failure-high-difficulty conditions). For females, deterioration in performance was more marked in the failure-high-difficulty condition relative to the failure-moderate-difficulty condition. There was then, no evidence of the failure-high-difficulty condition assuaging threat to self-esteem for females as it clearly did for males. These effects were found for seventh-grade school children under conditions where children were allowed to give up trying on each of the anagrams comprising the criterion task and move to the next anagram. No such effects were found where students were denied this opportunity.

Miller (1986) reasoned that the perceived importance of demonstrating high ability may be the individual difference variable that determines whether performance impairment occurs in the form of ego-threat or learned helplessness. He observed that girls may be more willing to give up trying than are males, on the assumption that both possessing and being able to demonstrate high ability is more important to males' self-concepts than to those of females. There is empirical basis for this claim. Males are more likely than females to engage in ego-defensive attributions (Zuckerman, 1979)



and use self-serving attributions: attributing failure externally, while success is attributed internally to ability (Dweck & Reppucci, 1973; Nicholls, 1975).

Studies reviewed in Chapter 2 either failed to report gender information (Snyder et al., 1981), involved gender biases (e.g. Frankel & Snyder, 1978; Pyszczynski & Greenberg, 1983) or failed to yield gender differences for either intended withdrawal of effort or subsequent performance deficits (Rhodewalt & Fairfield, 1991). In Frankel and Snyder's (1978) study the greater number of subjects were male (31 vs. 10). In this study, it is unlikely that the small number of females involved would have permitted meaningful gender comparisons in terms of the dependent measures. As noted earlier, the Pyszczynski and Greenberg (1983) and Rhodewalt and Fairfield (1991) studies did not involve an external account for poor performance in the same manner as studies by Frankel and Snyder (1978) and Snyder et al. (1981). As a consequence, each of these studies failed to create a condition of low evaluative threat comparable to those in the egotism studies.

With regard to studies examining reported (as distinct from actual) withdrawal of effort, Ferrari (1991), Pyszczynski and Greenberg (1983) and Smith et al. (1982) each found reported withdrawal of effort to be a strategic self-handicapping ploy used by women. In both the Ferrari (1991) and Smith et al. (1982) studies, reported withdrawal of effort was elected when the primary self-handicapping strategy was either not viable (the Smith et al., 1982 study), or was no longer available (the Ferrari, 1991, study). With regard to lack of practice, the study by Harris and Snyder (1986), reported in detail earlier, found that males who were uncertain of their self-esteem voluntarily practiced less (self-handicapped more) prior to an ego-threatening test of nonverbal intelligence than did certain males and females, and uncertain females.

Among studies examining forms of self-handicapping behaviour other than withdrawal of effort, ambiguities in relation to the nature of self-

handicaps used by males versus females (self-report vs. behavioural) and in terms of the nature of the threat (intellectual vs. social evaluation) are evident. In studies using both male and female subjects, males but not females have been found to behaviourally self-handicap (Berglas & Jones, 1978; Harris & Snyder, 1986; Rhodewalt & Davison, 1986; Shepperd & Arkin, 1989; Strube, 1986). For example, Rhodewalt and Davison (1986) found that 70% of males exposed to noncontingent success chose debilitating music as a means of self-handicapping while 30% of females exposed to noncontingent success self-handicapped using the same means. In a further study in which choice of debilitating music was again used as an indicator of self-handicapping behaviour, Shepperd and Arkin (1989) found that males self-handicapped by choosing to listen to debilitating music during anticipated completion of a test of intellectual ability more than females, but not so that performance was impaired. Males' performance was in fact enhanced relative to that of females.

Studies using only male subjects have found evidence of behavioural self-handicapping (Greenberg, Psyzczynski, & Paisley 1985, Higgins & Harris, 1988; Kolditz & Arkin, 1982; Tucker et al., 1981). On the other hand, studies using only female subjects have found that females are likely to use self-reported handicaps (Baumgardner, Lake, & Arkin, 1985; DeGree & Snyder, 1985; Gibbons & Gaeddert, 1984; Harris et al., 1986; Psyzczynski & Greenberg, 1983; Smith et al., 1982; Smith et al., 1983). The above studies, unlike a study by Kimble et al. (1990) which created a situation of social evaluative threat, have used intellectual evaluative threat.

While in the above there is evidence that females will report reduced effort as a self-handicapping strategy in situations of high evaluative threat, there is also a suggestion that they are likely to claim handicaps with a lower frequency than are males. Rhodewalt (1990), tabulating studies of self-handicapping behaviour which have yielded gender information, observes

that in addition to evidence of a lesser tendency to self-handicap amongst females relative to males, there is also little evidence to suggest they engage in acquired or behavioural self-handicapping. Rhodewalt (1990) notes that when females do handicap, it is frequently through claimed appeals to test anxiety, lack of effort, or recent traumatic events, rather than through acquired handicaps such as drug or alcohol abuse.

It is also noteworthy that there is scant evidence for enhanced performance on the part of females under circumstances where a mitigating excuse is available for poor performance. In view of this fact, the veracity of the egotism hypothesis as a description of poor performance in situations of high evaluative threat for females remains moot.

Doubts concerning the accuracy of the egotism hypothesis as an explanation for the poor performance of females following failure are fuelled by evidence for gender differences in attributional behaviour, with males manifesting a greater degree of defensive externalising in matters of ability relative to females. The suggestion from Miller (1986) is that such defensive posturing may be due to the fact that both possessing and being able to demonstrate high ability (and correspondingly, avoiding evidence which would implicate low ability) is more importantly a concern of males than of females.

Studies by Covington and Omelich (1979b) and Covington, Spratt, and Omelich (1980) have likewise found gender differences in perceptions of the effects of hypothetical failure in terms of attributions to inability and in terms of negative affect (personal dissatisfaction and public shame). In the Covington and Omelich (1979b) study, females, relative to males, were found to be more likely to interpret failure as evidence of lack of ability irrespective of the circumstances of the failure (whether failure followed high or low effort, and whether an excuse for failure was present or absent). Further, while females with low self-concepts of ability were vulnerable to perceptions

of incompetence following failure, the same was not true for males. Males with low self-concepts of ability showed no greater tendency to deprecate their ability than males with high self-concepts of ability. Both males with high self-concepts of ability and males with low self-concepts of ability rejected the ability-devaluing implications of failure to the same degree as females with high self-concepts of ability. As a consequence, males reported less shame following failure than did females. These results thus support a greater tendency towards attributional egotism on the part of males relative to females.

Covington et al. (1980) also reported gender differences in relation to attributions to inability and personal dissatisfaction following hypothetical failure. For males, personal dissatisfaction following failure was associated with perceiving oneself as lacking in ability. This was true whether the failure was depicted as resulting from high or low effort. For females, on the other hand, personal disappointment was not influenced by attributions to inability. Covington et al. (1980) observed that the reason for this difference may be that demonstration of high ability is less important to women as a means of achievement than it is for males. This observation finds support in studies by Parsons, Meece, Adler, and Kaczala (1982); Nicholls (1976) and Zander, Fuller, and Armstrong, (1972).

### 3.5 Review

In total, the evidence in the previous section leaves open the appropriateness of the egotism explanation of poor performance following failure for females. While for males, there is evidence for attributional egotism and enhanced performance where an external account for possible poor performance is available, the evidence for females on both counts is at best, uncertain. The possibility thus remains, as is indicated in research findings reported earlier by Miller (1985, 1986), Craske, (1988), and Dweck and Goetz (1978), that egotism best describes the deteriorated performance of

males following failure, while the learned helplessness explanation best explains the deteriorated performance of females.

In relation to the evidence presented in Sections, 3.1, 3.2 and 3.3, the suggestion is that several individual difference variables are associated with differential performance effects in situations of high and low intellectual evaluative threat. These are the performance criteria assumed to identify self-worth protective students.

In the first instance, evidence presented in Section 3.1 suggested that low, uncertain self-esteem is associated with enhanced performance in a situation where subjects were given exaggerated information in relation to their degree of prior success (Marecek & Mettee, 1972). Other research suggested on the one hand that uncertain self-esteem is associated with self-protective reduction in effort in circumstances of high evaluative threat (Harris & Snyder, 1986) and self-protective attributions (Kernis et al., 1992). On the other hand, Rhodewalt and Davison (1986) and Snyder and Higgins (1988) posit a relationship between low self-esteem and self-handicapping propensity. This view is consistent with findings from a review article by Baumeister et al. (1989), as well as findings from experimental studies by McNicoll et al. (1985) and Tice (1991), which underscore the self-protective motivations of low self-esteem individuals.

Studies by Covington and Omelich (1985, 1991) and a review by Nicholls (1984) point to a relationship between low and uncertain ability estimates and self-worth protection. Nicholls (1984) proposed that individuals with low and uncertain ability estimates will withdraw effort on tasks of moderate normative difficulty. This is because tasks of moderate normative difficulty have greater potential to reveal low ability relative to normatively difficult tasks. Moderately difficult tasks thereby constitute a greater source of intellectual evaluative threat for individuals with low, uncertain ability estimates. While persons with low but uncertain ability estimates are likely

to have a low expectation of succeeding on normatively difficult tasks, failure will not imply low ability. Normatively difficult tasks, therefore, constitute relatively reduced evaluative threat.

Nevertheless, the evidence that low, uncertain self-esteem is associated with withdrawal of effort in situations of high evaluative threat, and that this withdrawal of effort has performance-limiting consequences, is yet to be established. This also applies for circumstances in which a mitigating excuse creates a situation of low evaluative threat. There is, moreover, ambiguity from the findings of studies reviewed in Section 3.1 in relation to whether low, uncertain ability self-estimates or low, uncertain global self-estimates best identify self-worth protective students in terms of differential performance effects in situations of high and low evaluative threat.

Against these findings, evidence was presented in Section 3.2 that persons high in trait level of self-handicapping are most likely to withdraw effort through lack of practice (Rhodewalt et al., 1984) and use self-protective attributional strategies (Rhodewalt & Fairfield, 1991). While studies reviewed in Section 3.2 acknowledge a conceptual overlap between self-handicapping and self-esteem, several studies have found that high self-handicapping subjects' preference for self-protective attributional strategies is independent of level of self-esteem (Rhodewalt & Fairfield, 1991, Experiment 2; Strube, 1986) and that each of these variables exerts an independent effect on task choice (Strube & Roemmele, 1985).

Nevertheless, evidence was presented that self-handicapping and self-esteem exert independent effects, with level of self-handicapping determining the individual's proclivity for self-protective strategies, while level of self-esteem influences the manner in which self-protective behaviour may be manifest (Strube & Roemmele, 1985). In this study, high self-handicapping, low self-esteem subjects preferred a test form that was high in diagnosticity of success (one which maximised potential credit for success) while being low in

diagnosticity of failure (enabling avoidance of blame for failure). These preferences are consistent with the views of Nicholls (1984), above, and with the failure-avoidant motivations of self-worth protective individuals.

Finally, evidence reviewed in Section 3.3 revealed that fear of failure is associated with procrastination (Solomon & Rothblum, 1984). Two other studies have found level of test anxiety related to self-protective attributions (Harris et al., 1986) and claimed self-handicapping (Smith et al., 1982). Finally, studies by Feather (1961, 1963) and Karabenick and Youssef (1968) suggest that the performance of students who are particularly afraid of failing is improved when a task is described as very difficult.

On the basis of the above, it is clear that the individual difference variables associated with self-worth protection are not known with confidence. While there is evidence to support an association between differential performance effects in situations of high and low evaluative threat and low and uncertain ability conceptions as advised by Covington (Covington, 1984b; Covington & Omelich, 1985) and Nicholls (1984), there is also evidence that level of trait handicapping and level of test anxiety may be associated with these effects.

## Chapter 4

### Self-worth Protection, Affective Benefits and Attributional Behaviour

#### 4.1 Affective and attributional benefits associated with withdrawing effort

Studies reviewed in Chapter 2 presented evidence that withdrawal of effort occurs in situations which involve threat to self-esteem. An implication is that withholding effort in achievement situations which forebode damage to self-esteem is likely to render the individual less vulnerable to the effects of ability demotion, humiliation and thereby, diminished self-esteem. Other affective advantages such as reduced anxiety, discouragement and frustration may also be expected. These effects would occur if poor performance could not be attributed to some external factor. This section reviews evidence for attributional benefits associated with withdrawal of effort together with affective advantages in terms of reduced frustration, anxiety and discouragement. Section 4.2 considers evidence for a further affective outcome of withdrawing effort, examining evidence for a link between withdrawal of effort and preservation of self-esteem.

Evidence that low effort forestalls attributions to inability, thereby minimising humiliation, has been given by Covington and Omelich (1979a, 1984a, 1984b, 1985, 1988). This claim runs contrary to an assumption made under Weiner's attributional model (Weiner, 1972, 1974, 1977; Weiner, Frieze, Kukla, Reed, Rest, & Rosenbaum, 1971; Weiner, Heckhausen, Mayer & Cook, 1972; Weiner & Kukla, 1970), in which increased shame is associated with low effort expenditure. Several exchanges between Covington and Omelich (Covington & Omelich, 1979a, 1984a, 1984b, 1984c, 1984d) and Weiner (Brown & Weiner, 1984; Weiner, 1983) have fuelled this debate.



Covington and Omelich (1979a) challenged the cognitive model of achievement motivation which claims primacy for the role of postdictive attributions (e.g. to effort, ability, luck, task difficulty) associated with achievement motive (nAch) groups which govern affective reactions (e.g. shame), expectancies, and thereby, future performance outcomes. These researchers in fact found little evidence for such causal links. Achievement motive groups did not differ in test performance as a result of differential attributions for a past failure. Second, while attributions to effort and ability were found to contribute to negative affect and expectancy, they did so in ways which were contrary to prediction. Ascriptions to low effort were shown to decrease rather than increase shame, while ascriptions to low ability acted to increase, not reduce shame. With perhaps even greater significance in terms of attribution theory, nAch was found to exert a direct influence on expectancy in the absence of any significant role exercised by attributions, a finding which led Covington and Omelich (1979a) to conclude that attributions might be better regarded as reactions to past performance rather than causes of future performance. The role of postdictive attributions is thus considerably de-emphasised by Covington and Omelich's (1979a) findings, and the role of effort seen in an entirely new light, with low effort acting as a benefit to reduce shame, rather than exaggerate it through a sin of omission.

Covington and Omelich (1984a, 1984b, 1985) subsequently differentiated between two components of shame, identifying an ability-linked component: humiliation, and an effort-linked component: guilt. Using this distinction, Covington and Omelich (1985) resolved the apparent contradiction between the self-worth and attributional accounts, finding that failure following high effort gave rise to humiliation as a consequence of ascriptions of inability. This finding is consistent with the self-worth hypothesis. Consistent with the assumptions of attribution theory, low effort was found to increase the guilt

component of shame. An essential tenet of self-worth theory was thereby supported. As determined by Kun (Kun, 1977; Kun & Weiner, 1973), high effort coupled with failure constitutes strong evidence of inability. Due to the mediation of inability attributions, high effort coupled with failure gives rise to humiliation.

A second important contribution of the Covington and Omelich (1985) study was the finding that failure which occurs despite high effort expenditure elicits humiliation differentially, depending on whether or not the individual adopts a failure-avoiding or failure-accepting approach to coping with achievement demands. As noted in Section 3.1, these two achievement orientations were experimentally manipulated through vignettes that suggested in one instance that a hypothetical student had low but uncertain conceptions of ability (a failure-avoidance orientation) and in another that the hypothetical student held low, certain conceptions of his or her ability status (a failure-accepting orientation). Assuming that for failure-avoiding students ability would be particularly salient to self-worth, Covington and Omelich (1985) predicted that these students would experience greater humiliation following failure than was the case for failure-accepting students. This was found to be the case. Evidence was also provided for the indirect influence of effort level on humiliation via attributions to inability. High effort was found to imply low ability, confirming previous findings (e.g. Covington and Omelich, 1984b).

Further evidence for the link between low effort expenditure and protection against humiliation has been given by Covington and Omelich (1988). These researchers used path-analytic procedures to examine the interaction of several cognitive, motivational and emotional variables at several points across the study/test achievement cycle in order to assess their direct and indirect effects in terms of performance on a midterm exam. Measures assessing study skills, success orientation, failure avoidance,

externalisation of blame and trait anxiety were administered as antecedent pretest measures. Measures assessing the same three broad classes of variables (cognitive, motivational and emotional) were also administered at arousal/appraisal, and test preparation stages. Covington and Omelich (1988) found, somewhat ironically, that the implementation of effective study strategies, expressed in their study in the form of high effort expenditure, is most threatening for students with high scores on a failure-avoidance scale. This scale reflected a propensity for unrealistic goal standards, concerns about failure, doubts about one's ability and a disposition for self-criticism. As noted earlier, low-effort failures introduce uncertainty as to the causes of failure, thereby allowing maintenance of self-perceptions of competency and hence, personal worth (Covington, 1983). Psychological processes apparently central to this strategic reduction of effort are defensiveness and denial (Covington & Omelich, 1988).

As well as offering protection against humiliation, Covington et al. (1980) note that failure associated with low effort expenditure carried a number of additional affective advantages. Students exposed to a hypothetical depiction which involved failure following low effort expenditure described themselves in negative motivational terms. Nevertheless, they reported less discouragement, less frustration and less anxiety than did students who rated their imagined reactions to failure associated with high effort expenditure.

However, the generalisability of findings from studies by Covington and colleagues noted above, is weakened due to the reliance on hypothetical scenarios of success and failure feedback situations (e.g. Covington & Omelich, 1979b, 1979c, 1985; Covington et al. 1980). These hypothetical descriptions vary in terms of the degree of prior effort expended (Covington & Omelich, 1979b, 1979c); the stability of effort expended (Covington et al. 1980); the presence or absence of excuses (Covington & Omelich, 1979b,

1979c); manipulated ability perceptions (Covington & Omelich, 1979c, 1985) and the certainty with which these perceptions are held (Covington & Omelich, 1985). While manipulation checks were undertaken along with tests of possible confounds arising from an interaction between actual versus manipulated perceptions, nevertheless some basis for scepticism concerning the conclusiveness of results gained from these studies remains. These researchers' reliance on role-playing studies is defended on grounds that the focus is upon theory building and on the study of attitudes and cognitions. Nevertheless, it is possible, as Covington a number of times concedes (Covington & Omelich, 1979c, Covington et al. 1980), that involved actors may respond differently from uninvolved actors. Experimental feedback studies involving an actual experience of failure would provide further and more definitive test of attributional and affective benefits assumed for self-worth protective students.

More direct evidence that withdrawal of effort acts as a buffer against attributions to inability in the case of self-worth protective students comes from a study by Craske (1988) mentioned in Section 3.1. This study identified self-worth protective students on the basis of deteriorated performance following failure together with subsequent enhanced performance in response to a mitigating excuse. Students identified as self-worth protective through these means were found to be less prone to attribute poor performance to lack of ability than students whose performance deteriorated following failure but whose performance was not enhanced in response to a mitigating excuse.

The generalisability of Craske's (1988) result is to some extent compromised by a methodological flaw in that no allowance was made for score variations across three parallel forms of a test which were used to provide operational definitions of learned helplessness and self-worth protection. Section 8.2 contains a fuller discussion of this point. Also,

Craske's (1988) finding of lower attributions to inability for self-worth students was for primary school age students, and specific to males only. Despite these limitations, an appealing feature of this study was the use of an operational definition of self-worth protection which incorporated both performance criteria which are assumed to identify self-worth protective students.

Further, though indirect support for a link between withdrawal of effort and reduced attributions to inability is given by several studies of self-handicapping behaviour (Islieb et al., 1988; Mayerson & Rhodewalt, 1988; and Rhodewalt et al., 1991). Each of these studies has found evidence of a connection between claimed handicaps and diminished attributions to inability. While from studies by Islieb et al. (1988) and Mayerson and Rhodewalt (1988), there is evidence of the presumed functional advantage of self-handicapping in terms of discounting attributions to inability, the investigation by Rhodewalt et al. (1991, Study 1) also presents evidence of augmentation as a functional outcome of self-handicapping behaviour. It is noteworthy that this study also indicated that the connection between self-handicapping and the use of discounting and augmentation is not a universal tendency, but an outcome of an interaction between individual difference variables and the effectiveness of the handicap in terms of assuaging threat to self-esteem.

From these studies, it is apparent that the evidence, while not conclusive for self-worth protective students, points to an association between withdrawal of effort and lower attributions to inability where the circumstances of poor performance involve threat to self-esteem. Finally, it is of interest that the evidence for discounting in two of the above studies (Islieb et al., 1988 and Mayerson & Rhodewalt, 1988), is for male subjects only. Also, the study by Craske (1988), noted above, found that only male students made lower attributions to inability following poor performance.

These observations add to evidence of gender differences in self-protective attributions reported in Section 3.4.

#### 4.2 Withdrawal of effort and preservation of self-esteem

The second assumption found within self-worth protection theory and studies examining the egotism hypothesis is that withdrawal of effort has an important functional role to fulfil in the preservation of self-esteem. While this tenet is in fact fundamental to the explanation of withdrawal of effort and other forms of voluntary self-handicapping in motivational terms, few studies can be cited as having tested this assumption. One study that has, is that by McFarland and Ross (1982). These researchers hypothesised that while manipulating the valence of an achievement outcome (success vs. failure) would determine general positive and negative affect, manipulating attributions associated with either of these outcomes would influence affective reactions related to self-esteem. In general terms, their data support the notion that attributions for success and failure outcomes, rather than the valence of the outcomes themselves, were the primary determinants of affective reactions to success and failure. Of particular note in the context of the present discussion is the finding that in the failure condition, subjects who attributed their performances to an external factor of task difficulty reported higher self-esteem than those who made attributions to the ease of the task.

The study by Isleib et al. (1988), yielded essentially similar evidence. These researchers exposed male undergraduate students to noncontingent success feedback, manipulating three independent variables in a factorial design. Students were either given alcohol or not given alcohol, informed that the beverage consumed contained alcohol or that it did not, and subsequently exposed to either success or failure feedback on an unsolvable test. Pre- and posttreatment scores on the Rosenberg Self-esteem Scale (Rosenberg, 1965) indicated that students who were told they had consumed

alcohol reported higher self-esteem than subjects who were led to believe that they had not consumed alcohol (albeit at a marginal level of significance). This was true whether students received success or failure feedback. Similar evidence was gained by Rhodewalt et al. (1991, Study 2). These researchers found that subjects who were exposed to failure but allowed to claim a handicap for their failure reported more positive self-esteem than subjects exposed to failure for whom no handicap was available.

If, as the above studies indicate, excuses have a functional advantage in maintaining or even enhancing self-esteem, then logically, failure where there is no opportunity to externalise the cause of that failure should be associated with a diminution in self-esteem. While Greenberg and Pyszczynski (1985) found this to be so in the case of private failure, they also determined that public failure led to a dramatic increase in self-esteem. In this experiment, self-esteem data were collected in a context in which assessments of self-image were anonymous and detached from the remainder of the experiment. On this basis, these researchers reasoned that the enhancement of self-esteem under public failure could not be interpreted to reflect a self-presentation strategy to preserve public image, preferring the conclusion that public knowledge of one's failure can cause an inflation of private self-image. Other researchers have nonetheless interpreted findings of elevated self-esteem following failure in terms of self-presentation concerns (e.g. Baumeister & Jones, 1978; Jones, Brenner, & Knight, 1990).

Whatever the resolution of the motivational dynamics associated with elevated self-esteem following failure, it is clear from the studies reported above, that there is a drive to maintain a positive self-image, reflected in both elevated self-esteem following public failure and enhanced self-esteem where an excuse for failure is available. As well as the motive to maintain a positive self-image, a further motive underlying excuse-making may be to maintain a sense of control (e.g. Snyder & Higgins, 1988).

#### 4.3 Self-worth protection and attributions following success

The suggestion in the discussion in the last section but one is that the deteriorated performance of self-worth protective students following failure is not attributionally mediated in the sense that it is not associated with diminished attributions to inability. Rather, the deteriorated performance of self-worth protective students in situations of high evaluative threat is presumed to be mediated by withdrawal of effort, motivated by a desire to protect self-esteem.

If there an attributional basis to the performance of self-worth protective students in achievement situations, the possibility remains that these students, while failing to blame themselves for their failures, may nonetheless fail to accept due credit for their successes. This possibility would be consistent with the selective perceptual mechanism associated with low self-esteem individuals whereby past successes are selectively excepted as a basis for predicting future performance outcomes (Shrauger, 1982). For low self-esteem individuals, past failures rather than past successes form the basis for predicting future achievement outcomes. There are, moreover, reliable differences between the attributional behaviour of high and low self-esteem individuals. While low self-esteem individuals attribute their failure to internal, stable factors such as lack of ability and their successes to external, unstable factors such as lack of ability, for high self-esteem individuals the pattern is reversed (e.g. Brewin & Furnham, 1986; Feather, 1987; Zautra, Guenther, & Chartier, 1985).

Some support for the view the self-worth protective students are likely to reject personal agency for their successes is given from findings by Rothblum, Solomon, and Murkami (1986). In a naturalistic study of cognitive, affective and behavioural differences between high and low procrastinators, these researchers found that high procrastinators attributed their good test performance more to external and temporary factors, whereas



low procrastinators attributed their success on a test more to internal and stable factors. However, there were no differences between high and low procrastinators on any attributions following test failure.

Further support for a difference in the manner in which self-worth protective students regard their success outcomes is given by the view that self-handicapping behaviour arises from a history of exposure to noncontingent success (e.g. Berglas & Jones, 1978; Berglas, 1986, 1987). As noted in preceding discussion, self-worth protective students are assumed to self-handicap by withdrawing effort in situations of high evaluative threat. As a consequence, low rates of self-reinforcement and rejection of success may result for these individuals. On this basis, it is possible that self-worth protective individuals are distinguishable as a subset of low self-esteem individuals in terms of a curiosity of attributional style whereby their attributions following success, but not failure outcomes, conform to a pattern established for low self-esteem individuals. These predictions are tested in experimental studies within this thesis.

#### 4.4 Enhancing student achievement through attributional retraining

One of the aims guiding this thesis is to make recommendations by which the achievement behaviour of self-worth protective students may be enhanced. As withdrawing effort is assumed to offer a self-protective advantage in terms of attributions to inability following failure, attributional retraining would appear misapplied if applied to failure outcomes. This in fact was Craske's (1988) finding in an experimental study mentioned earlier. This study was designed to test the benefits of attributional retraining for primary school children classified as learned helpless. While learned helpless children showed a reduced tendency to attribute poor performance to lack of ability, for self-worth protective students there was no change.

On the other hand, if the presumed rejection-of-success attributional pattern is found associated with self-worth protective students, attributional

retraining applied to self-worth protective students' perceptions of the causes of their success outcomes may bring enhanced performance. On this basis, strategies and variables governing the effectiveness of attributional retraining are briefly reviewed in order better to inform the discussion which concludes this thesis. In this review, particular attention is given to attributional retraining addressed to performance-limiting attributions following success.

The logic of attributional retraining is established on the assumptions of Weiner's (1972, 1979, 1985, 1988) theory of achievement motivation, learned helplessness theory (Seligman, 1975; Abramson, Seligman, & Teasdale, 1978), and self-efficacy theory (Bandura, 1977, 1982). The assumption is that impaired performance following failure is mediated by achievement-limiting attributions such as inability and can therefore be treated by modification of these attributions. As noted in previous discussion within this thesis, attributing failure to inability gives rise to diminished expectancies of future success, reduced self-esteem and negative affect such as shame, with an eventual consequent deterioration in performance. However, attributional retraining can also be applied to performance-limiting attributions following success.

While the majority of studies have concentrated on altering attributional styles in relation to both success and failure outcomes (e.g. Andrews & Debus, 1978; Chapin & Dyck, 1976; Fowler & Peterson, 1981; Medway & Venino, 1982; Schunk, 1981, 1982), at least two studies have demonstrated the effectiveness of attributing success to effort (Anderson, 1983; Short & Ryan, 1984). A further study by Schunk (1983) involved attributing success to ability.

In the Anderson (1983) study, college students were encouraged to construe success as a result of using appropriate effort. Increased expectancies of success were noted, together with improved motivation and performance. In the study by Short and Ryan (1984) which focussed on the

reading achievement of primary school students, the importance of successful effort was stressed, together with the role of self-administered praise. In this study however, the intervention failed to register beneficial effects in terms of reading performance, and only minimally assisted reading strategy.

The study by Shunk (1983) involved administering interval reinforcement which stressed either ability attributional feedback, past effort attributional feedback or ability-plus-effort attributional feedback in three separate experimental conditions. This study demonstrated enhanced speed in solving arithmetic problems for grade three children. The ability feedback conditions proved more effective than either the effort or effort-plus-ability conditions.

It is also noteworthy that attribution retraining has been established to be effective from the point of view of increasing success expectancies (Anderson, 1983; Wilson & Linville, 1982) and perceptions of self-efficacy (Shunk, 1983, 1984; Zimmerman & Ringle, 1981). These are benefits which may be particularly marked in the case of self-worth protective students.

While the majority of studies testing the effectiveness of attribution retraining have involved primary school age students, a number of studies have involved students at undergraduate level (e.g. Anderson, 1983; Van Overwalle, Segebarth, & Goldchstein, 1989; Van Overwalle & de Metsenaere, 1990; Wilson & Linville, 1982, 1985). Among these studies, the effectiveness of attributional testimonies from fellow undergraduates presented on videotape has been documented (Van Overwalle et al., 1989; Van Overwalle & de Metsenaere, 1990; Wilson & Linville, 1982, 1985). Such programs carry the advantage that they can be administered on a group basis and thereby integrated into lecture or seminar contact within tertiary teaching environments with minimal inconvenience and disruption.

What is heartening is that relatively simple, easily executed, short-run interventions can produce quite dramatic effects. In terms of duration, most studies testing attributional retraining interventions have used single sessions, usually under one hour duration (e.g. Anderson, 1983; Andrews & Debus, 1978; Cullen & Boersma, 1982; Medway & Venino, 1982; Van Overwalle et al., 1989; Van Overwalle & de Metsenaere, 1990; Wilson & Linville, 1982, 1985; Zimmerman & Ringle, 1981).

As illustration of the magnitude and longevity of the effects, the attribution video manipulation used by Van Overwalle and de Metsenaere (1990) significantly increased by 18% the number of students who passed the final examination at the end of the first year relative to control students who did not participate. Wilson and Linville (1982, 1985) likewise found that students who were encouraged to make unstable attributions for poor performance did better on Graduate Record Exam items immediately and one week after the intervention. Grade Point Average also improved in the year following intervention. Additionally, a reduction in the number of student dropouts was noted amongst trained students compared to controls.

The above evidence thus establishes both the potential benefit of attributional retraining in modifying attributions following success and the effectiveness of attributional testimonies from fellow students at undergraduate level which are both short run and easily implemented. The longevity and magnitude of the effects have also been demonstrated, together with the potential within attributional retraining to increase expectancy of success and perceptions of self-efficacy.

#### 4.5 Review

The review of studies in this chapter has presented evidence for several things. First, there is evidence to suggest that withdrawing effort carries a number of affective advantages in terms of reducing anxiety, frustration and discouragement, and that it acts as a buffer against diminished self-esteem.

There is also evidence that withdrawal of effort offers a protective benefit in terms of lower attributions to inability.

Nevertheless, the evidence that the latter benefit exists for self-worth protective students is yet to be established. Tests of attributional benefits associated with self-worth protective students require experimental feedback studies involving an actual experience of failure. In such an investigation, self-worth protective students need to be identified on the basis of personality variables which are shown to be associated with deteriorated performance in situations of high evaluative threat and enhanced performance in situations of low evaluative threat.

## Chapter 5

### An Operational Definition of Self-worth Protection and Research Aims

#### 5.1 An operational definition of self-worth protection

Due to ambiguity surrounding the individual difference variables which are assumed to identify self-worth protective students, the initial operational definition which guides the investigation pursued in this thesis is based on performance criteria. The performance criteria which enable identification of self-worth protective students involve poor performance following failure, together with enhanced performance where a mitigating excuse is provided which allows poor performance to be explained on the basis of a nonability-related factor. These performance criteria have been incorporated into an operational definition used by Craske (1988), mentioned in Section 3.1.

The experimental manipulation used by Craske (1988) enabled identification of learned helpless and self-worth protective students. In her study, primary school children completed four sets of maths problems involving the four basic processes of addition, subtraction, multiplication and addition. Problems comprising Sets A, C and D were matched for expected difficulty. Set B was comprised of problems beyond students' ability levels. Students were failed on at least two-thirds of the problems comprising this set, and offered a mitigating excuse prior to performance on Set D. Self-worth protective students were then identified on the basis of lower scores on Set C relative to Set A, (indicating deteriorated performance following failure), together with enhanced scores on Set D relative to Set A (indicating enhanced performance following face-saving). Learned helpless students were identified in terms of depressed performance on Set C, but with depressed performance continuing on Set D. Thus, the deteriorated performance of

learned helpless students was, unlike that of self-worth students, unresponsiveness to face-saving.

The manipulation used by Craske (1988) was adopted for the first of the experimental studies (Experiment 3) which tests a major assumption of self-worth theory. This manipulation will be abbreviated as the ABC\*D manipulation, where Sets A, C and D are parallel sets and Set B is a difficult (failure) set. The asterisk denotes a face-saving excuse given immediately prior to Set D which prospectively allows students to explain poor performance without implicating inability.

This operational definition of self-worth protection was seen as appropriate in terms of studies which indicate that students motivated to protect self-worth in achievement situations do so as a consequence of fear of failure (Beery, 1975; Covington & Beery, 1976; Birney, Burdick, & Teevan, 1969; Covington & Omelich, 1991). These failure-avoiding students are low in approach behaviour but high in avoidance behaviour. As such, strategic withdrawal of effort and consequent deteriorated performance is most likely following failure where subsequent performance does not allow defensive externalising of the reason for failure to a nonability-related factor. Additionally, there is evidence from several studies (e.g. Craske, 1988; Covington & Omelich, 1991) that self-worth protective students have low self-esteem. On this basis also, deteriorated performance following failure could be expected (e.g. Jones, 1973; Shrauger, 1975, 1982).

On the other hand, provision of a mitigating excuse which allows students to explain failure without implicating inability is expected to result in enhanced performance. Feather (1961, 1963) and Karabenick and Youssef (1968), for example, found that the performance of students who are particularly afraid of failing is improved when a task is described as very difficult. With a ready-made attribution to the difficulty of the task rather than to the person, the threat to self-esteem is removed. As a consequence,

performance should be enhanced relative to circumstances of high evaluative threat. These expectations also find support in studies reported in Chapter 2.

There is likewise evidence that individuals low in achievement motivation manifest a greater propensity to self-handicap than individuals high in achievement motivation. Weiner and Sierad (1975) for example, found that male students low in achievement motivation who were told that they had been given a pill that "interfered with performance" prior to failure feedback on a digit symbol task, showed enhanced performance relative to males who were high in achievement motivation. This result assumes significance in relation to Covington and Omelich's (1991) finding of low approach behaviour associated with failure-avoiding students.

The above logic thus establishes performance predictions within the ABC\*D manipulation enabling the identification of self-worth protective students. With Set A providing an original or criterion level of performance, deteriorated performance was expected on Set C, following experimentally manipulated failure on Set B. With the face-saving excuse delivered immediately prior to performance on Set D expected to reduce threat to self-esteem, enhanced performance was expected on Set D relative to Set C.

In this respect, the operationalisation of self-worth protection used in Experiment 3 differed in a minor way from that used by Craske (1988). While Craske (1988) assessed responsiveness to face-saving in terms of scores on Set D relative to Set A, a comparison of scores on Sets C and D provided an index of responsiveness to face-saving in Experiment 3. The precise operationalisation of self-worth protection which takes account of score variations across parallel forms based on normative data is given in Chapter 8. Chapter 8 also reports operational definitions of three additional subject groups identified through the ABC\*D manipulation, these being Decrement, Facilitation and No Effect groups.



Experiment 1, reported in the chapter which follows, gathered normative data for some 130 remote associate problems devised by the author in order to construct the three parallel sets and a difficult (failure) set for the ABC\*D manipulation, together with an easy (practice) set. Choice of remote associate problems is also justified in that chapter. Chapter 7 then reports Experiment 2. This experiment investigated the effectiveness of both failure and face-saving manipulations incorporated within the ABC\*D manipulation.

## 5.2 Research aims

The research aims which guide the investigation pursued in this thesis derive from the review of evidence presented in previous chapters. This review was guided by central assumptions of self-worth theory stated in Section 1.1.

One of the assumptions stated in Section 1.1 was that self-worth protective students may be identified on the basis of low and uncertain ability estimates (Covington, 1984b; Covington & Omelich, 1985; Nicholls, 1984). The review presented in Sections 3.1, 3.2 and 3.3 nevertheless advised that several individual difference variables may be associated with the differential performance effects under situations of high and low intellectual evaluative threat which are assumed to identify self-worth protective students.

Accordingly, the first research aim is to identify personality characteristics which best distinguish self-worth protective students. In the first of the experiments to investigate an assumption of self-worth theory (Experiment 3), this will be done by identifying self-worth protective students in terms of two performance criteria. The first criterion involves poor performance in a situation of high intellectual evaluative threat. A situation of high intellectual evaluative threat will be created by exposing students to failure where no opportunity to externalise the cause of subsequent poor performance is given.

The second performance criterion involves enhanced performance in a situation of low intellectual evaluative threat. A situation of low intellectual

evaluative threat will be created by exposing students to failure where a mitigating excuse for subsequent poor performance is available, one which allows the cause of poor performance to be attributed to a nonability-related factor.

The second research aim is to confirm that this difference in performance in situations of high and low evaluative threat is a person response style which generalises across different performance situations. This will be done by using the personality characteristics found to identify self-worth protective students in Experiment 3 to assign these students to experimental conditions in Experiment 4. Experiment 4 will seek to confirm that the personality characteristics which are discovered to best identify self-worth protective students in Experiment 3 are associated with the same performance effects used to identify self-worth protective students in Experiment 3. In Experiment 4, different performance measures will be used relative to Experiment 3. The combined results of Experiments 3 and 4 will thereby enable test of the assumption that the difference in performance between situations of high and low intellectual evaluative threat is a person response style which generalises across different performance situations.

A third research aim is to establish that self-worth protective students' deteriorated performance in situations of high evaluative threat is associated with the claimed protective benefit in terms of lower internality attributions. The expectation is that self-worth protective students will not attribute responsibility for failure internally. This attributional benefit would be consistent with the assumption that self-worth protective students' poor performance in situations of high evaluative threat is due to withdrawal of effort. An associated research aim, established on the basis of discussion in Section 4.3, is to confirm an expected propensity on the part of self-worth protective students to reject personal agency for their success. Experiment 5 enables test of the expectations embodied in these aims.

A further requirement is to clarify gender issues in relation to self-worth protection. Two needs are apparent. First, there is need to determine whether females' performance is enhanced where an external account for possible poor performance is given. An associated need is to ascertain whether the assumed benefit of lower internality attributions applies to males only or to both gender groups (see discussion in Section 4.1). These requirements constitute the fourth research aim.

In fulfilment of the above aims, a final aim of the investigation is to make recommendations by which self-worth protective behaviours might be forestalled and thereby, the achievement of self-worth protective students enhanced. These recommendations will be made on the basis of the findings of the experimental studies which comprise this thesis.

## Chapter 6

### Experiment 1: Construction of Remote Associate Problem Sets<sup>1</sup>

#### 6.1 Introduction

The previous chapter presented an operational definition enabling identification of self-worth protective students. This operational definition involved three parallel sets of cognitive problems and one difficult (failure) set. The present chapter reports normative data in connection with remote associate problems enabling the construction of these four problem sets together with an easy (practice) set. The decision to use remote associate problems was made on the basis of the following considerations.

All too frequently, performance feedback studies rely on illusory feedback as a means of manipulating subsequent performance (Baumeister & Tice, 1985; Craske, 1985, 1988; McFarlin & Blascovich, 1981; McNicoll et al., 1985; Rhodewalt & Davison, 1986; Snyder et al., 1981; Tang, Lui, & Vermillion, 1987). Many such studies employ anagrams and involve deception in the use of unsolvable problems. A number of problems associated with false performance feedback have been documented, not the least of which is the effect of subjects' suspicions and resultant risks to external validity (Smith, 1983).

Remote associate problems have been suggested by McFarlin and Blascovich (1984) as an alternative to the 'heavy deception' involved in many performance feedback studies, suggesting that where the manipulation of performance is necessary, it should be operationalised in such a way as to

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<sup>1</sup> The results of Experiment 1 have been published as Thompson, T. (1993). Remote associate problems in performance feedback paradigms. Personality and Individual Differences, 14, 11-14. (See Appendix B1).

minimise deception. Remote associates, they claim, allow one to manipulate performance in such a way as to enable feedback which is "veridical, credible, and impactful" (p. 228).

To date, however, there have been no attempts to generate normative data for a sufficient number of remote associates to allow the construction of multiple, including parallel sets. McFarlin and Blascovich (1984) report investigations with 30 remote associates, rated 'difficult', 'moderately difficult' or 'easy' on the basis of subjects' report, while the original Remote Associates Test (RAT) developed by Mednick (1962) likewise contained 30 items, these ungraded in terms of level of difficulty.

The present study was thus undertaken to establish normative data allowing the construction of multiple sets for use in the experimental manipulation described in the previous chapter and thereby, the manipulation of difficulty levels free from the illusory performance feedback involved in the studies such as those cited above.

## 6.2 Method

A total of 130 remote associate items developed by the author were normed on two samples: one, a sample of 156 university students enrolled in a variety of courses at the Launceston campus of the University of Tasmania, the other, 156 students enrolled in senior secondary colleges within the same State.

Students were presented with a number of practice examples before beginning the test sample of problems. No time limit was imposed, although students were instructed to work quickly, spending only 15 seconds or so on each problem before moving on to the next.

The order of presentation of the remote associates to each subject was randomised as a control for fatigue and practice effects. No student had previously encountered remote associates problems.

Following data gathering, students were fully debriefed and thanked for their participation. Ethics clearance for this experiment was given by the Ethics Committee of the University of Tasmania.

### 6.3 Results and Discussion

The relative easiness of items was calculated as the proportion of students giving the correct response. Items with poor discriminating power were discarded in the manner outlined by Keats (1971). Students in the upper and lower scoring 30 per cents were separated from the middle 40 per cent. A chi-square analysis was used to identify those items which did not adequately discriminate between upper and lower scoring groups. Items with phi-coefficients which failed to achieve a recommended one per cent level of significance were rejected. Items solved by a disproportionate number of females relative to males were also discarded (Keats, 1971). No gender differences were apparent for the numbers of remote associates solved for college and university samples either considered separately or combined. For the combined sample, means were 45.74 and 47.69 for males and females respectively,  $t(310) = 1.12$ ,  $p = .26$ .

On the basis of separate analyses performed for college and university samples, the same 50 items for each sample were rejected as being inadequately discriminating. This left 78 of the original 128 items used in pretest. A high level of agreement in the relative easiness of items was evident across university and college samples  $r(76) = .95$ . Amongst those rejected were three items either not solved by any subject or one subject only in each sample, and eleven very easy items, solved by all but a few students. These very easy and very difficult items were included within either difficult (failure) or easy (practice) sets given in Table 6.1. The remaining items comprising each of the difficult and easy sets were items found to be adequately discriminating but were those which proved easiest (in the case of items in the easy set) or most difficult (in the case of items in the difficult set).

Table 6.1

Remote Associate Problem Sets for College and University Samples

University		College	
UNI Set A		COLL Set A	
Twinkle-Celebrity-Bethlehem	Star	Dunes-Castle-Beach	Sand
Go-Grass-Irish	Green	Keel-Sail-Row	Boat
Scissors-Incision-Meat	Cut	Rose-Blood-Anger	Red
Screen-Tan-Light	Sun	Twinkle-Celebrity-Bethlehem	Star
Sky-Ocean-Mood	Blue	Go-Grass-Irish	Green
Bullion-Braid-Medal	Gold	Bees-Comb-Moon	Honey
Bees-Comb-Moon	Honey	Bullion-Braid-Medal	Gold
Worm-End-Shop	Book	Board-Magic-Death	Black
Board-Magic-Death	Black	Worm-End-Shop	Book
Nap-Call-Black	Cat	Nap-Call-Black	Cat
Sick-Swell-Mist	Sea	Brow-Glass-Level	Eye
Sign-Jam-Flow	Traffic	Sign-Jam-Flow	Traffic
Wedding-Telephone-Conspiracy	Ring	Light-Main-Sweeper	Street
Light-Main-Sweeper	Street	Wedding-Telephone-Conspiracy	Ring
Whisky-Tape-Thistle	Scotch	Bass-Complex-Sleep	Deep
UNI Set B		COLL Set B	
Stuff-Coffee-Tropics	Hot	Bark-Beware-Kennel	Dog
Door-Church-Ring	Bell	Stuff-Coffee-Tropics	Hot
Cough-Fire-Cigarette	Smoke	Sugar-Sixteen-Heart	Sweet
Sky-Sad-Ocean	Blue	Cough-Fire-Cigarette	Smoke
News-Plate-Clip	Paper	Screen-Burnt-Stroke	Sun
Sea-Home-Stomach	Sick	News-Plate-Clip	Paper
Athletes-Web-Rabbit	Foot	Sky-Sad-Ocean	Blue
Picture-Window-Door	Frame	Athletes-Web-Rabbit	Foot
Surprise-Line-Birthday	Party	Door-Church-Ring	Bell
Daffodil-Fever-Peril	Yellow	Picture-Window-Door	Frame
Unbroken-Gramophone-Tape	Record	Daffodil-Fever-Peril	Yellow
Bolt-Loaf-Squirrel	Nut	Water-Asleep-Autumn	Fall
Mouth-Speaker-Noise	Loud	Food-Butterflies-Pump	Stomach
Hearted-Touch-Ball	Soft	Hearted-Touch-Ball	Soft
Fish-Mouse-Door	Trap	Mouth-Church-Recital	Organ

Table 6.1 (cont.)

UNI Set C		COLL Set C	
Curry-Tropics-Stuff	Hot	Curry-Tropics-Stuff	Hot
Elderly-Fashioned-Timer	Old	Love-Felt-Broken	Heart
Love-Felt-Broken	Heart	Coal-Soot-Pitch	Black
Coal-Soot-Pitch	Black	Elderly-Fashioned-Timer	Old
Base-Cricket-Soft	Ball	Scissors-Incision-Meat	Cut
Residence-Sick-Brew	Home	Cob-Joke-Pop	Corn
Book-Vertebrae-Echidna	Spine	Base-Cricket-Soft	Ball
Cob-Joke-Pop	Corn	Swept-Mill-Blown	Wind
Swept-Mill-Blown	Wind	Candle-Dawn-Feather	Light
Ebony-Power-Hole	Black	Book-Vertebrae-Echidna	Spine
Fall-Sighted-Breath	Short	Greeting-Birthday-Joker	Card
Bottom-Spinning-Table	Top	Red-Crossing-Sign	Stop
Red-Crossing-Sign	Stop	Fall-Sighted-Breath	Short
Leather-Conceal-Lair	Hide	Residence-Sick-Brew	Home
Car-Fog-French	Horn	Bottom-Spinning-Table	Top

Sets Common to Both Samples

## Difficult Set

Bald-Screech-Emblem	Eagle
Curtain-Hot-Bar	Rod
Colander-Effort-Stress	Strain
Jam-Drug-Lights	Traffic
Whisky-Tape-Thistle	Scotch
Light-Rise-Way	High
Subside-Kitchen-Scuttle	Sink
Hens-Torch-Artillery	Battery
Wash-Cheap-Truck	Dirt
Match-Ball-Fly	Fire
Jump-Kill-Bliss	Joy
Drink-Spirit-Priest	Whisky
Kitchen-Prevent-Duel	Foil
Desert-Ice-Spell	Dry
Team-Elected-Nation	Member

## Easy Set

Quack-Pond-Waddle	Duck
Slither-Venomous-Bite	Snake
Purr-Whiskers-Nap	Cat
Pasteurised-Cow-Drink	Milk
Shelf-Read-Worm	Book
Dunes-Castle-Beach	Sand
Tap-Spout-Fall	Water
Sheep-Clip-Jumper	Wool
Flushes-Coffee-Tropics	Hot
Curiosity-Nap-Whiskers	Cat
Honey-Swarm-Sting	Bee
Bride-Reception-Ring	Wedding
Funnel-Web-Bite	Spider
Bark-Beware-Kennel	Dog
Matches-Smoke-Bush	Fire



Table 6.1 presents five sets of items in all, each comprised of N=15 items. These include three parallel sets of items of moderate difficulty (Sets A, B, and C), together with the failure and practice sets. Items within Sets A, B, C and the failure set were graded in terms of difficulty, with easier items given at the beginning of each list.

Table 6.2 presents means and standard deviations of Sets A, B, and C as well as for the failure and practice sets for university and college samples. The requirement of equal variance for parallel Sets A, B and C (Winer, 1971) was satisfied in each case for college and university samples, with the F statistic not reaching the .20 level of significance in either case, thereby indicating an absence of a significant departure from parallelism in each case:  $F_{\max}(2, 156) = 1.16, p > .20$  (university sample), and  $F_{\max}(2, 156) = 1.19, p > .20$  (college sample). Correlations between performance scores on Sets A, B, and C ranged between .65 and .69 for the university sample and .63 and .69 for the college sample. (See Table 6.3).

Table 6.2  
Means and Standard Deviations for University (N=156) and College (N=156)  
Normative Samples for Difficult and Easy Sets, and Parallel Sets A, B and C.

	University		College	
	M	SD	M	SD
Set A	7.57	3.12	7.56	3.03
Set B	7.57	2.90	7.76	2.78
Set C	7.57	3.03	7.75	2.90
Difficult Set	1.72	1.48	1.08	1.41
Easy Set	14.08	1.51	14.37	1.09

Table 6.3  
Correlations Between Performance Scores on Sets A, B and C for University  
(N=156) and College Normative Samples (N=156)

	Set A	Set B	Set C	
Set A	1.0	.66	.69	University
Set B	.67	1.0	.65	Sample
Set C	.63	.69	1.0	
		College Sample		

As a means of checking the adequacy of the simple 'proportion correct' criterion of easiness, a validation study was undertaken. The three parallel sets of remote associates, Sets A, B and C given in Table 6.1 were administered to a new sample of undergraduate psychology students (N = 24) with no prior experience of working with remote associate problems. Eight easily-solved practice examples were completed prior to attempting the three sets. A total of four minutes allowed for completion of each set of remote associates was found sufficient for students to attempt all 15 items, and that additional time was of little avail in terms of the number of remote associate items solved.

Means and standard deviations for the number of items correctly solved are presented in Table 6.4. Performance scores were comparable, showing no evidence of a practice effect, thereby providing support for the simple 'proportion correct' method in determining the relative easiness of items. A one-way analysis of variance failed to detect a significant difference between the parallel forms:  $F(2,23) = .05, p = .95$ . Pairwise correlations in the validation study were  $r_{AB} = .70, r_{BC} = .78$  and  $r_{AC} = .69$ .

Table 6.4

Means and Standard Deviations for Performance Scores on Sets A, B and C(N=24)

	M	SD
Set A	10.63	2.83
Set B	10.58	2.38
Set C	10.71	2.65

Several features of remote associates may recommend their use over other problem types in performance feedback paradigms. Believed by Mednick (1962) to be a test of creativity, subsequent studies have questioned the adequacy of the RAT as a measure of creative potential (Andrews, 1965; Hood, 1969). Whatever the RAT measures, Hood and Ginsberg (1970) suggest that two variables determine correct solution of RAT items. These are the connotative similarity of the stimulus words relative to the answer and "cultural availability": the extent to which the answers to RAT items are readily available in the culture as associates to the stimulus words.

'Serendipity' (contiguous environmental appearance of stimuli eliciting associative elements) is suggested as most significant in contributing to correct solution of RAT items which are high in cultural availability and connotatively dissimilar. Other cognitive processes such as similarity and mediation are suggested to underlie correct solution of items more connotatively similar but less culturally available (Hood & Ginsberg, 1970).

While cultural availability in particular would likely have potential to contribute to differences in normative information gathered for different subsections of the population, there is little evidence of variability in relative easiness, and no evidence of differences in the discriminating power of items tested for the two quite different student populations employed in the present

study. Without evidence of differences between these two different student populations, it is unlikely that normative data gathered from different undergraduate samples would be appreciably different.

As correct solution of RAT items depends both on logical reasoning processes and insight, deductive reasoning alone will not necessarily guarantee a correct solution. A 'snap' quality is involved, much as is the case in the solution of crosswords: the word has to arrive 'out of the blue', and in this sense, there is an element of unpredictability and as a consequence, a perception of at least incomplete control.

For this reason, it may be that RAT items somewhat more sensitively register the impact of performance (and particularly failure) feedback due to a feeling of incomplete control. As a consequence, they may more readily register the effects of variables known to mediate the effects of failure in terms of subsequent performance. In short, RAT items may more sensitively convey the effects of performance feedback than other problem types relying on logical processes alone.

Using the same reasoning, RAT items may be less subject to practice effects than, say, anagrams or other problem types which rely on straight reasoning processes. On these grounds, use of remote associates in performance feedback studies may carry advantages over anagrams, analogies, progressive matrices and similar puzzles variously used in performance feedback studies. These considerations recommended the use of remote associates in Experiments 2 and 3, reported in Chapters 7 and 8 which follow.

## Chapter 7

### Experiment 2: Assessment of Failure and Face-saving Manipulations<sup>1</sup>

#### 7.1 Introduction

Experiment 1 yielded normative data in relation to remote associate problems allowing the construction of three parallel forms, a difficult (failure) set and an easy (practice) set. The sets of remote associates reported in the previous chapter form the basis of the ABC\*D manipulation described in Chapter 5, where Sets A, C and D are parallel sets and Set B is a difficult set which produces failure. The asterisk denotes a face-saving excuse presented immediately prior to Set D. The ABC\*D manipulation allowed identification of self-worth protective students as those students whose performance deteriorates substantially following failure, then improves substantially with the provision of a face-saving excuse.

The present experiment tested the adequacy of the face-saving and failure manipulations embedded within the ABC\*D manipulation. A possible complication which results from this procedure is that prior success with the initial set of problems to an initial set of problems may effectively 'inoculate' individuals against the impact of subsequent failure. The possible inoculating effect of Set A within the ABC\*D manipulation thus raised the question as to whether the failure and face-saving experiences within the ABC\*D manipulation function effectively in these terms, divorced from the likely ameliorating effect of prior practice on Set A.

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<sup>1</sup> This experiment and that reported in the chapter which follows have been published as Thompson, T. Characteristics of Self-worth Protection. British Journal of Educational Psychology, 63, 469-488. (See Appendix B2).

The logic fuelling the scepticism in each case runs as follows. In the case of the failure experience, the possible inoculation provided by prior experience on Set A may overrule the intended effect of failure on Set B in terms of deteriorated performance on Set C. In the case of face-saving, the anticipated effect was of enhanced performance on Set D relative to Set C. In the present context however, prior experience on Set A may also produce a practice effect, not immediately evident on Set C due to the interpolated experience of failure on Set B, but manifest in terms of enhanced performance on Set D. This could occur as a result of more favourable performance on Set C relative to Set B, re-establishing an expectation for good performance on Set D.

Within the ABC\*D manipulation, both the impact of failure and that of face-saving are thus potentially confounded by the context in which they occur. A more adequate test of the effects of face-saving would thus be given by comparing the effects of performance following failure both with and without face-saving prior to subsequent performance. In similar fashion, test of the effect of failure may be gained by comparing performance following failure with performance where no failure occurs.

Three experimental conditions were devised for this purpose. The failure without face-saving condition (BCD) tested the effect of failure without the inoculating effect of prior practice provided by Set A in the ABC\*D condition. The impact of face-saving following failure was tested in a B\*CD condition, while an ACD condition provided a baseline for comparing performance on Sets C and D for each of the B\*CD and BCD conditions.

Using one-way analyses of variance performed separately on Sets C and D as dependent measures, the expectations driving the investigations were as follows. With the face-saving excuse (denoted by the asterisk)

within the B\*CD condition given immediately prior to Set C expected to soften the impact of failure in terms of performance on Set C, there was an expectation of markedly less depressed performance on Set C in the B\*CD condition relative to the same set in the BCD condition. There was, as a consequence, an expectation of lower performance on Set C within the BCD condition relative to each of the B\*CD and ACD conditions. This expectation is consistent with a number of studies (see reviews by Jones, 1973; Shrauger, 1975, 1982).

Performance feedback on Set C was expected to buoy depressed expectations following failure on Set B, establishing an expectation for subsequent performance more in line with that provided by the instructional set. As a consequence, no effect was expected across any of ACD, BCD and B\*CD conditions for scores on Set D.

## 7.2 Method

### Sample

Individuals in Experiment 1 were undergraduate students enrolled in a variety of degree programs at the University of Tasmania. Twenty four students with no prior experience of working with remote associate problems were randomly allocated to each of the experimental conditions (ACD, B\*CD and BCD), making a total of 72 students altogether. Students in the ACD condition were those who completed the three parallel forms which constituted the validation study in Experiment 1. The median age of the students was 20.2 years and the total sample comprised N = 29 males and N = 43 females.

### Materials

Set B within each of the B\*CD and BCD conditions was the failure set given in Table 6.1, for the UNI sample, while Sets A, C and D were respectively the first, second and third of the parallel sets contained in the same table. The manner in which these sets were formatted and

presented to students was essentially similar to the manner in which they were presented in Experiment 3. (See for example, Appendix 2).

### Procedure

Students were tested individually and informed that the purpose of the experiment was to gather data in connection with "a newly developed test of creativity and general intelligence called the Remote Associates Test". Advice on the frontispiece of the test booklets established a pressure for individuals to score at least 7 or 8 out of 15 remote associates correct. Individuals were advised that a person of 'average' ability, should score "at least 7 or 8 out of 15" with the latter phrase underlined for emphasis. (See Appendix A1). Exceptions to this advice were the face-saving excuses given for Set C within the B\*CD experimental condition of the present experiment, and Set D within the ABC\*D manipulation forming the basis of Experiment 3, reported in the chapter which follows.

These face-saving excuses were delivered prospectively - i.e., in advance of performance on the sets affected. In each case, individuals were informed that the sets in question were "very difficult" and that as a consequence, they "could not be expected to do very well". Individuals' responses on each successive set were scored before moving on to the next. Under the surveillance of the experimenter, individuals totalled their own scores, recorded these at the bottom of the page for each set and called their scores to the experimenter before proceeding.

Four minutes were allocated for completion of each set of remote associates. Pre-test with a small number of students established that this length of time was sufficient for students to attempt all 15 items, and that additional time was of little avail in terms of the number of remote associates solved.



In order to minimise possible expectancy effects arising from communication between students, students were informed that four experimental conditions were being run concurrently and that any information conveyed by prior experimental participants, may, as a consequence, be misleading.

Following experimental participation, students were fully debriefed and thanked for their participation. Ethics clearance for this experiment was given by the Ethics Committee of the University of Tasmania.

### 7.3 Results and Discussion

Table 7.1 presents means and standard deviations for performance on Sets C and D across failure, practice and face-saving conditions. Students in the ACD condition were those who completed the three parallel forms in Experiment 1. As a consequence, the data reported below for Sets C and D for the ACD condition are those reported for the second and third of the parallel sets in Experiment 1.

Table 7.1

#### Means and Standard Deviations for Scores on Parallel Sets Across Experimental Conditions

Condition	Set	Mean	SD
ACD	C	10.58	2.38
B*CD	C	10.21	2.80
BCD	C	9.33	2.71
ACD	D	10.71	2.65
B*CD	D	10.58	2.23
BCD	D	10.88	2.65

As there was neither a significant interaction effect nor main effect involving Gender, one-way analyses of variance using Tukey-Kramer post-hoc tests (Keppel, 1973) were applied separately for Sets C, D as dependent measures in relation to Condition (BCD, B\*CD, ACD).

Consistent with predictions, different performance outcomes were associated with Condition for Set C as the dependent measure:  $F(2, 69) = 23.63, p < .0001$ . Here, scores on Set C within the BCD condition were depressed relative to those within each of the B\*CD and ACD conditions. On the other hand, no effect was apparent for scores on Set D. Presumably, the effect of failure is lost as a consequence of performance feedback following Set C consistent with expectations engendered by the instructional set.

Without the potentially inoculating effect provided by Set A within the ABC\*D manipulation, the above results thus confirm the potential of both failure and face-saving manipulations to register their intended effects on subsequent performance. Without prior experience on Set A, a single experience of failure is thus sufficient to bring about a deterioration in performance. In like fashion, a face-saving excuse delivered immediately following failure and prior to repeat performance effectively ameliorates the effect of failure in terms of ensuing depressed performance.

## Chapter 8

### Experiment 3: Characteristics of Self-worth Protection<sup>1</sup>

#### 8.1 Introduction

The previous chapter reported the results of an investigation of the effectiveness of both failure and face-saving manipulations divorced from the potentially inoculating influence of Set A within the ABC\*D manipulation described in Section 5.1. This manipulation formed the basis of the present experiment, which undertook to identify personality characteristics which distinguish self-worth protective students. This was to be done by identifying self-worth protective students in terms of differential performance criteria in situations of high and low intellectual evaluative threat. The present experiment also investigated the attributional behaviour of self-worth protective students. These investigations represent the first and third research aims stated in Section 5.2.

Also, this experiment sought to determine whether gender differences exist in self-worth protection. This is the fourth research aim. As stated in Section 5.2, two needs were apparent in this connection. First, there was need to determine whether females' performance is enhanced where an external account for possible poor performance is given. An associated need was to ascertain whether the attributional benefit of lower attributions to inability applied to males only or to both gender groups. (See discussion in Sections 3.4 and 4.1).

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<sup>1</sup> This experiment is the second of the two experiments published as Thompson, T. "Characteristics of self-worth protection" in the British Journal of Educational Psychology, reported in the footnote on the first page of the previous chapter. (See Appendix B2).

Predictions in relation to individual difference measures administered in this experiment were based on the discussions in Sections 3.1, 3.2, 3.3 and 4.1 and 4.3 of this thesis. Individual difference measures of global and academic self-esteem, academic self-esteem stability, global self-esteem certainty, fear of negative evaluation from others, test anxiety, and trait self-handicapping were administered. In addition, the Attitudes Towards Self Scale (Carver & Ganellan, 1983) was administered, which comprised measures of self-criticism, high standards for personal evaluation, and a tendency to overgeneralise the negative effects of failure to other aspects of the self. The predictions made in relation to measures assessing each of these variables, and the rationale for their inclusion were as follows.

Evidence from the study by Covington and Omelich (1991) suggested that self-worth protective students have low self-estimates of ability. On the other hand, other studies have suggested that low global self-esteem may be associated with self-worth protective individuals. These are studies by Craske (1988), and studies by Rhodewalt and Davison (1986) and Snyder and Higgins (1988), investigating the self-handicapping behaviour of low self-esteem individuals. Accordingly, the academic and global subscale measures of the Marsh (1990) Self-Descriptive Questionnaire III were administered to students, together with the same subscales adapted to assess stability of academic self-esteem and certainty of global self-esteem. The reasons for assessing stability of academic self-esteem and global self-esteem certainty were as follows.

On the basis of findings from studies by Harris and Snyder (1986) and Marecek and Mettee (1972) discussed in Section 3.1, self-worth protective students were predicted to have uncertain global self-esteem. Additional, though weaker evidence to support this prediction was given from studies by Kernis et al. (1992) and Kimble et al. (1990). These studies identified a

relationship between uncertain global self-esteem and self-handicapping behaviours other than withdrawal of effort and lack of practice.

One of the afore-mentioned studies, that by Kernis et al. (1992) also established that stability of self-esteem is associated with greater self-protective attributions following failure for low self-esteem individuals. These researchers found the relationship between self-protective attributions and self-esteem stability to be stronger than that between self-protective attributions and self-esteem certainty. Accordingly, it seemed wise to assess stability of self-esteem. Within the context of the present investigation, the choice was made to assess stability of academic self-esteem, given the domain relevance of this self-evaluative dimension to the criterion tasks used in this experiment.

It is noteworthy that Kernis et al. (1992) note interrelationships between self-esteem stability, certainty of self-esteem, fear of negative evaluation from others and overgeneralisation following failure. Measures assessing the latter two dispositional traits were administered in the experiment reported in this chapter and are discussed below. Kernis et al. (1992) found certainty, but not stability, to be significantly correlated with fear of negative evaluation and overgeneralisation following failure.

Discussion in Section 3.2 established that high trait self-handicapping is associated with a variety of self-handicapping behaviours. However two studies have established a link between high trait self-handicapping and self-handicapping behaviours manifested by self-worth protective students. These are withdrawal of effort and lack of practice effort. The two studies are those by Rhodewalt and Fairfield (1991) and Rhodewalt et al. (1984). These studies suggest that differential performance outcomes under circumstances of high and low evaluative threat are associated with high levels of trait self-handicapping. Accordingly, the short form of the Self-handicapping Scale (Strube, 1986) was administered to students. This

was done in order to assess whether students identified as self-worth protective students through the ABC\*D manipulation used in the experiment reported in this chapter were differentiated from any other performance groups on the basis of trait level of self-handicapping.

Evidence from a variety of studies reviewed in Section 3.3 also revealed that test anxiety and fear of failure are associated with self-protective attributions, poor performance under conditions of high evaluative threat, and enhanced performance under conditions of low evaluative threat. Based on this evidence, Sarason's (1978) Test Anxiety Scale, providing a measure of fear of failure, was administered to students.

The current of opinion in the self-handicapping literature is that self-handicapping behaviour is motivated by self-presentational concerns, that is, to defend self-esteem in the eyes of others (e.g. see Rhodewalt, 1990). Nevertheless, the suggestion based on other evidence (e.g. Baumeister et al., 1989) is that low self-esteem individuals self-handicap in order to defend private conceptions of self.

Accordingly, self-worth protective individuals (who were expected to have low global self-esteem), were not expected to be differentiated from any other performance group identified in the experiment reported below based on Leary's (1983) Fear of Negative Evaluation (FNE) scale. This scale assesses level of apprehension regarding social evaluations. Confirmation of this prediction was expected to provide indirect support for the suggestion from several researchers (e.g. Baumeister et al., 1989; McNicoll, Annamunthodo, McCarry & Kamal, 1985; Tice, 1991), that the self-handicapping strategies of self-worth protective individuals are associated with a need defend private self-esteem rather than esteem reflected in the evaluations of others.

Self-worth theory further assumes that the deteriorated performance of self-worth protective individuals following failure is not attributionally

mediated, but motivated by a desire to protect self-worth. If this were not the case, a tendency towards self-criticism and a tendency to overgeneralise the negative implications of failure to other aspects of their lives might be expected to be associated with self-worth protective individuals. This expectation is linked with the assumption that self-worth protective students have low global self-esteem.

In order to rule out these assumptions, Carver and Ganellen's (1983) Attitudes Towards Self (ATS) Scale was administered. The expectation was that self-worth protective students would not be differentiated from other performance group identified through the ABC\*D manipulation in terms of (a) a tendency towards self-criticism, and (b) a tendency to overgeneralise a negative consequence of failure to other aspects of the self. A third subscale of Carver and Ganellen's (1983) Attitudes Towards Self (ATS) Scale assessed high standards for self-evaluation. No specific predictions were made in relation to scores derived from this subscale.

As the experimental manipulation forming the basis of the present experiment involved an experience of failure but not success, Feather and Tiggemann's (1984) B.A.S.Q. was administered to assess self-worth protective students' attributions for success as well as failure outcomes. Here, the prediction, based on discussion in Section 4.3, was that self-worth protective students would show a greater tendency to externalise the cause of their success outcomes relative to any other performance group identified through the ABC\*D manipulation. As this measure is based on hypothetical as opposed to real-life achievement outcomes, brief comment concerning the external validity of this measure is warranted.

The external validity of the data obtained from the B.A.S.Q. hinges importantly on the correspondence between attributional data gained from hypothetical as opposed to real-life events. Several studies offer corroboratory evidence in this regard. Zautra et al. (1985), gathered data

from hypothetical events using Peterson, Semmel, von Baeyer, Abramson, Metalsky and Seligman's (1982) A.S.Q. as well as by means of a real-life daily events log developed by Epstein (1979). Zautra et al. (1985) found "highly similar findings" produced from the two data sources (p. 538). They concluded that the use of hypothetical events may be regarded "as productive and valid a method" for exploring these relationships as actual life events (p. 538), thereby enabling an answer to critics of the use of hypothetical events (e.g. Coyne, Aldwin, & Lararus, 1981; Harvey, 1981).

In defence of the A.S.Q, Raps, Peterson, Reinhard, Abramson, and Seligman (1982) argue that attributional responses to real life events fail to assess enough events to obtain a reliable indication of attributional style. Usually in fact, they assess just one (e.g. Hammen & Cochran, 1981; Moorland & Sweeney, 1984). Raps et al. (1982) also claim that assessment of attributional styles on the basis of real life events confound differences in the events experienced with differences in the interpretation of events.

Post-hoc attribution measures were administered after Set B in order to investigate self-worth protective students' ability attributions following failure. Attributional measures used and procedures followed paralleled those used by Arkin and Maruyama (1979), Craske, (1988) and Gollwitzer, Earle and Stephan, (1982), described below.

## 8.2 Method

### Overview

Eighty-two undergraduate students (N = 28 males, N = 54 females) enrolled in a variety of degree programs at the University of Tasmania constituted the sample for the study. The data for the study was gathered in across two sessions. Students first completed a range of individual difference measures described below, including measures of global and academic self-esteem, global and academic self-esteem certainty,



attributional style, test anxiety and fear of negative evaluation from others.

Approximately one week later, students completed four sets of remote associate problem sets: Sets A, B, C and D; Sets A, C and D being parallel forms and Set B a difficult (failure) set.<sup>2</sup>

### Identification of Self-worth, Decrement, Facilitation and No Effect Groups

Students whose performance decreased following failure but whose performance improved following provision of a face-saving excuse were identified as motivated to protect self-worth. Those whose performance on Set D remained depressed despite the provision of a mitigating circumstance constituted a Decrement group, whilst those whose performance was enhanced following failure with this effect carrying through to Set D constituted a Facilitation group. Students whose scores remained unchanged across Sets A, C and D within the limits of tolerance described below constituted a No Effect group.

Normative data for the items comprising the three parallel forms revealed that between 85% and 87% of scores were encompassed by a range of plus and minus three difference scores for comparisons across parallel forms (A & C, A & D and C & D). Accordingly, a latitude of tolerance was built into operational definitions enabling identification of Self-worth, Decrement and Facilitation groups, as follows:

- i) Self-worth:  $C \leq A - 3, D \geq C + 3$ ;
- ii) Decrement group:  $C \leq A - 3, D \leq C$ , and
- iii) Facilitation group:  $C \geq A + 3, D \geq C$ .

The No Effect group was defined by the parameter:  $\max(|A - C|, |C - D|, |A - D|) = 2$ . The latter operational definition was devised to encompass the residual of students not captured within any of the three

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<sup>2</sup> The ABC\*D experimental manipulation is presented as Appendix A2.

operational definitions given for Self-worth, Decrement or Facilitation students. Thus, while the operational definitions are not exhaustive, they nonetheless enabled categorisation of all 82 students.<sup>3</sup>

In this connection, a methodological flaw is evident within the Craske (1988) study, where no allowance is made for the nonequivalence of scores across parallel forms. Inevitably, parallel forms fail to yield neatly equivalent scores subject by subject across parallel sets. An operational definition premised on this presumption thus necessitated some form of correction for both false positives and false negatives arising from score fluctuations associated with measurement error rather than being a direct result of the experimental manipulation. No such correction was made by Craske (1988).

#### Manipulation Check

Odd- and even-numbered items from the Spielberger (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983) State-Trait Anxiety Inventory (STAI) were used to create parallel forms as a means of assessing the impact of failure on students' anxiety states before and after failure. These forms were administered immediately before and after completion of Set B. (See Appendix A2). A median internal consistency (KR-20) of .93 is reported for the full scale form of the State STAI, (Spielberger et al., 1983).

#### Post-hoc attribution measures

Attribution measures were administered after Set B in order to facilitate confirmation that self-worth protective students have lower attributions to inability following failure relative to Decrement students. Attributions used were those identified by Weiner (1979): luck, task-difficulty, effort and ability. Students rated the importance of each on a seven-point scale ranging from "not at all important" (1) to "extremely important" (7). (See Appendix A2).

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<sup>3</sup> I acknowledge the suggestion of the operational definition for the No Effect group to Dr John Davidson.

Following the procedures used by Arkin and Maruyama (1979), Craske, (1988) and Gollwitzer et al. (1982); the four attributional measures were combined to create two dimensions delineated in Weiner's (1972, 1974) taxonomy of causes: internal-external and stable-unstable. An index of internality was obtained by subtracting luck-plus-task-difficulty from the sum of effort-plus-ability scores, while the index for stability was calculated by subtracting luck-plus-effort from the sum of ability-plus-task-difficulty scores. The possible range for internality and stability scores fall within the range of from -12 to +12, with positive scores indicating internal or stable attributions and negative scores, external or unstable attributions.

#### Individual Difference Measures<sup>4</sup>

*Attributional Style Questionnaire.* The Balanced Attributional Style Questionnaire (B.A.S.Q.) of Feather and Tiggenmann (1984) resembles that used by Seligman, Abramson, Semmel, and von Beyer (1979), but differs in that it contains an equal number of items concerned with achievement and affiliation situations, with an equal balance of positive versus negative outcomes. After each item (e.g. "You go out on a date and it all goes badly") respondents were asked to imagine vividly the cause and write in a space provided "the major cause if this event happened to you". Respondents then evaluated the stability, globality, internality and importance of the cause on a rating scale numbered one to seven.

Following Feather and Tiggenmann's (1984) recommendation, scores were summed for each attributional dimension across achievement and affiliation situations. The resulting score range is from 8 to 56. Prose responses were content-analysed using the three-fold classification suggested by Janoff-Bulman (1979) and Peterson, Schwartz, and Seligman (1981). A cause was coded as characterological when it referred to some stable, relatively unmodifiable trait of the person (e.g. extroversion,

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<sup>4</sup> Appendix A3 contains all individual difference measures administered in this experiment.

academic ability, sporting prowess), as behavioural when specific behaviours were nominated which produced the event (e.g. studying hard, training for an event) and as external when the reason for the outcome was attributed to some factor outside of the individual (the economic situation, good fortune, teacher capriciousness, etc.).<sup>5</sup> A mixed category was also used where responses implied a mixture of causes: e.g. "personality clash", "exam ability and thorough preparation").<sup>6</sup>

A total of 1,312 responses were coded by a single judge, with approximately 10% (N=128) of all responses coded by the experimenter as a reliability check.<sup>7</sup> Simple agreement between the experimenter and judge was 89%. Scott's (1955)  $\pi$ , which accounts for chance agreement, was .90.

*Fear of Negative Evaluation.* The Fear of Negative Evaluation Scale (FNE), originally developed by Watson and Friend (1969), is a measure commonly used to assess the extent to which people experience apprehension about being negatively evaluated by other people. The brief form of the FNE scale (Leary, 1983) uses 12 of the original 30 items of Watson and Friend (1969). Students were asked to rate how characteristic each statement was to them on a five-point scale with the designations "not at all ....", "slightly ....", "moderately ....", "very ...." and "extremely .... characteristic of me". An inter-item reliability of .90 and test-retest reliability of .75 were reported (Leary, 1983).

*Self-handicapping Scale.* The Self-handicapping Scale developed by Strube (1986) is a 10-item scale composed of items such as "I try to put things off until the last moment", "I tend to make excuses when I do something wrong" and "I tend to rationalise when I don't live up to others' expectations". Students were asked to indicate the extent of their

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<sup>5</sup> Criteria enabling content analysis of prose accounts is presented in Appendix A4.

<sup>6</sup> Results for the mixed category, which carries no theoretical significance within the context of this discussion, are not presented.

<sup>7</sup> I am indebted to Sue Hooper for coding prose accounts of causes volunteered by students.

agreement with each item on a five-point scale with end designations ranging from disagree very much (1) to agree very much (5).

Strube (1986) gathered evidence to suggest that high self-handicapping is reliably related to high public self-consciousness, high social anxiety, high other-directedness, high depression and low self-esteem. No gender differences were found in self-reported self-handicapping tendencies. An internal consistency of .70 was reported (Study 1). High self-handicapping scorers were also found to claim a greater number of extenuating circumstances that would limit their ability to succeed on an upcoming psychology exam (Study 2).

*Attitudes Towards Self (ATS) Scale.* Carver and Ganellen's (1983) ATS is a self-report measure of self-punitiveness which consists of three distinct subscales designed to measure the extent to which individuals (a) hold high standards for self-evaluation, (b) are intolerant of failure to meet these standards, and (c) overgeneralise a single failure to their overall self-concepts. The ATS consists of 18 items overall, with the self-criticism subscale comprised of four items such as "I am not satisfied with anything less than what I expect of myself". The high standards subscale consists of seven items (e.g. "Other people think I expect a lot from myself"), as does the overgeneralisation subscale (e.g. "How I feel about myself overall is often influenced by a single mistake").

Students were asked to rate on a five-point scale with end designations ranging from extremely untrue (1) to extremely true (5) the degree to which each item was self-descriptive. Adequate psychometric information is reported by Carver (Carver & Ganellen, 1983; Carver, Ganellen, & Behar-Mitrani, 1985).

*Test Anxiety.* On the basis of relevant empirical and theoretical literature, Phillips, Pitcher, Worsham, and Miller (1980) argue an equation between high test anxiety and fear of failure, coupled with motives to

avoid failure and negative evaluation from others. On this basis, Sarason's (1978) Test Anxiety Scale was used as a measure of fear of failure.

The Test Anxiety Scale (TAS) consists of 37 items such as "I wish examinations did not bother me so much." The true, false response format of the Sarason scale was substituted in favour of a 5-point scale in line with other individual difference measures administered. Scale point designations were as for the FNE scale, above. Sarason (1978) reports adequate psychometric properties for this scale. Paulman and Kenneley (1984) found that the TAS correlates highly with other test anxiety inventories and relates to difficulty in working under pressure, while Zatz and Chassin (1983) found the TAS related to task-debilitating cognitions.

*Self-esteem scales.* Global and academic subscales of the Marsh (1990) Self Descriptive Questionnaire III were selected for use. The global subscale contains 12 items and the academic subscale, 30 items. Students indicated how true each statement was to them on an eight-point scale with the designations ranging from "Definitely False" to "Definitely True". Adequate psychometric information is reported by Marsh (1990).

*Global self-esteem certainty.* After the manner used by other researchers (e.g. Kernis, Grannemenn & Mathis, 1991; Kimble, Funk & DaPolito, 1990; Harris & Snyder, 1986), level of certainty of global self-esteem was assessed by formatting the Marsh (1990) global self-esteem subscale items into dichotomous option format ("like me", "unlike me"). Students were then asked to rate how certain they were of their response on a five-point scale ranging from "Not at all Certain" (1) to "Very Certain" (5). Mean scores across the certainty questions for the 12 items constituted the measure of global self-esteem certainty.

Mean scores across the certainty questions for the 12 items constituted the measure of global self-esteem certainty. Kernis, Grannemann and Barclay (1992) clarify the meaning of uncertain self-esteem as reflecting

"the phenomenal experience of a tenuous self-view" (p. 621). These researchers endorse the account provided by Berglas (1985) and Berglas and Jones (1978) in relation to the development of uncertain self-esteem. As noted in Section 4.3, this account emphasises the role of exposure to noncontingent success.

*Stability of academic self-esteem.* Stability of academic self-esteem was established in a somewhat different manner, asking students to complete Marsh's academic self-esteem subscale items at 10 a.m. and 10 p.m. over four consecutive days. Anchor points of "strongly agree" and "strongly disagree" were separated by numbers ranging from one to nine. Students were asked to circle a number that best reflected how they felt at the moment they completed the form. Stability of global self-esteem was computed as the standard deviation of students' total scores, with high standard deviation scores indicating uncertain academic self-esteem. This method follows that used by Kernis, Grannemann, and Mathis (1991).

Kernis, Grannemann and Barclay (1992) clarify the meaning of unstable self-esteem as reflecting "enhanced sensitivity to evaluative events, increased concern about one's self-view, and an overreliance on social sources of self-evaluation" (p. 623). These researchers suggest that overreliance on social sources of evaluation serve to promote an unstable self-view.

### Procedure

Data gathering for the experiment spanned two experimental sessions. In the first experimental session, participants completed the individual difference measures described above and contained in Appendix A3. Prior to completing these measures participants were informed that they were participating in a study which examined "the relationship between peoples' study habits and aspects of personality in relation to achievement".

At the commencement of the second experimental session, participants were informed that the purpose on this occasion was "to gain some information in relation to a newly developed test of creativity and general intelligence called the Remote Associates Test". (See frontispiece of Appendix A2). Participants were further informed that Sets A, B, and C were of equal difficulty with "the difficulty levels of the sets adjusted so that a person of 'average' intelligence should get at least half of the items correct - i.e., at least a score of 7 or 8 out of 15".

Participants then identified themselves by means of a code designed to ensure anonymity. Seven practice items were then completed before participants attempted Set A. Answers to items comprising this set were then scored prior to moving on to Set B. Participants scored their answers as correct or incorrect on advice from the experimenter and recorded the total correct responses at the foot of the page before proceeding to the next set. This procedure was adopted for each successive set of remote associates. Both immediately prior to and following Set B, students completed odd- or even-numbered items from Spielberg et al.'s (1983) State-Trait Anxiety Inventory as a means of assessing the impact of failure on students' anxiety states.

Following the second of these state anxiety measures, students turned to a page headed with the advice that they should "only answer questions on this page if your score on Set B was equal or better than that on Set A". Intended as a disguise for the experimental manipulation by indicating the possibility of an alternative (success) outcome, the advice served also as an emphasis of poor performance on Set B. Advice on the following page further reinforced a perception of failure on Set B with the conditional preamble "only answer questions on this page if you failed to meet with success on Set B relative to Set A".



Participants then completed Set C, followed by Set D. The top of the page on which items comprising Set D were printed carried the face-saving advice to the effect that the ensuing set of remote associates was "more difficult than the previous sets", immediately followed by an absolution for poor performance with the words: "As a result, you could hardly be expected to do very well".

Following Set D, students were fully debriefed and thanked for their participation. Results were later communicated to students in an end-of-year courtesy letter which again thanked them for their cooperation. Ethics clearance for this experiment was given by the Ethics Committee of the University of Tasmania.

### 8.3 Results

The experimental manipulation yielded  $N = 15$  Decrement students,  $N = 15$  Facilitation students,  $N = 16$  Self-worth students and  $N = 36$  No Effect students. Table 8.1, on the page which follows, presents means and standard deviations for performance on Sets A, B, C and D for the total of  $N = 82$  students.

While the investigations reported in Experiment 2 confirmed the impact of both failure and face-saving manipulations, an analysis of the effect of face-saving within the present experiment revealed enhanced performance on Set D relative to Set C with the provision of a face-saving excuse immediately following that set:  $t(81) = 2.90$ ,  $p < .01$  (one-tailed). Without the investigation of the effect of face-saving given by the B\*CD manipulation reported in the previous chapter, there would be uncertainty as to whether enhanced performance on Set D relative to Set C was due to the effects of face-saving or to a delayed practice effect. The result from Experiment 2 thus provides clarity concerning the effectiveness of the face-saving manipulation divorced from the inoculating effect of Set A within the ABC\*D manipulation.

Table 8.1  
Means and Standard Deviations for Scores Sets A, B, C and D.

Set	Mean	SD
A	10.46	2.72
B	1.92	1.40
C	10.07	2.65
D	10.76	2.23

Analysis of the impact of failure, on the other hand, failed to indicate an overall decrement in performance on Set C immediately following failure on Set B. As indicated in the previous chapter, the plausible interpretation is that Set A effectively inoculates students against the effect of failure. While there was no overall performance effect, the experience of failure nonetheless resulted in increased anxiety assessed in terms of State anxiety measures administered before and after failure (i.e., prior to and following Set B):  $t(81) = 8.39, p < .0001$ .

Results were first analysed using two-way analyses of variance on the basis of Group (Self-worth, Decrement, Facilitation and No Effect) and Gender. As neither interaction nor main effects emerged in relation to Gender, the analyses reported here were based on one-way analyses of variance. Tukey-Kramer post hoc tests were used (Keppel, 1973).

Tables 8.2 and 8.3 present mean scores for males and females on the individual difference and attributional outcome measures respectively, together with  $F$  values for one-way analyses of variance for Group (Self-worth, Decrement, Facilitation and No Effect).

Variable	Group				F values for: Group effect
	Self-worth	Decrement	Facilitation	No Effect	
Academic Self-Esteem (ASE)	130.69 <sub>a</sub>	171.93 <sub>b</sub>	157.07 <sub>b</sub>	162.08 <sub>b</sub>	11.70***
ASE Stability	7.89 <sub>a</sub>	5.53 <sub>b</sub>	5.77 <sub>ab</sub>	7.07 <sub>ab</sub>	3.61*
Global Self-Esteem (GSE)	64.81	78.07	69.07	72.94	1.70
GSE Uncertainty	3.26 <sub>a</sub>	4.04 <sub>b</sub>	4.01 <sub>b</sub>	3.92 <sub>b</sub>	4.18**
Test Anxiety	125.56 <sub>a</sub>	95.33 <sub>b</sub>	114.47 <sub>ab</sub>	111.42 <sub>ab</sub>	4.27**
Fear of Negative Evaluation	39.38	38.80	37.07	36.39	.65
High Standards	22.93	22.47	23.50	23.54	.94
Self-criticism	14.93	15.47	14.86	14.62	.84
Overgeneralisation	20.79	19.20	23.07	18.32	.16
Self-handicapping	28.12	26.73	27.00	25.44	.19

Notes.

1. \* $p < .05$  \*\* $p < .01$  \*\*\* $p < .001$

2. In cases of statistically significant results, means not sharing at least one common alphabetic subscript element are significantly different at the .05 level.

3. In all cases except GSE Uncertainty and ASE Stability, higher scores denote a greater degree of the variable present.

Variable	Outcome	Group				F values for: Group effect
		Self-worth	Decrement	Facilitation	No Effect	
Internality	Good events	33.69 <sub>a</sub>	43.40 <sub>b</sub>	40.93 <sub>b</sub>	41.50 <sub>b</sub>	6.26**
	Bad events	40.86	38.07	36.93	37.78	1.10
Stability	Good events	40.44 <sub>a</sub>	46.07 <sub>b</sub>	43.53 <sub>ab</sub>	44.39 <sub>ab</sub>	3.35*
	Bad events	35.69	37.47	36.00	34.89	0.55
Globality	Good events	37.44 <sub>a</sub>	44.88 <sub>b</sub>	35.93 <sub>a</sub>	40.44 <sub>ab</sub>	5.84**
	Bad events	32.75	29.40	27.87	29.86	.98
Importance	Good events	44.00	47.07	42.27	43.36	2.23
	Bad events	40.44	37.47	38.27	37.08	0.83
Good	----	156.63 <sub>a</sub>	181.40 <sub>b</sub>	162.67 <sub>a</sub>	168.69 <sub>ab</sub>	5.02**
Bad	----	149.75	142.40	139.07	139.03	1.02
Ability (Post-hoc)	----	3.94	3.40	3.40	3.74	0.43
Effort " "	----	2.67	2.80	2.73	2.51	0.14
Luck " "	----	1.88	1.93	1.53	1.46	1.06
Task Difficulty " "	----	4.81	4.13	4.27	4.26	0.88
Internality " "	----	0.06	0.13	0.33	0.48	0.11
Stability " "	----	4.13	2.80	3.40	4.03	0.66

Notes. 1. \* $p < .05$  \*\* $p < .01$  \*\*\* $p < .001$

2. In cases of statistically significant results, means not sharing at least one common alphabetic subscript element are significantly different at the .05 level.

### Self-esteem findings

In Section 3.1, evidence was reviewed to suggested that either low academic self-esteem or low global self-esteem may mediate the effects of deteriorated performance in circumstances of high evaluative threat. The results from this experiment provide unambiguous support for the role of low academic self-esteem in self-worth protection. Self-worth students were found to have lower academic self-esteem (ASE) relative to all other student groups:  $F(3, 78) = 11.70, p < .0001$ . On the other hand, no group was different from any other group on the basis of level of global self-esteem. The finding of an association between low academic self-esteem and self-worth protection is consistent with Covington and Omelich's (1991) finding as well as with the decrement in performance shown by low academic self-esteem students following failure (see reviews by Jones, 1973; Shrauger, 1975, 1982). Further, the finding that low academic self-esteem, but not low global self-esteem is associated with self-worth protection also serves to underscore the domain specificity of this effect.

Turning to the data in relation to certainty and stability of self-esteem, Self-worth students' ASE scores were more unstable relative to Decrement students but neither Facilitation nor No Effect students:  $F(3, 74) = 3.61, p < .05$ . In contrast, Self-worth students were more uncertain of their global self-esteem relative to all other groups:  $F(3, 74) = 4.18, p < .01$ . These findings are consistent with performance effects noted by Marecek and Mettee (1972), as well as the self-handicapping behaviour associated with uncertain self-esteem noted by Harris and Snyder (1986).

The findings that low academic self-esteem, and uncertain global self-esteem are associated with self-worth protection endorse an understanding of performance effects associated with each of these variables presented in Chapter 3. This understanding was that low academic self-esteem is associated with deteriorated performance in circumstances of high

evaluative threat (e.g. Hansford & Hattie, 1982), while uncertain global self-esteem is associated with enhanced performance in situations of low evaluative threat (Harris & Snyder, 1986; Marecek & Mettee, 1972).

Together with the attributional findings noted below, these results add support to the interpretation by Marecek and Mettee (1972) that uncertain self-appraisals may assuage consistency concerns, leaving the success-deprived low self-esteem person anxious for the self-produced success that will vindicate his or her refusal to fully internalise past failures. The association between uncertain global self-esteem and differential performance effects under circumstances of high and low evaluative threat also endorse the suggestion by Kernis et al. (1992) that uncertain global self-esteem is related to "greater apprehensiveness about, and greater adverse reactions to, negative evaluative events" (pp. 639-640).

#### Fear of negative evaluation

On the basis of Leary's (1983) FNE measure, there was no support for the inference based on findings by Baumgardner et al. (1985) and Baumgardner and Levy (1988), that strategic withdrawal of effort on the part of self-worth protective students is related to self-presentational concerns and loss of esteem in the eyes of others. Rather, the fact that Self-worth students were not differentiated from any other performance group on the FNE scale offers indirect support for the view held by Baumeister et al. (1989) that the self-protective attributional ploys of low self-esteem individuals are motivated by a desire to protect private self-conceptions.

#### Self-handicapping

It is also noteworthy that Self-worth students were not differentiated from any other performance group in terms of scores on Strube's (1986) Self-handicapping Scale. Evidence from a variety of studies reported in Section 3.2 suggested that persons high in trait self-handicapping are most likely to withdraw effort through lack of practice (e.g. Rhodewalt et al.,

1984) and use self-protective attributional strategies (e.g. Rhodewalt & Fairfield, 1991). Other evidence reported in Section 3.2 from Strube and Roemmele (1985) indicated that the attributional strategies of self-worth protection are associated with persons who are low in self-esteem but high in trait self-handicapping.

Accordingly, it was predicted that high trait self-handicapping might be a second individual difference (in conjunction with low self-esteem) that identified self-worth protective students. This proved not to be the case. Self-worth students were not differentiated from any other performance group in terms of trait self-handicapping. This finding has implications for a conceptual understanding of self-worth protection as a form of self-handicapping behaviour. This issue is considered in the chapter which concludes this thesis (see Section 11.3).

#### Overgeneralisation, self-criticism and high goal standards

The Carver and Ganellen (1985) Attitudes Towards Self scale assesses three potential precursors of internal, stable attributions which are known to mediate deteriorated performance following negative outcomes. These are a) perfectionistic goals, b) a tendency to respond too self-critically to a perceived discrepancy between what is real and what is desired and c), a tendency to overgeneralise a negative event to the whole of one's self-concept (Carver & Ganellan, 1983).

While all three subscales were administered, the principal interest was in the results obtained from the overgeneralisation subscale. Particular interest in this subscale was engendered from the finding by Kernis et al. (1989) that low self-esteem individuals have a greater tendency to overgeneralise the negative impact of failure to other aspects of their lives than high self-esteem individuals. As the poor performance of self-worth protective students following failure is understood to be motivated by a

need to protect self-worth, evidence of attributional mediation in respects tapped by the Carver and Ganellen (1985) scale was not expected.

This expectation was confirmed. Self-worth students were not differentiated from any other performance group identified through the ABC\*D manipulation in terms of a tendency to overgeneralise the effects of a single failure to other aspects of their self-concepts. Nor were they differentiated in terms of high goal standards or a tendency towards self-criticism.

While there is no positive evidence from the results from this study that the deteriorated performance of self-worth protective students under conditions of high evaluative threat is motivated by a desire to protect self-worth, the present finding fails to support an understanding that this deteriorated performance is attributionally mediated. This evidence derives principally from the overgeneralisation measure.

#### Test anxiety

As noted in Section 3.3, there is considerable evidence that fear of failure may be associated with the differential performance outcomes of self-worth protective students under circumstances of high and low evaluative threat. For Covington, fear of failure is held to be a central individual difference variable related to these effects. Empirical support is offered in this regard by Covington and Omelich (1991). Additional support for the link between fear of failure and differential performance outcomes under conditions of high and low intellectual evaluative threat came from studies discussed in Section 3.3. These were studies by Feather (1961, 1963) and Karabenick & Youssef (1968). Within the context of these findings, self-worth protective students were expected to have a higher fear of failure on Sarason's (1978) Test Anxiety Scale (T.A.S.) than all other performance groups identified through the ABC\*D manipulation.



There was little support for this expectation. Self-worth students were found to have higher levels of test anxiety relative to Decrement students as determined by Sarason's (1978) T.A.S.:  $F(3, 78) = 4.27, p < .01$ , but were undifferentiated from both No Effect and Increment groups.

However, the understanding of self-worth protection provided by Covington and Omelich (1991) as the resultant outcome of high fear of failure (high avoidance behaviour) and low success expectancy (low approach behaviour) has not been directly challenged by this finding. What has been demonstrated however, is that two individual difference variables (low academic self-esteem and uncertain global self-evaluations) are associated with self-worth protection as operationally defined in this experiment.

#### Attributional findings

The attributional results from the present study substantially confirmed predictions. Significant results were obtained in relation to three attributional dimensions (internality, stability and globality) of Feather and Tiggemann's (1984) measure of attributional style for successful outcomes. Significant effects emerged for internality scores:  $F(3, 78) = 6.26, p < .001$ , for stability scores:  $F(3, 78) = 3.35, p < .05$ , and for globality scores:  $F(3, 78) = 5.84, p < .001$ .

In the case of the internality dimension, Self-worth students had lower internality scores relative to all other groups, while for stability and globality scores, the effect was relative to Decrement students alone. Relative to Decrement students, Self-worth students had lower stability scores and lower globality scores. Facilitation students also had lower globality scores relative to Decrement students.

Relative to all other student groups, both male and female self-worth protective students thus have a greater tendency to ascribe successful outcomes to other people or circumstances rather than to assume due

credit for their achievements on the basis of factors such as effort or ability. Relative to Decrement students, Self-worth students see the cause of good outcomes as unlikely to have a role in determining other good outcomes, and as isolated to the situation in question. In other words, the causes of successful outcomes are seen as neither repeatable, nor general across situations. As a consequence of these effects, Self-worth students had lower scores for good outcomes (scores summed across internality, stability, globality and importance dimensions). Facilitation students also had lower scores for good outcomes relative to Decrement students.

No attributional differences on Feather and Tiggemann's (1984) individual difference measure were apparent for failure outcomes. Neither were there significant main effects for post hoc attributions following Set B within the experimental manipulation. It seems reasonable to link the absence of main effects associated with post hoc attributional measures with the inoculating effect of Set A. Without evidence of the impact of failure upon subsequent performance, the absence of any effect on post-hoc attributions appears logical.

The results from the content analysis of students' prose accounts of the causes of hypothetical good and bad outcomes yielded results consistent with those gained from the rating scales. Table 8.4 presents mean numbers of attributional accounts (characterological, behavioural and external) for good and bad outcomes, together with  $F$  values for one-way analyses of variance for Group (Self-worth, Decrement, Facilitation and No Effect). Tukey-Kramer post-hoc tests were used (Keppel, 1973).

A tendency on the part of Self-worth students to attribute the cause of good outcomes to external causes to a greater degree than any other group was apparent. There was some evidence also of a propensity on the part of Self-worth students to fail to see good outcomes as a product of their own behaviours. Here, the difference was relative to Decrement students only,

and was shared with students in the No Effect group. These results substantially agree with those gained from the rating scales assessing internality of good and outcomes.

#### 8.4 Discussion

##### The attributional bases of self-worth protection

An attributional paradox is presented in the findings for Self-worth students based on Feather and Tiggemann's (1984) B.A.S.Q. Whilst there is no evidence from the present study that Self-worth students internalise their failure to a greater degree than any other group, they nonetheless externalise the cause of their success, refusing to assume responsibility for the successes they have brought about through their own endeavour. While the failure of Self-worth students to fully internalise their success is consistent with their low academic self-esteem (and the understanding of the motivational dynamics of self-worth protection mentioned earlier: Frankel & Snyder, 1978), the fact that they are undifferentiated from all other student groups in this study on the basis of their attributions following failure is not.

The former findings are nonetheless consistent with the perpetual fear of failure driving the achievement behaviour of the high achiever (Beery, 1975), namely a failure to internalise success fully and regard it as nothing more than specific to the occasion. The results from the present study are also consistent with findings by Rothblum et al. (1986) of differences between high and low procrastinators in terms of their attributions for successful outcomes. While high procrastinators attributed their good test performance more to external and temporary factors, low procrastinators attributed their success on a test more to internal and stable factors. In the Rothblum et al. (1986) study, no differences between high and low procrastinators emerged for attributions following failure.

Table 8.4

Mean Characterological, Behavioural and External Attributional Accounts for Self-Worth, Decrement, Facilitation and No Effect Groups.

Variable	Outcome	Group				F values for: Group effect
		Self-worth	Decrement	Facilitation	No Effect	
Characterological	Good events	1.25	1.67	1.47	2.19	2.30
	Bad events	1.88	0.87	1.27	1.14	1.80
Behavioural	Good events	2.25 <sub>a</sub>	3.60 <sub>b</sub>	3.27 <sub>ab</sub>	2.31 <sub>a</sub>	4.38**
	Bad events	1.94	3.13	2.40	2.56	2.09
External	Good events	3.19 <sub>a</sub>	1.13 <sub>b</sub>	1.60 <sub>b</sub>	1.75 <sub>b</sub>	4.46**
	Bad events	2.44	2.53	3.00	2.75	0.46

## Notes.

1. \* $p < .05$  \*\* $p < .01$  \*\*\* $p < .001$

2. In cases of statistically significant results, means not sharing at least one common alphabetic subscript element were significantly different at the .05 level.

A finding by Craske (1988), as well as findings from the present study may be put together to draw a single conclusion. Craske (1988) found lower attributions to inability following failure for Self-worth students relative to those classified as Learned Helpless. In the present study, Self-worth students were not found to be differentiated from No Effect, Decrement or Facilitation students on any of internality, globality or stability dimensions for failure outcomes. Both findings are consistent with the defensive failure-avoidant strategies characteristic of self-worth protective students indicated in preceding discussion. Mindful of the conceptual link suggested earlier between self-worth protection and self-handicapping, further support for the Craske (1988) finding comes from a study by Rhodewalt et al. (1991) who found that high self-handicappers (irrespective of their level of trait self-esteem) discounted attributions to inability following failure feedback.

Comments by Covington (1984a) in connection with the motivational bases of self-worth protection contribute to an explanation of the attributional findings of the present study. Covington (1984a) suggests that self-worth protective students are somewhere along a continuum marked by anchor points of failure-acceptance and success orientation. At one end of the scale, success-oriented students tend to attribute their successes to skill and effort and their failures to lack of effort. At the other end of the scale, failure-accepting students attribute their successes externally to factors such as luck, task ease or the generosity (or capriciousness) of the teacher, and their failure to lack of skill or ability. These students actively avoid success due to the obligation to produce a repeat performance (Marecek & Mettee, 1972).

The attributional findings thus add a new and arresting dimension to the popularly assumed attributional bases of underachievement. While attribution retraining programs have generally addressed achievement-

limiting attributions to inability following failure (e.g. Craske, 1985, 1988; Van Overwalle & de Metsenaere, 1990; Wilson & Linville, 1982, 1985), the advice from the present study is that achievement is also limited by a tendency on the part of self-worth protective students to see their successes as determined by factors outside their control, and as isolated and unrepeatable. For these students, it is not their explanations of failure outcomes which are the problem, but the manner in which they regard their success. This finding has implications in terms of the modification of self-worth protection through attributional retraining programs, discussed in the chapter which ends this thesis.

### The Achievement Careers of Self-worth Protective Students

In the context of the present discussion, comment on the achievement outcomes of Self-worth students can be ventured. The eventual consequence of perpetual failure-avoidance, in Covington's (1984a) view, is acceptance of failure. The defensive and self-defeating tactics of failure avoidance "progressively cut students off from an already scarce supply of classroom rewards" (p. 91). The assumption is that opportunity to externalise failure on the part of Self-worth students reduces as the credibility of self-defensive alibis wither. As failures accumulate, there is ultimately no recourse but to attribute failure to inability. While the strategy of Self-worth students is to externalise failure, the tactic ultimately backfires. The end result is internalisation of failure, diminished expectancies for future success and as a consequence, low achievement.

Evidence in this connection is given by Covington and Omelich (1981). Within the naturalistic context of a mastery-based psychology course, these researchers gained support for a process of diminishing self-perceptions of ability over successive failures on parallel forms of the one test as self-serving attributions such as inadequate study time or insufficient effort became increasingly implausible.

### Ecological Validity

The ecological validity of the present study devolves largely on the issue as to whether the experimental paradigm used to identify Self-worth students in the present study in fact identified students manifesting symptoms of self-worth protection as described by Beery (1975) and Covington and Beery (1976), reported earlier. While there was no systematic attempt to gather qualitative data towards this end, many (often unsolicited) comments volunteered from students in the course of debriefing bore similarity to observations by Beery (1975) concerning the behaviour of self-worth protective students in achievement situations. A final year female education student asked during debriefing how she approached her studies offered: "I never aim too high ... if you aim for the tree tops you don't have far to fall, whereas if you aim for the stars the disappointment can be too great. So I am careful about the goals I set myself..." . A male graduate student conceded that throughout his undergraduate career he had chosen courses that he knew were "well within the limits of my ability, [since] failing at a course that interested me, but where I was not confident would have been ... shattering".

Other self-worth protective students taught by the experimenter were observed to manifest rigid compliance with coursework demands, low goal-setting or seemingly excessive effort and an exaggerated concern to meet the requirements of their academic work: all symptoms noted by Beery (1975) and Covington and Beery (1976) as strategies geared to guarantee success and thereby, avoid failure. Clear in the memory of the experimenter is one student who, while in receipt of an unbroken record of outstanding results assignment by assignment, would evince an attitude of unmistakable relief when greeted with the news of the demands of yet another assignment successfully negotiated. Conspicuous by its absence was any form of self-congratulatory recognition of success or

pride in achievement, symptoms bespeaking the primacy of a motive to avoid failure, as well as a characteristic tendency to deny (or overlook) one's own causal efficacy in achieving academic success.



## Chapter 9

### Experiment 4:

#### Performance Effects Associated with Self-worth Protection

##### 9.1 Introduction

The present experiment and that reported in the following chapter (Experiment 5) sought to confirm and extend the findings of Experiment 3 in terms of performance effects and attributional behaviour associated with self-worth protective students. In this regard, the present experiment permitted test of the second research aim stated in Section 5.2. This is to establish that the difference in performance between situations of high and low evaluative threat is a person response style which generalises across different performance situations.

In the present experiment, two personality variables, low academic self-esteem and uncertain global self-esteem, were used to identify self-worth protective students and assign these students to experimental groups. These two variables were found to differentiate Self-worth students from all other performance groups identified through the ABC\*D manipulation used in Experiment 3 (see Table 8.2). The present experiment will seek to confirm that these personality characteristics are associated with the same performance effects used to identify self-worth protective students in Experiment 3. In the present experiment, different performance measures will be used relative to Experiment 3. The combined results of Experiment 4 and Experiment 3 will thereby enable test of the assumption that the difference in performance between situations of high and low intellectual evaluative threat is a person response style which generalises across different performance situations.

Further impetus to reinvestigate performance effects associated with self-worth protective students who are identified on the basis of low academic self-esteem and uncertain global self-evaluations is given by a design feature of Experiment 3. This involved incomplete control of the dependent variable. In Experiment 3, the failure set of remote associates (Set B) was comprised of solvable but difficult problems. The score range on this set was from zero to five ( $M = 1.92$ ,  $SD = 1.40$ ; see Table 8.1). Failure was defined experimentally in terms of pretreatment advice which indicated that Sets A, B and C were of "equal difficulty", with difficulty levels "adjusted so that a person of 'average' ability should get at least half of the items correct - i.e., at least a score of 7 or 8 out of 15" (emphasis given in original). As indicated in the Results section of the previous chapter, enhanced scores were found on the STAI (State) measure following failure on Set B relative to scores on a parallel form of this measure administered prior to failure:  $t(81) = 8.39$ ,  $p < .0001$ . These data confirmed the effectiveness of the manipulation in terms of increased anxiety. Use of solvable problems was premised on the need argued by McFarlin and Blascovich (1984) to minimise deception, thereby enabling performance feedback which was "veridical, credible and impactful" (p. 228).

Nevertheless, it is possible that students had differing experiences of failure depending on the number of remote associates solved as well as in terms of the particular remote associate problems solved, thereby establishing differential reinforcement effects for different students.<sup>1</sup> On these bases, the design of Experiments 4 and 5 was modified in such a way as to allow greater control of the dependent variable through the use of unsolvable multiple discrimination tasks.

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<sup>1</sup> I acknowledge this observation to Professor J. Barber.

In the experiment reported in this chapter, the performance of students with low academic self-esteem and uncertain global self-evaluations (LSE/U) were compared with the performance of their low academic self-esteem counterparts who were certain of their global self-evaluations (LSE/C) in situations of high and low evaluative threat. The performance predictions for these two groups in situations of high and low intellectual evaluative threat were as follows.

The deteriorated performance of self-worth protective students following failure in Experiment 3 is assumed to be associated with the level of self-esteem variable (e.g. Jones, 1973; Shrauger, 1975, 1982). The certainty variable, on the other hand, is assumed to be associated with enhanced performance where a mitigating excuse reduces threat to self-esteem (Marecek and Mettee, 1972; Feather, 1961, 1963; Karabenick and Youssef, 1968). Accordingly, differential predictions are made for LSE/U students relative to LSE/C students following an experience of failure which allows face-saving.

Two sets of hypotheses were advanced. The first set of hypotheses had to do with performance comparisons between self-esteem groups (LSE/U, LSE/C) within experimental conditions (failure, failure involving face-saving, NPT). The second set of hypotheses were based on performance comparisons across experimental conditions for each self-esteem group.

In relation to comparisons within self-esteem groups, enhanced performance was predicted for LSE/U students relative to LSE/C students following failure pretreatment where a mitigating excuse for subsequent poor performance was able to ameliorate damage to self-esteem. On the other hand, no differences in performance were expected for these two groups following failure which did not allow face-saving. Nor were differences between the performance of LSE/U and LSE/C students predicted in the NPT condition.

Turning to comparisons for each self-esteem group across experimental conditions, differences across all three experimental conditions were expected for LSE/U students, with best performance in the failure which involved face-saving condition, and worst performance in the failure condition. For LSE/C students, comparable performances were expected in each of the failure conditions, while enhanced performance was expected in the NPT condition relative to each of the failure conditions.

Those hypotheses mentioned above which focused on performance outcomes for LSE/U and LSE/C students both within and across the failure and failure which involved face-saving conditions, were expected to provide stringent test of the performance assumptions of self-worth theory. In addition, confirmation of these predictions was expected to provide strong support for the veracity of low academic self-esteem coupled with uncertain global self-esteem as predictors of performance effects characterising the behaviour of self-worth protective students in situations of high and low evaluative threat.

## 9.2 Method

### Experimental Design

Two groups of low ASE students who were either certain or uncertain of their level of global self-esteem were randomly assigned to three experimental conditions. Two experimental groups (failure, and failure followed by face-saving) were created, while a third, no pre-treatment (NPT) group rendered the experiment a 2 (level of global self-esteem certainty: high vs. low)  $\times$  3 (performance feedback: failure, face-saving, no pretreatment) design.

### Subjects

Undergraduate students (N = 87) enrolled in a variety of degree programs at the University of Tasmania participated in the experiment. These students were selected from a total of 664 undergraduates who

completed measures of academic self-esteem and global self-esteem certainty. On the basis of scores determined on these measures, students were selected for experimental participation (see Procedure section, below). The sample comprised 16 males and 71 females, with ages ranging from 18 years to 45 years ( $M = 22.20$ ).

### Apparatus

#### *Self-esteem Measures*

Level of academic self-esteem and certainty of global self-esteem were assessed using the academic and global subscales of the Marsh (1990) Self Descriptive Questionnaire III, used in Experiment 3. Level of certainty of global self-esteem was assessed in the manner described in Experiment 3. This was done by formatting the Marsh (1990) global self-esteem subscale items into dichotomous option format ("like me", "unlike me"). Students were then asked to rate how certain they were of their response on a five-point scale ranging from "Not at all Certain" (1) to "Very Certain" (5). Mean scores across the certainty questions for the 12 items constituted the measure of global self-esteem certainty.

#### *Cognitive Tasks*

The pretreatment task consisted of a modification of the Levine (1966) simultaneous discrimination task used by Hiroto and Seligman (1975) and others (e.g. Frankel & Snyder, 1978; Snyder et al., 1981). Four ten-trial, simultaneous discrimination tasks used by Barber and Winefield (1986) were employed. Each problem began with the display of two figures. These figures were two letters of the alphabet: 'T' or 'A' which, on any given card, could vary in terms of three properties. These were the size of the letters (small or large), the colour of the letters (black or white) and the nature of the border within which they were contained (square or a circle). These attributes possessed by each letter of the alphabet varied systematically across the 10 cards according to criteria described by Levine

(1966). Appendix A5 shows the first of the 10 cards used in this experiment.

The object for students was to identify just one feature which was predetermined by the experimenter for each of the four trials (e.g. 'black', 'square', 'small', the letter 'T'). In both the failure and failure involving face-saving conditions, feedback given by the experimenter took no regard of students' responses. In fact, a fixed sequence of responses (indicated below) was given to all students. This sequence varied for each of the four trials. As a consequence, the problems were made to be unsolvable.

The criterion task consisted of 20 single solution anagrams (see Appendix A6), each with a median solution time of 30 s, as determined by Tresselt and Mayzner (1966). All anagrams were disarranged in the sequence 5-3-1-2-4 and were individually printed on index cards 15 cm x 10 cm and presented to students on a date pad.

### Procedure<sup>2</sup>

Prior to participating in the experiment, a large sample of students (664 across the two experiments reported in the present and preceding chapters) were screened using the measures of ASE and global self-esteem certainty described above. This pool of students was then rank ordered according to their level of ASE as well as their level of global self-esteem certainty. Students who fell into the bottom third of scores on the ASE measure and into either the top or bottom thirds of scores on the measure of global self-esteem certainty became eligible for experimental participation. Students were then randomly allocated to experimental conditions. Approximately 15 students were allocated to each experimental condition.

Of the 664 students screened, 31 students incorrectly completed the two individual difference measures in such a way as to prevent their inclusion

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<sup>2</sup> Appendix A7 gives instructions to subjects for Experiments 4 and 5.

in the study. Among these students, a number of respondents failed to identify themselves in terms of a code used to ensure anonymity.

(Anonymity was ensured by using the same coding system as used in Experiments 2 and 3: See Appendix A1).

The measures of ASE and global self-esteem certainty were found to be modestly related,  $r(631) = .317, p < .01$  (two-tailed). Students with high academic self-esteem tended to be those who were most certain of their global self-esteem. As self-worth protective students were undifferentiated from any other performance group in terms of level of global self-esteem in Experiment 3, no account was taken of this variable in the present experiment.

On arrival at the laboratory students were informed of the purpose of the experiment as follows. Students in the no pretreatment condition were informed that the purpose of the experiment was to examine peoples' ability to discover a code or underlying principle in order to solve a problem, while students in the failure and failure-with face-saving conditions were further informed that the intention of the experiment was to discover whether peoples' ability to discover one type of code was related to their ability to discover another type of code.

Students in the failure and failure with face-saving conditions were further advised that they would be asked to solve two types of problems: one, a simultaneous discrimination task, the other, a number of anagrams. Students in the no pretreatment condition were told merely that they would be asked to solve a number of anagrams.

The instructions given to students for each of the cognitive tasks closely resembled those given by Hiroto and Seligman (1975). These were as follows.

In front of you is a deck of 10 cards, each with two letters of the alphabet ('A' and 'T') within either a square or circle. If you look at

the figure on the right and the figure on the left you'll find that the two figures differ in a total of four ways.

One is the size of the letter: small or large. Another is the letter itself: 'A' or 'T'. A third way is the type of border: square or circle. The fourth way is whether the letter of the alphabet is black or white. One of these eight features has been chosen as the correct answer for you to discover as the cards are turned. The answer is one of the following: black, white, small, large, circle, square, the letter 'T', or the letter 'A'.

There are four problems in all, so we go through the deck of cards four times altogether. Each time there is a different correct answer.

For example, if circle was the correct answer, then 'two' would be correct on Card One. Turn to the next card. 'One' would be correct on Card 2. Turn to the next card. 'Two' would be correct on Card 3. Turn to the next card. 'Two' would be correct on Card 4, and (turn to the next card) 'one' would be correct on Card 5, and so on. Get the idea?

For the first card, you have no idea of the answer, so you have to guess whether the answer is contained in the figure on the left or the figure on the right. What you do is to simply guess 'one' or 'two', above the figures. Thereafter when you choose 'one' or 'two' I'll simply say "correct" or "incorrect" and offer no further feedback. From there on, its up to you to discover the correct answer by a process of elimination. Correct solution of the problem would be indicated by my saying "correct", "correct", "correct", card after card. Are you clear on what to do?

O.K. Again let me remind you. First select 'one' or 'two' on the first card and thereafter, again simply call out 'one' or 'two' to let me know which of the two figures contains the correct answer.



As you proceed through the deck of cards, you can't turn back to the previous card to remember what you said before. You have four seconds to make a decision on each card. Let's start.

Students in the failure condition completed four 10-trial discrimination problems, all of which were made unsolvable on the basis of bogus feedback given by the experimenter. Students in fact received 50% reinforcement schedules (Correct or Incorrect) on all four problems. The reinforcement schedules, taken from Barber and Winefield (1986), were as follows: (1) C-I-I-C-C-I-I-C-C-I; (2) I-C-I-C-C-I-C-I-C-I; (3) I-C-I-C-I-C-C-I-C-I; (4) C-C-I-C-I-I-C-I-C-I. As a consequence of this feedback, students failed on all four trials. Students were asked to turn the cards on the datepad on which the trials were presented after four seconds had elapsed. Intertrial intervals were approximately one second.

Students exposed to failure on the simultaneous discrimination task then completed the Russell (1982) Causal Dimension Scale used in Experiment 5 in order to assess the manner in which self-worth protective students (those with low ASE and uncertain global self-evaluations) assessed the causes of their success and failure outcomes relative to low ASE counterparts with certain global self-evaluations as well as students with high academic self-esteem.

Following pretreatment on the simultaneous discrimination problems, all students then completed the 20 anagrams. The instructions given to students in the failure, failure with face-saving and no pretreatment conditions were as follows.

Now we turn to the second set of problems. If you could leave the red cover down for the moment I will go through the instructions. In front of you is a set of anagrams. These are words with the letters scrambled. There are 20 anagrams in all, all of them solvable.

Note that there could be a pattern or principle by which to solve the anagrams, but that's up to you to discover. After the experiment I'll answer any questions you may have. You are allowed a maximum of 100 seconds to solve each anagram. When you've solved the word let me know what it is.

After 100 seconds has elapsed I'll simply say "turn", indicating you are to turn to the next anagram. As I need to record the time taken to solve each anagram, please don't turn to the next card until I've had opportunity to do so.

In the failure-with-face-saving condition, students received the advice given below. This advice was given immediately following the simultaneous discrimination task, and the information in the first two paragraphs (containing the external account for poor performance) was rehearsed by the experimenter in order to obviate the need to read, thereby allowing eye contact whilst the face-saving advice was given. This procedure was believed to enhance students' perceptions of the experimenter's sincerity and of the genuineness of the advice, thereby enhancing the effectiveness of the face-saving manipulation.

Now we turn to the second set of problems. If you could leave the red cover down for the moment I will go through the instructions. Before we start, I should say that with the task you have just completed, not being able to turn back to the previous cards to remember what you said before makes it extremely difficult to solve the discrimination task. You need to remember back two or three cards to solve the problem. For this reason, you should not take your performance on the previous set of problems as a reflection of your ability in any sense.

Also, figuring out the principle that enables you to solve the anagrams which follow can be made difficult as a result of this.

Either way then, you shouldn't take it as a reflection on your ability if you don't do very well.

Now to the second set of problems. In front of you is a set of anagrams. These are words with the letters scrambled. There are 20 anagrams in all, all of them solvable.

Note that there could be a pattern or principle by which to solve the anagrams, but that's up to you to discover.

After the experiment I'll answer any questions you may have. You are allowed a maximum of 100 seconds to solve each anagram.

When you've solved the word let me know what it is.

After 100 seconds has elapsed I'll simply say "turn", indicating you are to turn to the next anagram. As I need to record the time taken to solve each anagram, please don't turn to the next card until I've had opportunity to do so.

Several forms of face-saving advice were tried before the face-saving advice given above was decided upon. Pretest of the effectiveness of early versions of face-saving advice indicated that this advice needed to both absolve previous poor performance and offer an excuse for future poor performance. Face-saving advice which was forward-looking without also absolving immediate past performance was found to be ineffective. This was likely due to the severity of the failure manipulation comprising this experiment.

The experimenter recorded the time taken to solve each anagram using a hand-held stopwatch. Students were then fully debriefed and thanked for their participation. Approval for the experiment was granted by the University of Tasmania Ethics Committee.

### 9.3 Results

#### Performance Measures

Three dependent measures were recorded on the anagrams task: mean latency, number of unsolved anagrams and trials to criterion. Trials to criterion was set at three successive anagrams solved within a combined latency of no more than 15 seconds in the expectation that students who reached criterion had discovered the rule for re-ordering the letters in the anagrams. As several students failed to solve anagrams after reaching criterion, trials to criterion could not be justifiably included in statistical analyses.

Table 9.1 presents means and standard deviations for each of the two performance measures for low academic self-esteem students who were certain of their global self-evaluations (LSE/C) and low academic self-esteem students who were uncertain of their global self-evaluations (LSE/U) for each of the three experimental conditions (failure, failure involving face-saving and NPT). A multivariate analysis of variance (MANOVA) was performed on the two performance measures.

A significant interaction occurred for experimental condition (failure, face-saving, no pretreatment) and level of self-esteem certainty (certain, uncertain):  $F(2, 81) = 6.34, p < .01$ . No main effects were evident for either condition or self-esteem certainty.

The analysis strategy based on this result was to elucidate the significant interaction between condition and level of global self-esteem certainty by univariate  $F$  tests, and to confirm by stepdown analysis- (Tabachnick & Fidell, 1989, pp. 400-403), that there were no distinguishing effects on performance assessed by the number of unsolved anagrams after taking account of the effects of mean latency. By such means, the two performance measures could be regarded as manifestations of a single outcome variable.

Table 9.1

Means, Standard Deviations and Numbers of Subjects in Experimental Conditions for LSE/C and LSE/U Subjects'  
Performance in Failure, Failure with Face-saving and NPT Conditions.

Group	Mean Latency						Failures to Solve					
	Failure		Face-saving		NPT		Failure		Face-saving		NPT	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
LSE/C	23.56	(14.05)	34.19	(17.90)	28.44	(22.46)	2.60	(2.29)	4.43	(3.08)	3.08	(3.88)
	(N = 15)		(N = 14)		(N = 13)		(N = 15)		(N = 14)		(N = 13)	
LSE/U	37.93	(15.46)	14.88	(15.50)	34.97	(25.76)	5.00	(3.09)	1.27	(1.71)	4.47	(4.05)
	(N = 15)		(N = 15)		(N = 15)		(N = 15)		(N = 15)		(N = 15)	

With mean latency treated as a covariate, a two-way ANCOVA for number of unsolved anagrams revealed a nonsignificant result for the interaction of condition  $\times$  global self-esteem certainty. Thus, according to stepdown analysis, the significant interaction between condition and global self-esteem certainty in the multivariate analysis of variance is adequately represented by mean latency, with nothing added by number of unsolved anagrams.

Univariate analyses of variance revealed the same pattern of significant interactions between condition and self-esteem group for both mean latency and number of unsolved anagrams. In the case of mean latency,  $F(2, 81) = 6.34, p < .01$ , and for unsolved anagrams,  $F(2, 81) = 7.02, p < .01$ . Planned contrasts of differences between LSE/C and LSE/U students for level of global self-esteem certainty were performed for each of the experimental conditions. These were significant for the face-saving condition, both for mean latency:  $F(1, 27) = 7.55, p < .01$ , and number of unsolved anagrams:  $F(1, 27) = 7.94, p < .01$ . In each case, LSE/U students performed better than their LSE/C counterparts, having a lower mean latency ( $M = 14.88$  vs.  $34.19$ ) and fewer unsolved anagrams ( $M = 1.27$  vs.  $4.43$ ).

Significant effects were also obtained for the failure condition. Again, these effects applied for both mean latency:  $F(1, 28) = 4.33, p < .05$  and number of unsolved anagrams:  $F(1, 28) = 7.55, p < .01$ . In this case however, the performance of LSE/U students was inferior to that of their LSE/C counterparts for both mean latency ( $M = 37.93$  vs.  $23.56$ ) and failures to solve ( $M = 5.00$  vs.  $2.60$ ). While the performance of LSE/U students was depressed relative to LSE/C students within the NPT condition for both mean latency and failures to solve, neither of these differences approached significance.

In the above analyses, the focus was upon comparisons between self-esteem groups. When the focus is upon comparisons between experimental conditions within self-esteem groups, a consistent pattern of results emerged. This pattern was for comparable levels of performance across conditions for LSE/C students, but different levels of performance across conditions for LSE/U students. When the performance of LSE/C students was compared in failure and face-saving conditions, the difference was not significant for either mean latency or failures to solve. This was also the case for comparisons between the NPT and face-saving conditions for both mean latency and failures to solve.

However when the same comparisons are made for LSE/U students, a different picture emerges. When the performances of LSE/U students are compared in the failure and face-saving conditions, significant differences emerged for both mean latency:  $F(1, 28) = 11.14, p < .01$ , while for failures to solve:  $F(1, 28) = 11.46, p < .01$ . In these comparisons, the performance of LSE/U students was enhanced in the failure-involving face-saving condition relative to the failure condition. Again, when the performance of LSE/U students was compared in the NPT and face-saving conditions, significant differences emerge for both mean latency:  $F(1, 28) = 8.42, p < .01$ , and failures to solve:  $F(1, 28) = 8.47, p < .01$ . In these comparisons, the performance of LSE/U students was enhanced in the failure-involving face-saving condition relative to the NPT condition.

These analyses thus reveal a different pattern of performance results for LSE/U and LSE/C students when comparisons are made between experimental conditions. While the performance of LSE/U students was enhanced in the face-saving condition relative to each of the failure and NPT conditions, the same was not true for LSE/C students. For these students, failure which involved face-saving did not result in enhanced performance relative to either the failure or NPT conditions.

It should be noted that students in both the failure condition and the failure-with-face-saving condition completed the Russell (1982) Causal Dimension Scale following the simultaneous discrimination task and prior to attempting the anagrams. The Causal Dimension Scale gathered attributional data used in Experiment 5, reported in the chapter which follows. As such, it is possible that the performance results of the present experiment may have been influenced by focusing students' attention on the causes of their performance. While there is some possibility that this may be so, the significant interaction between self-esteem group and condition cannot be explained on this basis.

Finally, the performance results for the two self-esteem groups in the failure condition relative to the NPT condition warrant mention. It might be expected for each of the LSE/C and LSE/U groups that their performance following failure would have been depressed relative to the NPT condition. For LSE/U students in particular, threat to self-esteem in the failure condition could be expected to be associated with withdrawal of effort and hence, depressed performance relative to the NPT condition.

This was not the case for either LSE/U or LSE/C students. For LSE/C students, planned comparisons revealed that no fewer anagrams were solved in the failure condition relative to the NPT condition. Nor were mean latencies greater in the failure condition relative to the NPT condition. This was also the case for LSE/U students for both the number of unsolved anagrams and for mean latencies.

In explaining these results, it should be noted that students in the NPT condition, while not exposed to the same degree of threat to self-esteem as students in the failure condition, were not entirely insulated from evaluative threat. For experimental students in the NPT condition, evaluative threat occurred in the form of performance pressure. Students were informed that the purpose of the experiment was to examine



"peoples' ability to discover a code or underlying principle in order to solve a problem". Also, a time constraint for solution of each anagram was announced within the experimental instructions. Following these instructions, students began work on the anagrams with little opportunity to habituate to the experimental setting.

Doubtless, greater evaluative threat would have arisen following failure on the simultaneous discrimination task. However for reasons just given, the different levels of evaluative threat between the failure and NPT condition may have been insufficient to register in terms of performance outcomes. A final consideration relevant to explaining these performance results is that both of the student groups participating in this experiment had low academic self-esteem. The understanding from studies reviewed in Section 3.1 is that individuals with low self-esteem are likely to be most sensitive to conditions of evaluative threat. For example, Rhodewalt and Davison (1986) and Snyder and Higgins (1988) underscore the relationship between low self-esteem and self-handicapping propensity under conditions of evaluative threat, while Baumeister et al. (1989), McNicoll et al. (1985) and Tice (1991), underscore the self-protective motivations of low self-esteem individuals. The effect of this person variable may thus be to effectively mask performance differences which might otherwise be detected within narrower bands of evaluative threat such as is represented in the comparison between the failure and NPT conditions.

While the results which rely on comparisons between the NPT and failure conditions are admittedly bothersome, they are not critical to test of the performance assumptions of self-worth theory. The critical comparisons identified in the Introduction to this chapter (Section 9.1) were for (a), enhanced performance for LSE/U students relative to LSE/C students following failure which allows face-saving, and (b), no

differences in performance between LSE/U and LSE/C students following failure which did not allow face-saving. As noted above, the first of these predictions was confirmed. In relation to the second prediction, the performance of LSE/U students was actually worse than that of LSE/C students in the failure without face-saving condition.

These results, in conjunction with the comparisons within self-esteem groups for each of the failure and failure involving face-saving conditions, offer compelling evidence in support of the performance assumptions of self-worth theory. This being the case, comparisons between the performances of each of the LSE/U and LSE/C groups for the NPT condition relative to either of the failure conditions are immaterial to this interpretation.

#### Equivalence of definitions: Experiments 3 and 4

A question arises as to whether the operational definitions used to identify self-worth protective students in the present experiment and Experiment 3 are, in practice, equivalent. In Experiment 3, self-worth protective students were identified in terms of performance criteria and were determined to have lower academic self-esteem and more uncertain global self-evaluations than any other performance group. Level of academic self-esteem and level of global self-esteem certainty were used to assign students to experimental groups in the present experiment.

Despite confirmation of the hypothesised difference between the performance of LSE/U and LSE/C students following failure which allowed face-saving, the equivalence of the definitions between the present and previous experiments remains moot. The issue is one of assessing the magnitude of the effect versus assessing the statistical significance of the difference between means. Accordingly, the equivalence of definitions across the two experiments was assessed by examining the number of self-worth protective students in Experiment 3

who would be deemed self-worth protective on the basis of the score parameters used to define LSE/U students in Experiment 4. Of the 16 students identified as self-worth protective in Experiment 3, a total of 12 students (75%) fell within the score parameters of low academic self-esteem and uncertain global self-esteem used in the present experiment. Of the remaining 66 non self-worth protective students in Experiment 3, only two students (3%) would have been mistakenly identified as self-worth protective within the present experiment. These results provide further assurance that the two operational definitions identify substantially the same group of students.

#### 9.4 Discussion

The above results thus confirm the predicted enhanced performance of LSE/U students relative to LSE/C students following failure which allows face-saving. Following failure which did not allow face-saving, the performance of LSE/U students was inferior to that of LSE/C students. While this result was unexpected, it is not contrary to the assumptions of self-worth theory. Self-worth theory suggests that the deteriorated performance of self-worth protective students following failure can be explained in motivational terms, involving withdrawal of effort where impending poor performance imposes a threat to self-esteem. It is evident from results given above that deteriorated performance explained in these terms is even greater than that which might be explained on the basis of attributional mediation alone.

These results thus provide strong support for the predictive validity of low academic self-esteem coupled with uncertain global self-esteem in terms of performance effects characterising the behaviour of self-worth protective students in achievement situations. These are for enhanced performance in situations of low intellectual evaluative threat and

deteriorated performance in situations of high intellectual evaluative threat.

The results of this experiment, in conjunction with the performance results from Experiment 3 reported in the previous chapter, furthermore provide support for the assumption that for self-worth protective students, the difference in performance between situations of high and low evaluative threat is a person response style which generalises across different performance situations. Support for this assumption thus fulfils the second research aim guiding the investigation pursued in this thesis.

While these performance data are consistent with the self-worth account of performance impairment following failure, there is no evidence from these data that the deteriorated performance of LSE/U students under conditions of high evaluative threat is a consequence of withdrawal of effort. While self-worth protective students are assumed to withdraw effort as a means of protecting self-esteem where no external account for poor performance is available (e.g. Beery, 1975; Covington & Beery, 1976; Birney et al., 1969; Covington & Omelich, 1991; Solomon & Rothblum, 1984), there is no evidence from the results of this experiment that the inferior performance of LSE/U students relative to LSE/C students in the failure condition can be explained in these terms. It might be claimed that LSE/U students' performance deteriorates as a result of the interfering effects of anxiety.

The latter explanation is, however, contrary to assumptions within self-worth theory. Self-worth theory de-emphasises the role of both postdictive attributions and anxiety in terms of future performance outcomes (Covington & Omelich, 1979a, 1987, 1988; Covington, Omelich & Schwartz, 1986; Covington Spratt & Omelich, 1986). Deteriorated performance is mediated by diminished perceptions of ability rather than anxiety (Covington & Omelich, 1987; Covington et al., 1986; Hodapp, 1989).

Low effort forestalls attributions to inability by providing an external account for poor performance, thereby minimising humiliation (Covington & Omelich, 1979a, 1984a, 1984b, 1985, 1988).

The experiment which follows thus gathers evidence that the deteriorated performance of LSE/U students following failure relative to LSE/C students is associated with the protective benefit claimed by self-worth theory in terms of lower internality attributions. The expectation is that self-worth protective students will not attribute responsibility for failure internally. This attributional benefit would be consistent with the assumption that self-worth protective students' poor performance in situations of high evaluative threat is due to withdrawal of effort.

In Experiment 5, this evidence is construed on the basis of attributional data. While self-reported reduction of effort following poor performance would give most direct evidence that poor performance following failure is mediated by withdrawal of effort, several studies (e.g. Frankel & Snyder, 1978; Miller, 1985, 1986; Snyder et al., 1981) have failed to gather evidence in this regard. In these studies, students failed to report reduced effort following poor performance on tasks where no external account for poor performance was available relative to tasks where an external account was available. For example, in the Miller (1986) study, self-reported effort was unrelated to experimental condition. Students in the failure-moderate-difficulty condition did not report expending less effort than students in either of the failure-high-difficulty or solvable-moderate-difficulty experimental conditions. Nor did self-reported effort vary according to gender. Likewise, in Miller's (1985) study, sixth grade students in the failure-moderate-difficulty condition did not report expending less effort on the anagrams. Frankel & Snyder (1978) also failed to find evidence of reduction in effort in failure-moderate-difficulty conditions based on self-

report measures, while Snyder et al. (1981) determined that evidence from their study in this regard was at best, tenuous.

In the Snyder et al. (1981) study, students were exposed to either solvable or unsolvable discrimination problems and then worked on anagrams with or without music said to be distracting. Students exposed to unsolvable problems without music conceded that they could have tried harder than did students in each of the three comparison groups considered separately. A significant difference was nonetheless only apparent when scores for the three comparison groups were pooled and compared with scores in the solvable-no-music condition. The evidence for a reported reduction in effort associated with the high ego-threat condition was thus tenuous, and implied little contradiction with the findings noted above. As a consequence of these findings, self-reported effort following failure did not appear to be a fruitful way of assessing actual reduced effort, and thus was not adopted as a research strategy in the experiment reported in the chapter which follows.

Nevertheless, a central assumption of self-worth theory is that self-worth protective students withdraw effort in order to protect self-esteem. This being the case, a reduced tendency to attribute the cause of failure to internal factors might be expected for self-worth protective students. This is the central hypothesis tested in Experiment 5, reported in the chapter which follows. In Experiment 5, the attributional behaviour of three self-esteem groups is studied following success and failure outcomes. These are LSE/U and LSE/C students, and students with high academic self-esteem (HSE) who are undifferentiated on the basis of level of global self-esteem certainty. In this investigation, the critical comparisons will be the attributional behaviours of LSE/C and HSE students following failure and those of LSE/U and HSE students following failure. In these comparisons, the expected finding is that while LSE/U and HSE students will not differ

in their tendency to attribute failure to internal factors, LSE/C students will show a greater tendency to attribute their failure internally than HSE students.

## Chapter 10

### Experiment 5:

#### Self-worth Protection and Attributional Behaviour

##### 10.1 Introduction

The present experiment sought to establish that self-worth protective students' deteriorated performance in situations of high evaluative threat is associated with the claimed protective benefit in terms lower internality attributions. This is the third research aim stated in Section 5.2.

The expectation is that self-worth protective students will not attribute responsibility for failure internally. This attributional benefit would be consistent with the assumption that self-worth protective students' poor performance in situations of high evaluative threat is due to withdrawal of effort.

The need for this investigation was premised on the observation made in the final section of the previous chapter. There, it was pointed out that the deteriorated performance of LSE/U students following failure cannot, on the basis of performance data alone, be assumed to be due to withdrawal of effort.

Further need to investigate the attributional behaviour of self-worth protective students arises from several findings from Experiment 3. Contrary to prediction, post hoc attributional measures in Experiment 3 failed to indicate lower internality scores following failure associated with self-worth protective students relative to any other performance group. This result was nonetheless viewed as logical given the absence of an overall decrement in performance following failure (i.e., one evident on the basis of the performance of all 82 students). This was assumed to be due to the inoculating effect of Set A within the ABC\*D manipulation.



Experiment 3 also failed to differentiate between Decrement and Facilitation students on the basis of either level of global self-esteem or level of academic self-esteem as might have been expected. Facilitation students were not distinguished in terms of high self-esteem, nor did Decrement students have lower self-esteem than either Facilitation or No Effect groups. Again, this outcome was likely due to the inoculating effect of Set A within the ABC\*D manipulation and the consequent mildness of the failure experience embedded within it. This experience may have failed to influence differentially the subsequent performance of high versus low self-esteem persons in the expected manner, motivating renewed effort and improved performance for high self-esteem persons, while resulting in continuing poor performance for low self-esteem persons. Baumeister and Tice (1985) for example, found that high self-esteem students showed enhanced performance following humiliating failure but not failure which allowed face-saving.

As a consequence of this feature of the experimental manipulation used in Experiment 3, the attributional behaviour of self-worth protective students following failure outcomes remains moot relative to their most immediately relevant self-esteem comparison group. This group is low academic self-esteem students who are certain of their global self-evaluations.

As noted in the closing paragraphs of the preceding chapter, the comparisons in the investigation which follows are between the attributional behaviour of LSE/U students relative to two other self-esteem groups. These are LSE/C students and students with high academic self-esteem who are undifferentiated on the basis of their level of global self-esteem certainty (HSE).

The expectation stated at the conclusion of the previous chapter was that LSE/C students would show a greater tendency to internalise the

cause of their failure relative to HSE students. On the other hand, LSE/U and HSE students were not expected to differ in this regard. It was also noted that this test of the attributional behaviour of LSE/U students is important to the self-worth protection hypothesis. The assumption is that self-worth protective students withhold effort as a defence against attributions to inability following failure. On this basis, lower attributions to internal factors might be expected for LSE/U students as a self-protective benefit associated with reduced effort relative to LSE/C students. Such findings would be consistent with the finding by Craske (1988) of lower attributions to inability following failure for self-worth protective students relative to learned helpless students.

While a comparison of internality attributions of LSE/U and LSE/C students following failure feedback would provide the most direct test of the anticipated attributional benefit accruing from (presumed) withdrawal of effort for LSE/U students, this hypothesis is not advanced since both LSE/U and LSE/C groups are, after all, low academic self-esteem groups. On this basis, it is somewhat unreasonable to expect that they would attribute failure outcomes in markedly different ways. As a consequence, a more lenient set of hypotheses are advanced, in which the attributions of HSE students serve as the standard of comparison for each of the two low academic self-esteem groups.

In the present investigation, HSE students were not subdivided on the basis of their level of global self-esteem certainty for two reasons. First, there was no theoretical interest to examine the level of certainty variable for HSE students based on the investigations pursued in this thesis. Second, there is no literature which indicates that level of certainty of self-esteem is relevant to either the performance of high self-esteem individuals under conditions of high versus low intellectual evaluative threat, or to the manner in which HSE individuals might attribute their

success and failure performances based on the level of certainty of their global self-esteem.

Confirmation of the tendency noted in Experiment 3 for self-worth protective students to reject personal agency for their success is sought in the present experiment. In Experiment 3, self-worth protective students were found to internalise responsibility for success to a lesser degree than all other performance groups identified through the ABC\*D manipulation. In that experiment, causal attributions for hypothetical success and failure scenarios were assessed using Feather and Tiggemann's (1984) B.A.S.Q. In the present experiment, the Russell (1982) Causal Dimension Scale is used to assess attributions following actual experiences of success and failure. Using this scale, LSE/U students are expected to show a lesser tendency to attribute the cause of their success to internal factors relative to LSE/C and HSE students.

Essentially similar predictions are made in connection with the stability and controllability dimensions. LSE/U students should regard their successes as less stable and less controllable than both LSE/C and HSE students. These predictions are advanced more tentatively, there being less warrant in the findings from Experiment 3 to make confident predictions in the case of stability scores and no evidence in the case of the controllability dimension. In the case of internality and stability dimensions, supportive evidence (reported in Section 4.3), is given by Rothblum, Solomon and Murkami (1986).

In the case of internality scores, differential predictions in terms of the manner in which HSE and LSE/U students regard their success versus failure outcomes should be manifest in terms of a significant interaction between condition and self-esteem group. The familiar pattern of self-serving attributions associated with HSE students (e.g. McCarry, Edwards, & Rozario, 1982; Schlenker, Weigold, & Hallam, 1990; Weary, 1980),

whereby successes are ascribed to personal agency while failures are externalised, should be reversed in the case of LSE/U students.

## 10.2 Method

### Experimental Design

Students from three self-esteem groups were randomly assigned to either failure or success feedback conditions. Two of the three self-esteem groups were those in Experiment 4, i.e., students with low academic self-esteem who were uncertain of their global self-evaluations (LSE/U), and those with low academic self-esteem who were certain of their global self-evaluations (LSE/C). The third group comprised students with high academic self-esteem who were undifferentiated in terms of their level of global self-esteem certainty (HSE). The experiment thus became a 3 (self-esteem group: LSE/C, LSE/U, HSE)  $\times$  2 (performance feedback: success, failure) design.

### Subjects

Undergraduate students ( $N = 118$ ) enrolled in a variety of degree programs at the University of Tasmania participated in the experiment. The sample comprised 15 males and 103 females, with ages ranging from 18 years to 48 years ( $M = 21.80$  years).

A total of 59 students who participated in the failure and failure involving face-saving conditions of Experiment 4 were the LSE/C students ( $N = 29$ ) and LSE/U students ( $N = 30$ ) in the failure condition of this experiment. A further 59 students were sampled specifically for the present experiment. These comprised 15 HSE students in the success condition, 15 HSE students in the failure condition, as well as 15 LSE/C students and 14 LSE/U students in the success condition.

The total number of students across the two experiments was  $N=146$ . This figure was totalled from the 59 students common to both

experiments, the 28 students sampled specifically for Experiment 1, and the 59 students sampled specifically for the present experiment.

## Apparatus

### Individual Difference Measures

Level of academic self-esteem and certainty of global self-esteem were assessed in the manner described in Experiment 4. Students who fell into the top third of scores on the ASE measure were eligible for experimental participation. Students who fell into the bottom third of scores on the ASE measure and who fell into either the top or bottom thirds of scores on the measure of global self-esteem certainty were also eligible for experimental participation. These students from each self-esteem category were then randomly allocated to experimental conditions. Approximately 15 students were allocated to each experimental condition.

Following exposure to either success or failure manipulations, students rated their performance on three seven-point scales. The first of these ratings extended from way below average (1) to way above average (7). The second rating extended from very unhappy about my performance (1) to very happy about my performance (7), while the third extended from a total failure (1) to a total success (7)<sup>1</sup>.

Post-hoc attributions were then assessed using Russell's (1982) Causal Dimension Scale<sup>2</sup>. This scale was developed to assess causal attributions in naturalistic settings and attempts to account for both cross-situational variability in attributions and differences between individuals in the manner in which they construe the causes of any given event.

The Causal Dimension Scale is comprised of nine items, with three items addressed to each of three dimensions: internality, stability and controllability. A sample item comprising each of the subscales is as follows. For internality, students were asked to rate whether the cause

<sup>1</sup> Appendix A8 contains the performance manipulation check

<sup>2</sup> Appendix A9 contains the Russell (1982) Causal Dimension Scale.

reflects an aspect of the situation (1) at one end of the continuum through reflects an aspect of yourself (9) at the other. For stability, students were asked to rate the cause according to whether it was temporary (1) through permanent (9), while for controllability, students were asked to rate the cause according to whether it was uncontrollable by you or other people (1), or controllable by you or other people (9). Score totals on each subscale were used in analyses.

### Success and Failure Manipulations

Success and failure manipulations were created using the simultaneous discrimination task described in the previous experiment. The failure manipulation was as described in Experiment 4. In the failure condition, false feedback from the experimenter made the problems unsolvable. In the success condition, experimenter feedback was veridical with actual performance. Four single-value, single-dimension features ('black', 'circle', 'T', 'large') were decided as correct answers.

A manipulation check was included immediately following success and failure pretreatments. Students rated their performance on the three seven-point scales described above. Scores totalled across these scales were used to analyse students' perceptions of their performance.

### Procedure

Students were screened for level of ASE and level of global self-esteem certainty in the manner described in Experiment 4. High ASE students were undifferentiated on the basis of their level of global self-esteem certainty.

On arrival at the laboratory students were informed that the purpose of the experiment was to examine people's ability to discover a code or underlying principle in order to solve a problem and that to this end, they would be asked to solve a number of simultaneous discrimination tasks. The instruction given to students for the simultaneous discrimination

task was identical to that given in Experiment 4. Students in the failure condition completed the four 10-trial discrimination problems of Experiment 4, and were given the same false feedback by the experimenter. Students in the success condition were given feedback which was veridical with performance. All students correctly solved all four of the simultaneous discrimination problems.

The three performance feedback items described above were then completed, followed by the Russell (1982) Causal Dimension Scale. Each of these sets of items was presented to students on a separate page. Finally, students were fully debriefed and thanked for their participation. Ethics clearance for the present experiment was granted by the University of Tasmania Ethics Committee.

### 10.3 Results

#### Performance Perceptions

Scores were summed across the three items assessing students' perceptions of their performance. Table 10.1 presents means and standard deviations for ratings of performance and attributional measures for the three self-esteem groups (HSE, LSE/C and LSE/U) allocated to each of the two experimental conditions (success vs. fail).

A two-way analysis of variance for students' ratings of their performance revealed a highly significant main effect for condition:  $F(1, 112) = 192.12, p < .0001$ , with students exposed to success estimating their performance in markedly more positive terms than students exposed to failure ( $M = 15.11$  vs.  $7.50$ ). There was neither a significant interaction for condition  $\times$  self-esteem group, nor a significant main effect for self-esteem group.

Table 10.1

Means, Standard Deviations and Numbers of Subjects in Experimental Conditions for Performance Ratings and Attributional Measures

Group	Performance Ratings				Internality				Stability				Controllability			
	Success		Failure		Success		Failure		Success		Failure		Success		Failure	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
HSE	15.33	(2.29)	7.47	(1.55)	21.00	(6.11)	15.80	(4.95)	16.20	(6.47)	7.40	(3.11)	19.40	(5.40)	17.20	(3.73)
	(N = 15)		(N = 15)		(N = 15)		(N = 15)		(N = 15)		(N = 15)		(N = 15)		(N = 15)	
LSE/C	14.21	(2.52)	7.51	(3.32)	19.73	(5.77)	19.10	(4.57)	13.80	(5.21)	10.83	(4.23)	15.53	(6.06)	15.07	(4.82)
	(N = 15)		(N = 29)		(N = 15)		(N = 29)		(N = 15)		(N = 29)		(N = 15)		(N = 29)	
LSE/U	15.73	(2.62)	7.50	(3.19)	15.79	(5.45)	17.90	(6.09)	11.14	(4.61)	12.70	(3.79)	17.00	(5.04)	14.60	(4.58)
	(N = 14)		(N = 30)		(N = 14)		(N = 30)		(N = 14)		(N = 30)		(N = 14)		(N = 30)	



### Attributional Ratings

While the three attributional dimensions of the Russell (1982) scale were assumed to be theoretically orthogonal, correlations between scores on these attributional dimensions (internality, stability and controllability) were assessed for significance. Two of these correlations proved to be nonsignificant. These were correlations between internality and controllability:  $r(116) = .013, p > .10$ ; and stability and controllability:  $r(116) = -.056, p > .10$ .

Only internality and stability scores were correlated at a level which reached statistical significance:  $r(116) = .310, p < .01$ . Despite the statistical significance of this correlation, this correlation was not judged to be of sufficient magnitude to warrant multivariate analysis of variance procedures. As a consequence, separate two-way analyses of variance were performed on each of the three dimensions for condition (success vs. failure) and self-esteem group (HSE, LSE/C and LSE/U).

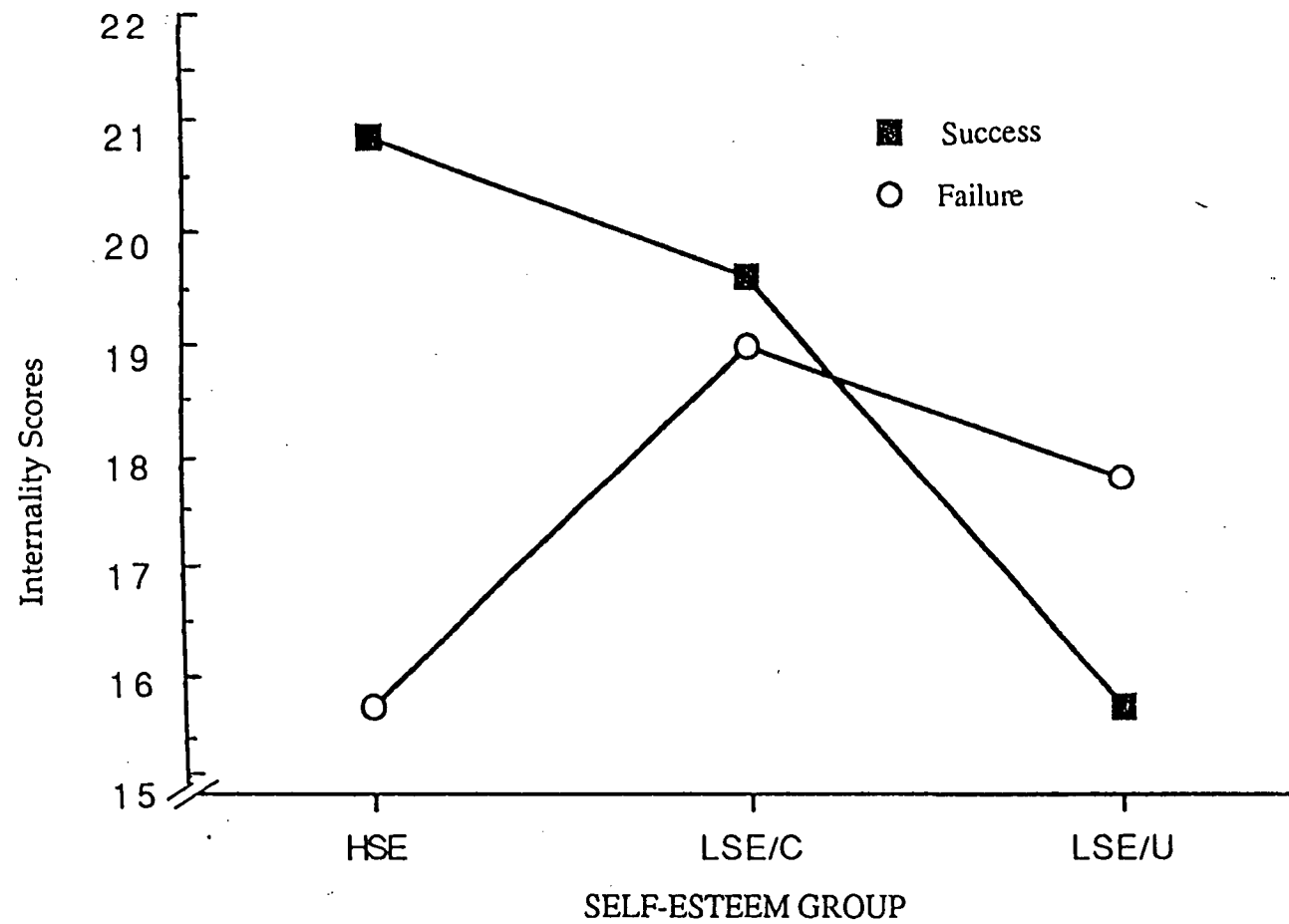
For internality, a significant interaction occurred for self-esteem group  $\times$  condition:  $F(2, 112) = 3.91, p < .05$ . This interaction arose by virtue of the different manner in which HSE students viewed their success and failure outcomes relative to LSE/C and LSE/U students. While HSE students internalised their successes to a greater degree than their failures:  $F(1, 28) = 6.76, p < .05$ , neither LSE/C nor LSE/U students were differentiated in the manner in which they viewed their success versus failure outcomes.

Differences were also evident in the manner in which LSE/U students viewed their success outcomes relative to both HSE and LSE/C students. In each case, LSE/U students had lower internality scores relative to HSE students and LSE/C students. In the case of HSE students, the comparison was significant at  $F(1, 27) = 6.53, p < .05$ , while for LSE/C students the comparison was marginally significant (.055) at the .05 level:  $F(1, 27) = 3.74$ .

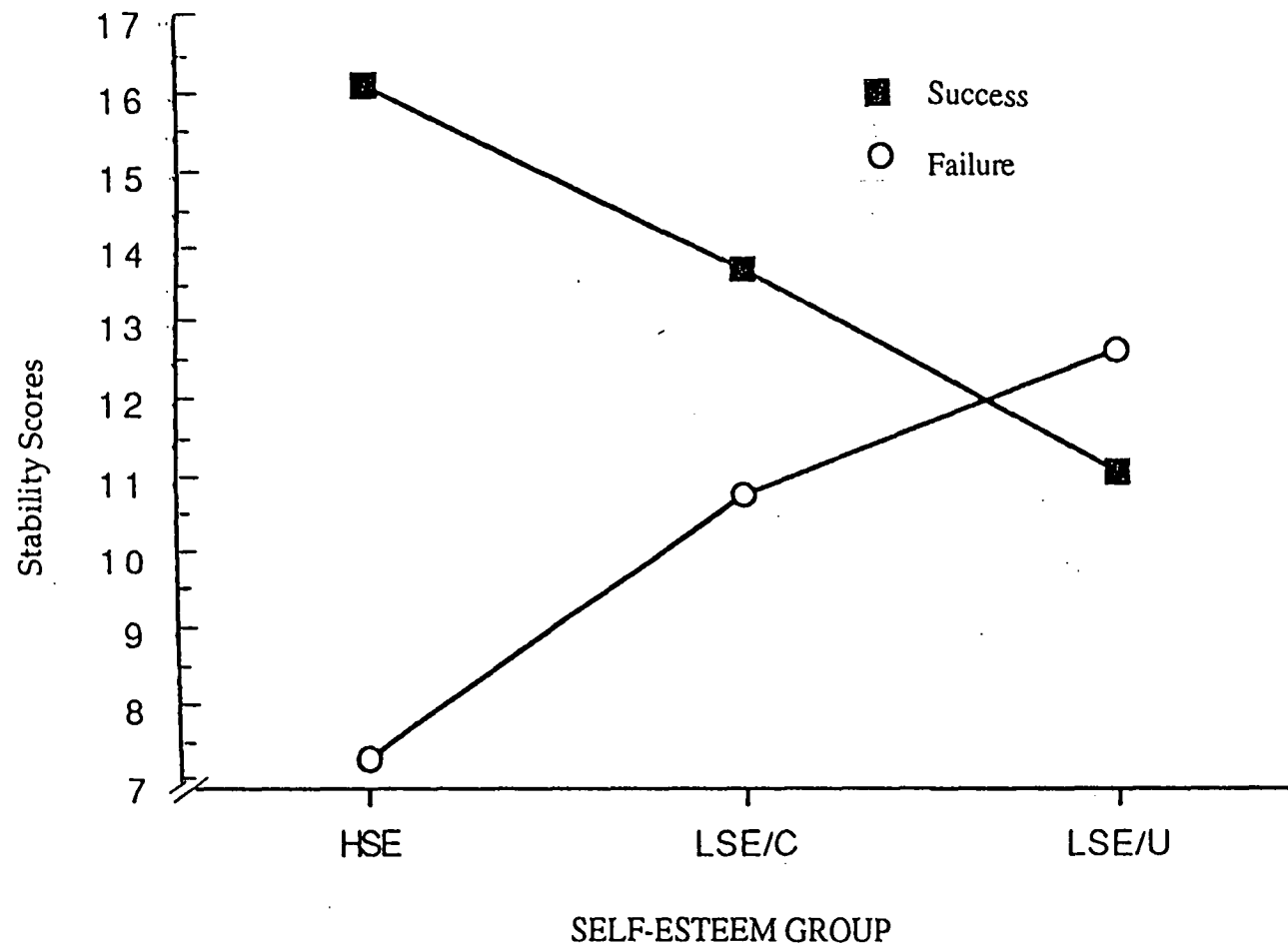
With regard to internality attributions following failure, the critical comparisons involved LSE/U and HSE students on the one hand, and LSE/C and HSE students on the other hand. While LSE/U and HSE students were not expected to differ in their internality scores following failure, LSE/C students were expected to have higher internality scores relative to HSE students. As expected, LSE/U and HSE students were undifferentiated in their internality scores following failure. In the case of LSE/C and HSE students, the comparison narrowly missed significance at the .05 level:  $F(1, 42) = 3.58, p = .061$ . As expected, the mean internality score for LSE/C students was greater than that for HSE students. Figure 10.1, on the page following, depicts these relationships.

For scores on the stability dimension, a significant interaction between self-esteem group and condition again occurred:  $F(2, 112) = 11.00, p < .0001$ . While HSE and LSE/C students saw their successes as more stable than their failures, LSE/U students made no such distinction. For HSE students,  $F(1, 28) = 28.35, p < .0001$ , while for LSE/C students,  $F(1, 42) = 4.26, p < .05$ . As a consequence of the greater stability with which HSE and LSE/C groups viewed their success versus failure experiences, a significant main effect emerged for condition:  $F(1, 112) = 15.01, p < .001, (M = 13.93 \text{ vs. } 10.89)$ .

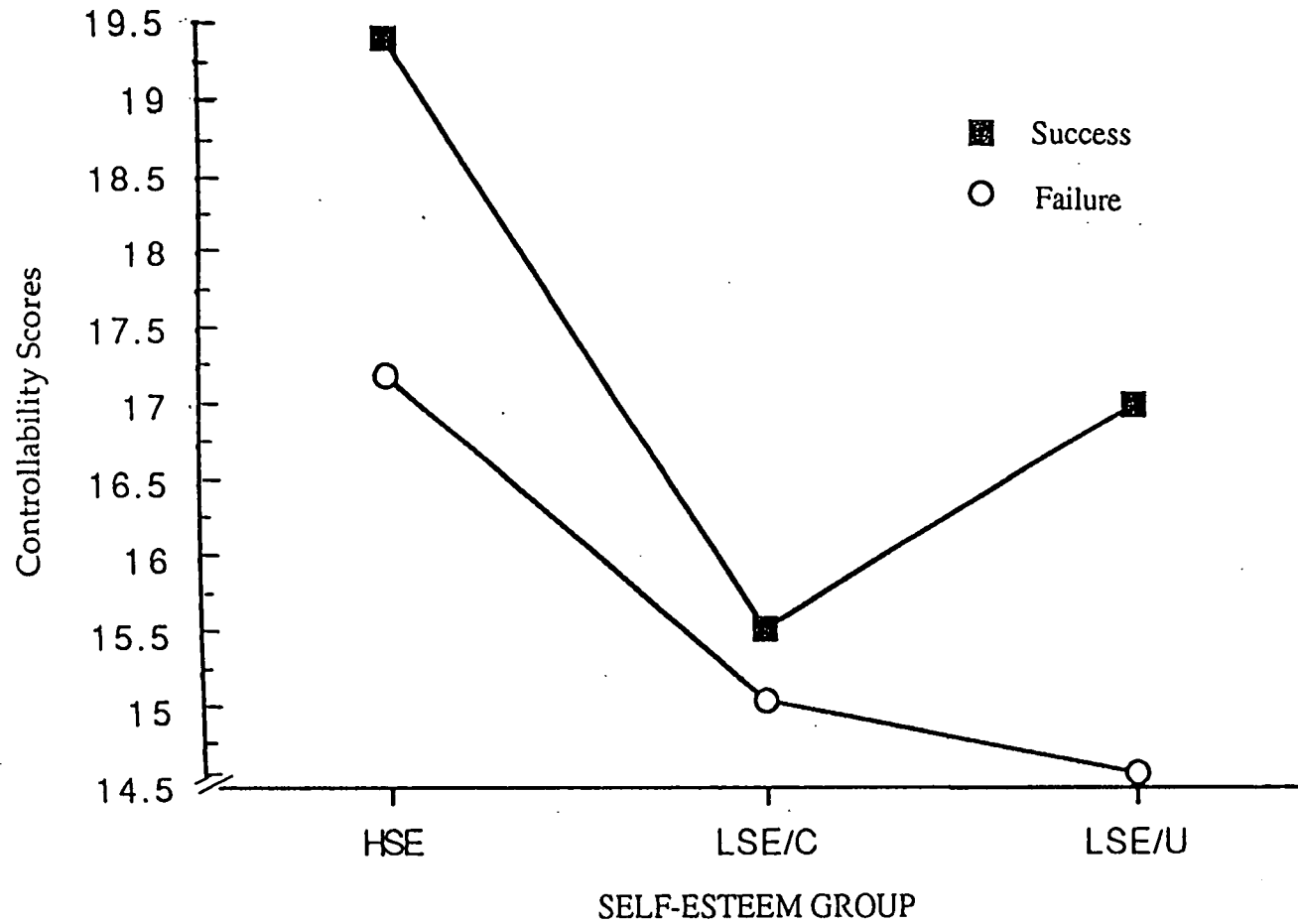
For controllability, a significant main effect occurred for self-esteem group:  $F(2, 112) = 3.50, p < .05$ . HSE students perceived their success and failure outcomes as more controllable than either LSE/C students:  $F(1, 72) = 6.35, p < .05$ , or LSE/U students:  $F(1, 72) = 4.35, p < .05$ . Graphs indicating relative cell means for the three self-esteem groups for stability and controllability dimensions are given in Figures 10.2 and 10.3, respectively.



**Figure 10.1** Mean Internality Scores for HSE, LSE/C and LSE/U Groups in Success and Failure Feedback Conditions



**Figure 10.2** Mean Stability Scores for HSE, LSE/C and LSE/U  
Groups in Success and Failure Feedback Conditions



**Figure 10.3** Mean Controllability Scores for HSE, LSE/C and LSE/U Groups in Success and Failure Feedback Conditions

#### 10.4 General discussion: Experiments 4 and 5

##### Attributional results

In the attributional results described above, a consistent pattern emerged for HSE students relative to each of the LSE groups. First, a familiar self-serving pattern is evident in the attributions of HSE students following success and failure outcomes, whereby successful outcomes are attributed to internal, stable factors such as ability or special talent, while failure outcomes are attributed to external and unstable factors such as task difficulty or bad luck (e.g. McCarry et al., 1982; Miller & Ross, 1975; Schlenker et al., 1990; Weary, 1980). Second, HSE students were differentiated from both LSE/U and LSE/C groups in terms of their greater overall perceptions of control, irrespective of whether or not the outcome was one of failure or success.

The attributional results for failure outcomes do not support the assumption made by self-worth theory that the deteriorated performance of self-worth protective students following failure is associated with a reduced tendency to attribute failure internally. Self-worth theory assumes that self-worth protective students' poor performance following failure pretreatment is an outcome of voluntary withdrawal of effort in order to protect self-esteem. Based on this assumption, the inference which guided the investigations reported in this chapter was that LSE/U and HSE students would be undifferentiated in their internality scores following failure, and that LSE/C students would have higher internality scores than HSE students. As expected, HSE and LSE/U students were undifferentiated in their internality scores following failure. However, the expected difference between the internality scores of HSE and LSE/C students following failure missed significance at the .05 level.

The results from Experiment 5 nevertheless offer some support for the tendency on the part of self-worth protective students to reject personal

agency for their success. Findings within Experiment 3 established that the Self-worth group had lower internality scores in relation to hypothetical success outcomes than any other performance group identified through the experimental manipulation used in that experiment. In Experiment 5, LSE/U students had lower internality scores relative to HSE students, while for LSE/C and LSE/U students, the comparison approached significance at  $p = .055$ . As noted in Section 4.3, Berglas and Jones (1978) suggest a relationship between self-handicapping behaviour (here manifest in terms of assumed withdrawal of effort associated with LSE/U students) and rejection of success, seen associated with a "capricious, chaotic reinforcement history" which results in the individual being uncertain of his or her personal agency in his or her self-produced success (p. 407). Exposure to noncontingent success, in conjunction with the personological variables associated with self-worth protective students discovered from the studies comprising this thesis, would appear to exacerbate the rejection-of-success tendency associated with self-worth protective students. This point of view is elaborated in Section 12.1 in the chapter which concludes this thesis.

#### Performance results

It is noteworthy that the performance of LSE/U students following failure which did not allow face-saving resulted in worse performance than was evident for LSE/C students. This result, in conjunction with the differential performance outcomes in situations of high versus low intellectual evaluative threat, is consistent with the self-worth explanation of performance impairment following failure, and inconsistent with a learned helplessness explanation.

Under the learned helplessness account, performance deficits are held to be an outcome of a perception of uncontrollability following exposure to noncontingency. Attributional elements are held to govern the generality

and chronicity (longevity) of helplessness deficits (Abramson, et al., 1978). Following exposure to noncontingent failure, the learned helplessness explanation would predict poor performance despite the availability of a mitigating excuse.

Similarly, the view that the impaired performance of self-worth protective students following failure is due to the interfering effects of anxiety is difficult to support from the literature. Findings by Covington and others (Covington & Omelich, 1979a, 1987, 1988; Covington, Omelich & Schwartz, 1986; Covington Spratt & Omelich, 1986) establish that deteriorated performance is mediated by diminished perceptions of ability rather than by anxiety (Covington & Omelich, 1987; Covington et al., 1986; Hodapp, 1989). Collectively, these studies de-emphasise the role of both postdictive attributions and anxiety in terms of future performance outcomes.

On these grounds, the performance impairment shown by self-worth protective students following exposure to noncontingent failure cannot be understood primarily in attributional terms. Rather, the performance results of Experiment 4 are consistent with a motivational explanation which accents the need to avoid the negative implications of failure in terms of damage to self-esteem.

The performance results are also consistent with earlier findings from two studies reported in Section 3.1. These are studies by Marecek and Mettee (1972) and Harris and Snyder (1986). In each of these studies, it is of interest that the certainty variable is implicated in both enhanced performance in circumstances of low evaluative threat (the Marecek & Mettee, 1972 study), and greater self-handicapping through reduced practice in circumstances of high evaluative threat (the Harris & Snyder, 1986, study). In the Harris and Snyder (1986) study, the self-protective benefits of withdrawal of effort via reduced practice correspond to



symptoms of self-worth protection noted by Beery (1975), Covington (1984b) and Covington and Beery (1976).

Baumgardner and Levy (1988) offer a way of understanding these results in terms of perceptual differences in the manner in which high and low self-esteem groups view the ability of persons who expend effort, but fail. In the case of high self-esteem persons, the intention to expend effort implies high ability regardless of performance, with intentional low effort signalling low ability. On the other hand, low self-esteem individuals appear to view individuals who try hard but fail as less able than individuals who try hard and succeed. That is, low self-esteem persons seem unwilling to infer that an individual who tries hard and fails can nonetheless be quite capable. For this reason, Baumgardner and Levy (1988) suggest that self-handicapping in the form of strategic withdrawal of effort, may be "an attractive lure" to low self-esteem persons (p. 436). Low self-esteem persons may thus be operating under the mistaken impression that strategic withdrawal of effort is an effective self-presentational strategy, at least insofar as it mitigates perceptions of inability in the face of failure.

Despite these observations, there is, as yet, no support for withdrawal of effort as the process which mediates impaired performance for self-worth protective students. This conclusion is based on the premise that withdrawal of effort spares the individual from attributing poor performance internally. As such, an alternative explanation must be found. This issue is taken up in the chapter which follows.

## Chapter 11

### Summary of Findings and Implications for Further Research

#### Introduction

This chapter establishes the measure of support for the aims guiding the experimental studies comprising this thesis. On this basis, the implications of these findings in terms of possibilities for further research are outlined.

A statement of the practical applications of the findings from the experiments comprising this thesis is given in the chapter which follows. There, implications for educational practice are stated, together with an account of the genesis of self-worth protection based on insights offered by Berglas (Berglas & Jones, 1978; Berglas, 1985, 1988).

#### 11.1 Support for the assumptions of self-worth theory tested in this thesis

Section 5.2 stated four aims which guided the investigation pursued in this thesis. These aims were based on the assumptions of self-worth theory stated in Section 1.1 and the review of evidence in relation to these assumptions presented in Chapters 2, 3 and 4.

The first aim which guided this thesis was to identify the personality characteristics which distinguish self-worth protective students. This was achieved by identifying self-worth protective students in terms of deteriorated performance following failure, together with enhanced performance following a face-saving excuse. These performance criteria were incorporated in the ABC\*D manipulation used in Experiment 3. This investigation established that students in the Self-worth group were differentiated from all other performance groups identified through the ABC\*D manipulation on the basis of level of academic self-esteem and certainty of global self-evaluations. Scores

on two other variables: test anxiety and stability of academic self-esteem, indicated that Self-worth students were differentiated from Decrement students with regard to each of these variables, but not Facilitation and No Effect groups. On these bases, level of academic self-esteem and uncertain global self-evaluations were determined to best identify self-worth protective students.

Experiments 3 and 4 offered support for the second research aim guiding the investigation pursued in this thesis. This was to confirm that the difference in performance in situations of high and low intellectual evaluative threat is a person response style which generalises across different performance situations. In Experiment 3, remote associate problem sets were used as a basis for the experimental manipulation used in that experiment. In Experiment 4, students were exposed to failure on a simultaneous discrimination task, and then asked to solve a number of anagrams. In this experiment, self-worth protective students, who were identified on the basis of low academic self-esteem and uncertain global self-evaluations, showed the same pattern of performance under circumstances of high and low intellectual evaluative threat. These were poor performance following failure and enhanced performance following failure which allowed face-saving. Experiments 3 and 4 thereby provided evidence that the different performance effects associated with self-worth protective students in situations of high and low intellectual evaluative threat may be identified across different academic performance situations.

The third aim which guided the investigation in this thesis was to establish that self-worth protective students' deteriorated performance in situations of high evaluative threat is associated with the claimed protective benefit in terms lower internality attributions. The expectation was that self-worth protective students would not attribute responsibility for failure internally. This attributional benefit is consistent with the assumption that self-worth

protective students' poor performance in situations of high evaluative threat is due to withdrawal of effort. In Experiment 5, comparisons between the internality scores of LSE/U and HSE students and those of LSE/C and HSE students, failed to confirm that the poor performance of self-worth protective students following failure pretreatment is due to withdrawal of effort.

An associated research aim, established on the basis of discussion in Section 4.3, was to confirm an expected propensity on the part of self-worth protective students to reject personal agency for their success. This prediction was confirmed by the results of Experiments 3 and lent further support from the results of Experiment 5.

The fourth research aim was to clarify gender issues in relation to self-worth protection. Two needs became apparent from discussion in Sections 3.4 and 4.1. First, there was need to determine whether females' performance is enhanced where an external account for possible poor performance is given. An associated need was to ascertain whether the assumed benefit of lower attributions to internal factors applies to males only or to both gender groups.

In Experiment 3, both males and females were identified as self-worth protective on the basis of performance criteria. Within the Self-worth group, no gender differences emerged on any of the individual difference measures. This included Feather and Tigglemann's (1984) measure of attributional behaviour. The reviews of evidence in Sections 3.4 and 4.1 which suggested gender differences in self-worth protection revealed that males are more likely to manifest self-worth protective behaviours than females. Findings from Experiment 4 confirmed differential performance effects for females under circumstances of high and low evaluative threat. On the basis of the attributional findings from Experiment 5, support for lower attributions to internal factors following failure was not found for self-worth protective females.

On the above bases, the performance of females in circumstances of high and low intellectual evaluative threat is consistent with the self-worth theory of performance impairment following failure. However, the attributional results of Experiment 5 failed to establish that the deteriorated performance of females following failure is associated with withdrawal of effort. As such, the process mediating the poor performance of self-worth protective females in situations of high evaluative threat remains open.

In the context of the above findings, comment on the alternative ways of viewing the differential performance effects noted by the egotism studies is warranted. Several alternatives were suggested in Section 2.2. The egotism studies (e.g. Frankel & Snyder, 1978; Miller, 1985, 1986; Snyder et al., 1981) established that differential performance effects may be found in situations of high and low evaluative threat after students are pretreated with exposure to failure.

One possibility is that the effects noted in these studies are universal in the sense that they apply generally to people irrespective of personality characteristics. This assumption is inconsistent with the results of Experiments 3 and 4. In Experiment 3, dissimilar performance outcomes following failure and face-saving experiences were noted by Self-worth, Decrement, Facilitation and No Effect groups. In Experiment 4, different responses to failure which involved face-saving were noted for LSE/U and LSE/S students.

A second possibility is that the egotism hypothesis is correct in the sense that the differential performance effects noted in these studies hold for all people but to differing degrees according to the extent to which people possess the personality characteristic(s) in question. A third possibility is that the egotism hypothesis is not generally correct but that it applies only for a subgroup of individuals. This explanation presumes that the personality variables associated with these individuals differ from those of other people

whose performance in situations of high and low evaluative threat is other than that shown by self-worth protective individuals.

It is not clear from the results of the investigation pursued in this thesis, which of the second and third interpretations offers the more appropriate way of interpreting the findings from the egotism studies. The results of Experiment 3 indicate a number of alternative responses to failure and face-saving experiences which at face value might be interpreted as favouring the third explanation mentioned in the previous paragraph. However, it is difficult to support this interpretation due to the fact that the experimental manipulation used in Experiment 3 differed in several important ways from those used in the egotism studies.

First, students in Experiment 3 were not exposed to noncontingent failure. The remote associate problems comprising the failure set (Set B) within the ABC\*D manipulation were difficult, but solvable. Second, Set A within this manipulation is assumed to have inoculated students against the effects of failure on Set B (see discussion in Chapter 7). Both of these features of the experimental manipulation used in Experiment 3 imply that failure experienced by students in this experiment was of a different nature from that experienced by subjects in the egotism studies. On these bases, the appropriateness of the third interpretation noted above remains unclear. As a consequence, so does the relative merit of the second and third interpretations.

Despite lack of clarity on this issue, all but one of the experimental aims which have guided the investigation pursued in this thesis have been fulfilled. Nevertheless, there are issues which arise from the findings of the experimental studies within this thesis which invite exploration. These are considered in the section which follows.

## 11.2 Implications and further research

### Explanation of the process mediating poor performance following failure for self-worth protective students

In Experiment 5, support for the assumption that self-worth protective students withdraw effort in situations of high intellectual evaluative threat was gathered in the form of attributional data. The reasons for this research strategy were stated in Section 8.4. There, it was reported that studies by Frankel and Snyder (1978), Miller (1985, 1986), and Snyder et al. (1981) failed to confirm that subjects reported reduced effort following poor performance on tasks where a mitigating excuse for poor performance was unavailable relative situations in which a mitigating excuse was available. Due to these findings, self-reported effort following failure was not selected as a productive way of assessing actual reduced effort in investigations within this thesis.

Rather, the approach in Experiment 5 was to gather evidence for withdrawal of effort in the form of reduced attributions to internal factors following failure. The nonsignificant trend towards significance reported in Experiment 5 when the internality attributions of HSE and LSE/C students were compared, failed to provide support for lower internality attributions following failure for self-worth protective students. As a consequence, there was no support for the interpretation that the deteriorated performance of these students following failure is associated with withdrawal of effort.

Nevertheless, the differential performance outcomes of LSE/U students in situations of high and low intellectual evaluative threat were consistent with the self-worth account of impaired performance following failure. Had enhanced performance following failure which involved face-saving not occurred, a learned helpless account would have been more appropriate. This was the conclusion drawn by Miller (1986), where the performance of female students following exposure to noncontingent

failure was poorer in a failure-high-difficulty condition (i.e., where a mitigating excuse was available) relative to a failure-moderate-difficulty condition.

As evidence for withdrawal of effort could not be interpreted from the attributional results of Experiment 5, ambiguity remains concerning the process mediating the poor performance of self-worth protective students in situations of high evaluative threat. It is of interest that neither from the investigation pursued in this thesis nor from the studies of the egotism hypothesis is there clear evidence that withdrawal of effort is associated with poor performance in situations of high evaluative threat. Miller (1985) observed that the deflection of attentional focus involved in weighing up means of avoiding a perception of lack of ability following failure may be sufficient to interfere with performance. This, rather than a calculated reduction of effort may be responsible for the performance deficit.

An alternative account is offered by Jagacinski and Nicholls (1990). These researchers used hypothetical scenarios in a series of three experiments in which students were offered possibilities of sustaining effort or reducing effort (Experiments 1 and 2) or feigning sustained effort (Experiment 3). Jagacinski and Nicholls (1990) found a consistent tendency on the part of students to reject reduction of effort as a strategy they might use, conceding however, that it might be a strategy elected by others. These researchers advanced two possible mechanisms as alternatives to the unsupported reduction-in-effort thesis. One suggestion was that students unconsciously withdraw effort. Another possibility is that students may reduce effort as a result of withdrawing commitment from a task. On the basis of limited evidence supporting unconscious ego-defensive processes, they favour the interpretation that reduction of effort occurs as a result of withdrawal of commitment. In view of these observations, further examination of the



processes mediating the poor performance of self-worth protective students following failure pretreatment is required.

### Gender issues

In Experiment 3, six of the 16 students identified as self-worth protective on the basis of performance criteria were male, while 10 were female. As noted in the previous section, no gender differences emerged in relation to any of the critical dependent measures of interest in this experiment.

In Experiments 4 and 5, the gender bias was more marked. In Experiment 4, 16 of the 87 students were male, while in Experiment 5, 15 of the 118 students were male. In each experiment, the numbers of male students in cells was inadequate to conduct analyses which took account of gender. With males excluded from analyses, no differences in the overall pattern of results emerged for either experiment.

However, it is likely that the differential performance effects noted in Experiment 4 would also be found for males. As noted above, evidence in Sections 3.4 and 4.1 indicates that males are more likely to manifest self-worth protective behaviours than females. These reviews noted that there is scant evidence for enhanced performance on the part of females where a mitigating excuse for poor performance is available. There was equally scant evidence that females will withdraw effort to the detriment of performance in a situation of high intellectual evaluative threat. As noted for younger-aged subjects, studies by Miller (1985, 1986) suggested that the egotism explanation of performance following failure may be more appropriately applied to males, while the learned helplessness explanation more appropriately applies to females. It was also reported that there is less evidence of self-serving attributions for females relative to males.

What these findings imply is that the effects of impaired performance under circumstances of high intellectual evaluative threat and enhanced performance under circumstances of low intellectual evaluative threat would,

if anything, be more marked for males than for females. This is also likely to be the case in relation to the extent to which self-worth protective males internalise the cause of their failure. A lesser tendency to internalise responsibility for failure may be expected in the case of males relative for females. These predictions invite experimental investigation.

### Attributional retraining

Several issues require clarification in relation to the use of attributional retraining as a means of enhancing the achievement behaviour of self-worth protective students. First, results within Experiments 3 and 5 indicate that self-worth protective students reject personal agency for their success. In Experiment 5 it was found that LSE/U students manifested a greater tendency to deny personal agency for their success relative to HSE students. In the case of LSE/U and LSE/C students, the comparison approached significance at  $p = .055$ . These results were consistent with the finding from Experiment 3, that self-worth protective students' internality scores for good outcomes on the B.A.S.Q. were lower than those of any other performance group identified through the ABC\*D manipulation. These results invite test of the effectiveness of attributional retraining which aims to alter self-worth protective students' rejection of personal agency for their success.

Nevertheless, it is not clear whether the manner in which self-worth protective students regard their failures can be disregarded in attributional retraining programs. Since in Experiment 5, LSE/C and LSE/U students did not differ in their attributions to internal factors following failure, it may be wise to investigate the effectiveness of attributional retraining strategies applied to both success and failure outcomes. In these investigations, the differential effectiveness of strategies which address failure only or success and failure outcomes require clarification for males versus females. In this regard, it is likely that the tendency on the part of self-worth protective males to attribute their failure outcomes to internal factors is less than that of

females. If this is the case, it is probable that attributional retraining programs which attempt to alter the manner in which self-worth protective males regard their failure outcomes will have limited effectiveness.

On the basis of the assumptions of self-worth theory, the deteriorated performance of self-worth protective students in situations of high intellectual evaluative threat needs to be seen in motivational terms as well as in cognitive/attributional terms. This being the case, attributional restructuring in whatever form might best be seen as only a part of intervention strategies which aim to enhance the achievement of self-worth protective students. An important additional thrust of strategies geared to enhance the achievement of self-worth protective students should be to address the motivational mainsprings of self-worth protective students' failure-avoidance.

Self-worth theory views the deteriorated performance of self-worth protective students in situations which forebode risk of failure and thereby, threat to self-esteem, as essentially self-protective in nature. With this in mind, there is doubt concerning the advisability of attributional retraining strategies as a general panacea for modifying self-worth protection. As such, strategies geared to enhance the achievement of self-worth protective students should also attempt to address faulty cognitions which lie at the heart of their self-protective responses in situations of high evaluative threat.

Several such distortions in thinking have been noted by a number of writers (Beery, 1975; Covington & Beery, 1976; Covington, 1984b). These include disproportionate emphasis given to achievement as a criterion of self-worth, setting unrealistic standards against which to make judgements of personal success, and inappropriate perceptions of the consequences of failure. Cognitive restructuring techniques (e.g. Beck, Emery, & Greenberg, 1985; Beck, Rush, Shaw, & Emery, 1979; Meichenbaum, 1977) might be applied to counter these faulty cognitions.

### 11.3 Theoretical implications

The findings reported in this thesis have important implications in terms of a conceptual understanding of self-worth protection as a form of self-handicapping behaviour, and in this sense, the construct validity of the operationalisation of self-worth protection offered in this thesis. Also, while the performance results from this thesis are interpreted as consistent with self-worth theory, they should not be seen as ruling out alternative theoretical accounts within an expectancy-value framework.

#### Self-worth protection as self-handicapping behaviour

While investigating essentially similar phenomena, self-handicapping theory and self-worth theory differ in their theoretical orientation and in terms of personality variables which are known to mediate these effects. In all, the principal differences between the two perspectives concern a), the description of the phenomenon studied, b), the motivations associated with the strategies of self-handicapping/self-worth protection, c) the domain specificity of each theory, and d) individual difference variables known to mediate the effects of self-handicapping/self-worth protection.

With regard to the first of these differences, self-handicapping theory literature emphasises both discounting and augmentation benefits associated with self-handicapping. The function of the handicap is to discount lack of ability if poor performance should eventuate, and to attract all the more personal credit (i.e., augment ability) if good performance should eventuate despite the handicap. Within self-worth theory, the emphasis is solely upon discounting the link between poor performance and ability.

Second, while self-presentational motives are associated with self-handicapping behaviour (e.g. Self, 1990), the motivation assumed to be associated with self-worth protection is to defend private conceptions of the self. Supportive evidence in the latter respect was gained from results reported in Section 8.3, where it was noted that Self-worth students were not

differentiated from any other performance group on the basis of fear of negative evaluations from others. This evidence fails to support the operation of self-presentational motives associated with self-worth protection.

With regard to the third of the above-mentioned differences, the combined results of Experiments 3 and 4 indicate that self-worth protection is associated with low academic self-esteem and uncertain global self-esteem. Within the self-handicapping literature, trait level of self-handicapping chiefly serves to differentiate the severity of self-handicapping. These observations give evidence that different individual difference variables mediate the effects described under each theoretical account.

Finally, endorsement of the domain specificity of self-worth protection through its association with academic self-esteem constitutes a further respect in which the self-worth and self-handicapping theories are differentiated. While self-worth protection is understood to apply to academic/educational domains only, self-handicapping behaviour has been studied in a wide variety of contexts.

On these bases, while the self-protective behaviours and the conditions under which they occur are noted to be similar within each theoretical perspective, these similarities do not entail similar theoretical premises or motivations. Nor do they entail the same individual difference variables associated with their effects. Nor are they predicted to occur in the same contexts. On these bases, the fact that trait level of self-handicapping was not found to be associated with self-worth protection in Experiment 3 should not be seen as compromising the construct validity of the operationalisation of self-worth protection as adopted in this thesis.

#### Alternative theoretical implications within an expectancy-value framework

While the performance results reported from Experiments 3 and 5 of this thesis are consistent with predictions derived from self-worth theory, it would be useful to explore other theoretical accounts within an expectancy-value

framework<sup>1</sup>. The results from the present thesis establish that where poor performance is anticipated which is relevant to feelings of self-worth, that poor performance will occur. The evidence from this thesis, while not conclusive, is nevertheless consistent with the assumption that this performance deficit is due to withdrawal of effort.

An extension and refinement to the performance results from the present thesis may be to explore performance outcomes where success expectancy and the goal value of success are manipulated. While subjects' expectancies of success were not assessed in any of the experiments reported within this thesis, it is presumed that subjects' success expectancies are diminished by exposure to noncontingent failure.

Accordingly, it may be that rather different performance outcomes will result depending on the value of the desired goal. Specifically, it may be that when the level of threat to self-esteem outweighs that value of the desired outcome, reductions in effort, along with other anticipatory defensive strategies, will be more likely to occur. This is assumed to be the case for Experiments 3 and 5 in this thesis.

On the other hand, where the goal value is more important than the anticipated threat to self-esteem, self-protective manoeuvres such as withdrawal of effort may be foregone. Evidence in this regard would constitute an important refinement to the assumptions of self-worth theory, and potentially extend its domain of application.

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<sup>1</sup> I gratefully acknowledge this suggestion to Professor Norm Feather

## Chapter 12

### Implications for Education<sup>1</sup>

#### Introduction

The purpose of the present chapter is to draw implications for educational practice. These implications are based in part on findings reported from experiments comprising this thesis, but also on literature which goes beyond that immediately relevant to the investigation pursued in this thesis. As such, the comments which follow are more general than those deriving from the thesis results alone.

Under the first section heading within this chapter, an account of the genesis of self-worth protection is given based on insights offered by Berglas (Berglas & Jones, 1978; Berglas, 1985, 1988) concerning the role of noncontingent success and failure feedback in relation to self-handicapping behaviour. Personality variables found associated with self-worth protection from the investigations comprising this thesis (low academic self-esteem, uncertain global self-evaluations and rejection of personal agency for success) are claimed to render the individual particularly vulnerable to the effects of noncontingent feedback, thereby promoting self-worth protection.

The two sections which follow give attention to the importance of minimising uncertainty as well as reducing the bases of evaluative threat. These are seen as key situational variables related to self-worth protective behaviour. Subsequent sections focus on the importance of de-emphasising ability as a criterion of self-worth, recap the role of attributional retraining, and emphasise the importance of teacher attributional messages. Part of this

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<sup>1</sup> Material included within this chapter is in press in Educational Review as Thompson, T. "Self-worth protection: Review and implications for the classroom". (See Appendix B3).

emphasis on attributional restructuring involves correct use of teacher praise and evaluative feedback. The potential benefits of non-competitive learning structures in forestalling self-worth protective behaviours are finally assessed in the light of the personality variables found to be associated with self-worth protection from the investigations reported in preceding chapters.

### 12.1 Etiology of Self-worth Protection

An understanding of the development of self-worth protection is helped by comments by Berglas concerning the genesis of self-handicapping behaviours (Berglas & Jones, 1978; Berglas, 1985, 1988). A consistent theme running through Berglas' comments is the role of exposure to noncontingent success: to a performance history which cannot be readily deciphered in terms of the ingredients which have made for success. Berglas and Jones (1978) suggest that the strategic orientation of self-handicappers stems from a "capricious, chaotic reinforcement history" ... [claiming] "it is not that their histories are pocked with repeated failure; they have been amply rewarded, but in ways and on occasions that leave them deeply uncertain about what the reward was for." (p. 407).

Two types of noncontingent success are identified. One is where success is attributed to stable dispositional qualities in the person which have nothing to do with the development of a sense of self-efficacy. Such a case would be where success is attributed to physical attractiveness or personality, so that in Berglas' (1990) terms, the person is left wondering "was I successful for what I did, or for what I am?" (p. 174). The other type of noncontingent success arises where rewards are excessive, far exceeding expectations as to what is judged appropriate in the circumstances. Such rewards obligate individuals to act in accordance with the excessive reward, and by their future actions, 'deserve' that reward.

The assumption by Berglas (1986, 1990) is that the performance pressures implicit in such feedback assume causal status in relation to the genesis of self-



handicapping behaviour. In the case of students generally, it is unlikely that exposure to noncontingent feedback alone can account for the origin of the self-handicapping symptoms associated with self-worth protection. Doubtless, not all students exposed to noncontingent feedback manifest self-worth protective behaviours in achievement situations. Exposure to noncontingent success (or failure) feedback may, nonetheless, be a significant factor which, in conjunction with the personological variables associated with self-worth protective students discovered from the investigations comprising this thesis, establish a set of conditions conducive to the development of self-worth protection. Several considerations support this suggestion.

First, low self-esteem individuals base future expectations for their success on the basis of their past failures. A selective perceptual process operates whereby past successes are ignored in favour of past failures, so that future performance outcomes are predicted on this basis (Shrauger, 1975, 1982). Given the low academic self-esteem of self-worth protective students, noncontingent feedback in relation to success outcomes would presumably exacerbate their rejection of success.

Second, the tenuous self-esteem of self-worth protective students reflected in their uncertainty in global self-evaluations would appear to render them more vulnerable to the effects of noncontingent success and failure feedback (Jones & Berglas, 1978; Covington, 1984b; Kernis et al., 1992; Rhodewalt & Davison, 1986; Self, 1990). Rhodewalt and Davison (1986) for example, found that persons exposed to noncontingent failure feedback (and to a lesser extent noncontingent success feedback) self-handicapped by choosing to listen to music said to impair performance while taking an ability test.

A caveat is given in relation to failure feedback however. Rhodewalt and Davison (1986) maintain that for self-handicapping to occur there must be uncertainty about whether (and perhaps how) a further failure can be avoided as well as uncertainty about the cause of the failure. Defence of the first point

is reasonably obvious. If there is no uncertainty about the cause of the failure - if, for example, failure can be confidently attributed to lack of ability - then there is no esteem need to defend, and hence, no self-handicapping behaviour. On the other hand, if there are known ways to avoid future failure, then again, the chances of self-handicapping will be minimised. On the strength of the above, a tenuous self-esteem, while a necessary condition for self-handicapping, would evidently not qualify as a sufficient condition.

Within the present discussion of classroom implications associated with self-worth protection, none of the fore-going evidence which links noncontingent success or failure feedback with the self-handicapping behaviour of self-worth protective students is likely to be of particular consequence without evidence of noncontingent feedback in classrooms, and evidence also of its effects. Evidence in both respects is given by Brophy (1981), in a review of teachers' use of verbal praise. Brophy (1981) found that teachers' use of praise is both infrequent and fails to function effectively as reinforcement in that it lacks specificity, sincerity, variety and credibility. Bickel (1991) indicates that under certain conditions (e.g. where teachers respond differentially to students for identical performances), students perceive praise as a negative evaluation of their abilities, presuming it to be a condescension based on a low estimate of student ability. Similar evidence centred on students' negative interpretations of teacher praise has been gained by Meyer and colleagues (Meyer, 1982; Meyer et al., 1979; Meyer, Mittag, & Endler, 1986).

Even more disturbing are findings which indicate that praise is not given contingently upon successful performance. A tendency to praise incorrect answers has been noted by several researchers (e.g. Anderson, Evertson, & Brophy, 1979; Bellack, Kliebard, Hyman, & Smith, 1966). There is evidence also that undeserving praise (albeit well-intended), is given to low achievers (Brookover et al., 1978; Weinstein, 1976). Teachers with low expectations of

students' learning have likewise been found to deliver praise noncontingently (Brookover et al., 1978).

There is thus considerable evidence that noncontingent praise occurs in classrooms. The above discussion thus establishes that self-worth protection may arise as a result of evaluative feedback offered by teachers within classrooms. The effects of noncontingent feedback is suggested to be exaggerated for self-worth protective students by reason of their low ability estimations and uncertain global self-esteem. Further evidence for the role of noncontingent success in relation to the development of failure-avoiding tactics in achievement situations is given in self-worth protective students' characteristic rejection of success. These insights have particular importance in terms of the modification of self-worth protection and proactive intervention, discussed below.

## 12.2 Reducing the Bases of Evaluative Threat

On the bases of the results of Experiments 3 and 4, it is clear that the self-handicapping behaviours of self-worth protective students arise as a result of perceived threat to self-esteem. This occurs when projected poor performance can be expected to reflect lack of ability and thereby diminish perceptions of self-worth. Situations of intellectual evaluative threat can be created by a diverse array of factors. These include new or somewhat unfamiliar learning tasks or environments, rising or ambiguous demands on the part of teachers and achievement requirements which are assessed to be beyond the individual's capacity to realise.

Evaluative threat is nowhere more readily apparent than in the assessment of student learning through examinations, tests, assignments and the like. For self-worth protective students, perceptions of self-worth can appear to be maintained or crumple on the basis of performance feedback, assignment by assignment (Thompson, 1994). As noted, such concerns are manifest in terms of high levels of test anxiety. Mehrens and Lehmann (1973) offer valuable

insights by way of reducing the adverse effects of test anxiety. These writers recommend that assessment processes are better diffused over several test occasions rather than few, thereby reducing evaluative stress. On the same basis, opportunities for students to redeem themselves are advised where students either perform poorly or believe themselves to have performed poorly.

As evaluative threat is exaggerated under conditions of uncertainty, a further concern involves minimising uncertainty as it arises in achievement situations. Recommendations in this regard are made in the section which follows.

### 12.3 Minimising Uncertainty in Achievement Contexts

A further factor which is known to govern self-handicapping behaviour in the forms manifested by self-worth protective students is the creation of uncertainty. Studies examining self-handicapping behaviour reviewed in Chapter 1 contributed important insights in this regard. Uncertainty can be created in two forms. One is that created by exposure to noncontingent success. Exposure to noncontingent success has been shown to create uncertain self-images (e.g. Berglas & Jones, 1978; Higgins & Harris, 1988; Kolditz & Arkin, 1982; Mayerson & Rhodewalt, 1988; Rhodewalt & Davison, 1986; Tucker et al., 1981). These are situations in which attributional uncertainty is engendered. In such situations it is unlikely that students identify luck or chance as causes of their success or failure, but that they simply remain unaware of the causes of their achievement outcomes. As noted in Chapter 7, Butler and Orion (1990) found such a sense of "unknown control" associated with poor achievement in primary school children. Such perceptions can be altered where teachers offer explicit advice concerning achievement demands and in assessment processes, clearly identifying the criteria against which successful or failing performance has been judged.

Uncertainty in the form of future performance outcomes may also give rise to self-worth protective behaviour. A number of studies may be cited in support of this claim (Shepperd & Arkin, 1991; Smith et al., 1982; Smith et al., 1983). The two forms of uncertainty - that arising from exposure to noncontingent success, and that which results from uncertain predictions of future performance outcomes - are nevertheless linked and interdependent. On the one hand, the creation of uncertainty concerning future performance outcomes challenges the certainty of self-perceptions, often in the form of perceived self-efficacy to achieve a particular outcome. On the other hand, persons with uncertain self-images doubt their ability to perform efficaciously. The creation of uncertainty in either sense is associated with the adoption of self-protective strategies which result in underachievement.

Uncertainty may be created by change factors such as school transition, grade promotion or a change in teachers. More typically however, uncertainty arises from ambiguously stated expectations and demands on the part of teachers, as well as unclear assessment and evaluative feedback. For self-worth protective students with low ability estimations and uncertain appraisals of their self-worth, the potentially unsettling effects of such factors are likely to be particularly marked.

The implications which follow from these conclusions are best translated in terms of principles governing the planning and sequencing of instructional processes. These include advice accompanying assessments, tests, assignments, projects and the like. It is also important that teachers be aware that students with low and uncertain self-evaluations are most disadvantaged by the creation of uncertainty in the above-mentioned respects. There are advantages too if teachers are able to recognise that symptoms of failure-avoidance manifest in prevarication, withdrawal of effort and low goal-setting occur in the service of self-protection where academic requirements create uncertainty and evaluative threat.

#### 12.4 De-emphasis of Ability as a Criterion of Self-worth

For self-worth protective students, there is generally an unremitting and exaggerated concern over the adequacy of one's personal performance (Thompson, 1994). The assumption is that such concerns are premised on the perceived salience of achievement as a criterion of personal worth (Beery, 1975; Covington & Omelich, 1979a, 1979b; Harari & Covington, 1981; Nicholls, 1975, 1976; Sigall & Gould, 1977; Sohn, 1977). These emphases are held to derive from a tendency in society to equate the ability to achieve competitively with human value (Gardner, 1961). Normative grading practices exacerbate the performance pressures which derive from the perceived equation between personal worth and ability, allowing few to achieve the highest grades. As high grades can be earned by only a minority of students, high grades become valued for their scarcity and stand as ready indicators of high ability.

This given, self-worth hinges importantly and tenuously on proof given through successful performance. Often there is a single domain of performance which becomes the touchstone for such estimations (Thompson, 1994). Rarely is one basis of achievement moderated against others. Linville (1985, 1987) draws attention to the risks which arise from a self-view which sees self-worth attached to few, as opposed to many, self-aspects. Proneness to depression and anxiety following an experience of defeat or less than adequate performance are associates of a such a simplified self-view.

These emphases on ability as an index of personal worth are evident as cultural values and reflected in aspects of institutional ethos: in prizes, accolades and awards for academic or sporting excellence and in consequent perceptions of the value and importance of winning. They are evident too in teacher expectations and messages concerning the bases of student valuation. As such, these emphases may be difficult to change.

A realisable goal may nevertheless be to encourage alternative and multiple bases of personal valuation, so that students come to realise that academic

endeavour is not the sine qua non of personal worth. Advantages in this regard are argued by Linville in the research mentioned above. Where a sense of self-worth hinges on several as opposed to a few (or even one) domain of performance or endeavour, the individual has a buffer against negative life events. Such changes need to become incorporated as aspects of institutional ethos, and recommended to students by formal and informal networks of advice and encouragement.

In other respects, learning approaches which de-emphasise individualistic, competitive orientations in favour of cooperative learning can be expected to ameliorate the concern over ability proven through competitive effort as a criterion of self-worth. Evidence for such advantages is presented in a later section.

### 12.5 Enhancing academic self-esteem

The implications for intervention which arise from the low academic self-esteem of self-worth protective students derive from known strategies to enhance self-esteem. These have been discussed in detail elsewhere (e.g. Felker, Stanwyck, & Kay, 1973; Gurney, 1987). Students need to be put in touch with the requirements of their academic programs in order to assume responsibility for their self-produced success and thereby, to understand the bases on which judgements and evaluations are made concerning their academic work. Two imperatives stem from the tendency on the part of self-worth protective students to reject their own agency as cause of their success. One is that assessment feedback offered by teachers needs to make explicit students' own actions as the causal factor in their achievement success. The other point, reinforced by the findings of Butler and Nisan (1986), is that those responsible for assessment feedback clearly identify the criteria or bases of assessment against which successful performance has been judged. A factor of relevance here is that it is likely in new learning environments where students are unfamiliar with the requirements and expectations of their

academic programs that they least understand the determinants of their success. In such situations, it is unlikely that students identify luck or chance as causes of their success or failure, but that they simply remain unaware of why they have met with success or otherwise.

## 12.6 Attributional Retraining

While there is evidence from Experiment 5 that self-worth protective students fail to attribute their failure to inability, they nonetheless externalise the causes of their success, refusing to assume authorship for the successes they have brought about through their own endeavour. These findings in relation to the attributional behaviour of self-worth protective students add a new and arresting dimension to the popularly assumed attributional bases of underachievement. While attributional retraining programs have generally addressed achievement-limiting attributions to inability following failure (e.g. Craske, 1985, 1988; Wilson & Linville, 1982, 1985; Van Overwalle & de Metsenaere, 1990), the advice from the investigations within this thesis is that student achievement is also limited by a tendency on the part of self-worth protective students to see their successes as determined by factors outside their control, and as isolated and unrepeatable. The results from Experiment 5 suggest that for self-worth protective students, the manner in which self-worth protective students regard their failures may not be as salient to these students' underachievement as the manner in which they regard their successes.

This observation aligns with results obtained by Craske (1988), who found lower attributions to inability for self-worth protective primary school children relative to children of the same age who were classified as learned helpless. It may be then, that for self-worth protective students, it is not their explanations of failure outcomes which are the problem, but the manner in which they explain their success.



If self-worth protective students fail to internalise failure in the manner consistent with low self-esteem students, then attributional retraining programs (at least insofar as they are addressed to failure outcomes) may be only partly effective. This being so, attributional retraining strategies might more profitably focus on encouraging self-worth protective students to accept reasonable credit for their successes rather than concentrating on training students to substitute inability attributions following failure for lack of effort.

In this regard, several studies aimed at restructuring attributions following failure argue the effectiveness of attributional testimonies from fellow students presented on videotape (Van Overwalle et al., 1989; Van Overwalle & de Metsenaere, 1990). What is heartening is that relatively simple, easily executed, short-run interventions can produce quite dramatic effects (e.g. Wilson & Linville, 1982, 1985). It is advisable that such strategies incorporate instruction in relation to effective study skills (Covington & Omelich, 1991).

However as noted in Section 11.2, issues in relation to the effectiveness of different types of attribution retraining remain to be addressed. The effectiveness of attribution retraining programs which aim to alter unproductive attributions following success, relative to those which concentrate on altering unproductive attributions following both success and failure outcomes require examination for self-worth protective male and female students.

Apart from attribution retraining programs which target groups of students, the potential which resides with the individual teacher to influence the manner in which their students attribute their successes and failures cannot be underestimated. The section which follows nevertheless indicates that this potential is overlooked. Particular disadvantages may arise for self-worth protective students.

### 12.7 Attributional Messages from Teachers

While it may be assumed that teachers are in a prime position actively to shape their students' perceptions of the causes of their successes and failures, there is evidence that this potential is either largely unexploited or (more seriously) distorted in its application. Evidence in the latter respect is given by Dweck and her colleagues (Dweck, Davidson, Nelson, & Enna, 1978; Dweck & Goetz, 1978). Dweck and Goetz (1978) found gender differences in the content of teachers' use of praise. These differences were associated with a tendency on the part of female students to attribute their failures to internal and stable factors such as lack of ability, and their successes to external factors such as receiving appropriate guidance from the teacher, or as an outcome of conforming with the teacher's demands. Male students on the other hand, tended to discount teacher criticism on the basis that it was confined to issues of less consequence (matters of form rather than substance: untidiness, noncompliance with the teachers' requirements of 'correct' procedure and the like). Failures were thus attributed to stable but external factors such as inappropriate teacher attitudes, or to internal but unstable factors (inappropriate effort). Their successes meanwhile, they attributed to stable, internal factors such as ability. It is important to note that when these patterns of teacher feedback were subjected to experimental manipulation and reversed, the previously observed gender difference was erased (Dweck et al., 1978).

The important point from these findings in the context of present discussion is not so much the finding of gender differences per se, however important these may be. The significance of these findings is rather that teachers' use of evaluative feedback carries unmistakable potential to influence the attributional thinking of their students. The influence can, of course, be either productive or to the detriment of students' academic performance. If teachers are able to shape (albeit unconsciously) student attributions actively, as is revealed from the studies by Dweck and her colleagues, then teachers'

evaluative feedback holds potential to enhance student achievement which is limited by negative affect and self-defeating cognitions. This is the case for self-worth protective students' rejection of personal agency for their successes.

On this basis, alerting teachers to the types of evaluative feedback messages which are conducive to encouraging productive attributional thinking among students is clearly advised. The need to do so is endorsed by evidence that this potential remains largely untapped. Evidence in this regard has been gathered by Blumenfeld, Hamilton, Bossert, Wessels, and Meece (1983). Analysing the content of teacher talk in the classroom, these researchers found that attributional feedback statements occur infrequently (comprising less than 1% of total communications) and are reactive, negative and procedural (rather than informational) in nature.

#### 12.8 Effective Use of Praise and Evaluative Feedback

The above findings indicating infrequent and faulty use of evaluative feedback assume further significance. There is evidence suggesting that controlling as opposed to informational rewards are likely to be involved in both the genesis and maintenance of self-worth protective behaviours. Praise which is experienced as controlling effectively chokes the intrinsic motivation of students (e.g. Bates, 1979; Butler & Nisan, 1986; Koestner, Ryan, Bernieri, & Holt, 1984; Lepper, 1983; Pittman, Davey, Alafat, Wetherill, & Kramer, 1980) and imposes an external performance pressure. When performance feedback is uncontaminated by messages which are controlling or constraining, a sense of self-efficacy is promoted and intrinsic motivation is maintained. For self-worth protective students with an already low expectation of success and sensitivity to situations of evaluative threat, rewards which are perceived as controlling have clear potential to give rise to failure-avoidant behaviours.

The distinction between informational and controlling rewards in fact derives from Deci's (Deci, 1975; Deci, Cascio, & Krusell, 1975) cognitive evaluation theory, which suggests that rewards have two components - a

controlling component that encourages explanations of performance to external factors, thereby undermining the individual's sense of self-determination, and an informational component, conducive to perpetuating needs for competence and control. Informational praise thus gives performance information and that alone, while controlling praise involves conditional statements or directive comment, for example: "If you play another game like that you'll be selected for the State side".

The distinction between informational versus controlling rewards is also reflected in distinctions drawn by Berglas (1990) between evaluative versus directive components of praise on the one hand, and person- versus task-based praise on the other. The evaluative component of praise is reactive, being given contingently on the basis of past successful performance. Evaluative praise informs an individual how his or her skills or performance compare to those of other people without any implication that the individual may be expected to produce a repeat performance: without a 'directive' component. Directive praise on the other hand, is forward-looking, and imposes a pressure to repeat past successes. As Berglas (1990) puts it: "whereas the evaluative component of praise informs the individual 'you did well', the directive component conveys the message 'you should [again] do well' " (p. 157).

The significance of this distinction is that for self-worth protective students, evaluative praise carries potential to tip the balance between the antagonistic needs to achieve success and avoid failure. With the performance pressure implicit in person-based praise, intrinsic motivation is sapped and failure-avoidant strategies are aroused. Person-based praise is often directive in nature, imposing stable dispositional qualities on the person being evaluated. To be described as "gifted" or "talented" implies an expectation that these qualities inhere in the person, are stable over time, and that they are likely to be confirmed in future performance. Feedback of the form "You're an 'A' student" or "You're invincible", well intended as they may be as messages of

praise and encouragement have, under the present analysis, potential to impose a pressure for repeat performance. The kind of attribution nominated in such feedback is dispositional (Jones & Davis, 1965) or characterological (Janoff-Bulman, 1979). Praise of this nature is thereby directive of future performance.

The roots of failure avoidance and the self-handicapping strategies which characterise the behaviour of self-worth protective students in achievement situations lie in the performance stress arising from such an expectation. Evaluative praise constitutes a form of performance pressure and thereby, a source of evaluative threat for self-worth protective students. The motivation to defend against the demands of controlling praise which is directive of future performance is thus all the more pronounced for self-worth protective students.

The implications which follow from this discussion concern both teachers and teacher educators. Clearly, evaluative feedback from teachers carries potential to exaggerate if not perpetuate the self-handicapping behaviours of self-worth protective students. Due attention to evaluative feedback whether delivered verbally or in written form (as for example in the case of assignment feedback) is required. Skills training for both pre-service and in-service teachers is recommended. While the benefits may be confidently expected to generalise to all students, they can be predicted to be particularly marked for self-worth protective students.

## 12.9 Non-competitive Learning Structures

A final respect in which self-worth protection may be forestalled is not original to this writer, but is given by Covington and Beery (Beery, 1975; Covington & Beery, 1976; Covington, 1984b). However, recommendations from these researchers have not, as yet, been assessed against knowledge of individual difference variables associated with self-worth protective students from the experiments comprising this thesis.

Covington and Beery (1976) recommend cooperative learning structures as a means of taking the competitive sting out of individualistic, norm-referenced achievement situations. Such situations accent ability proven through competitive effort as a criterion of self-worth. Responsibility for achievement thereby devolves largely if not entirely upon the individual. As a consequence, ability proven through competitive effort assumes salience as a criterion of self-worth. Such conditions create the climate for the failure-avoidant behaviours by which self-worth protective students are characterised.

However, the outcomes associated with non-competitive learning structures are otherwise. The reasoning is that non-competitive learning structures, by increasing the number of rewards open to students, promote the pursuit of success rather than encouraging avoidance of failure. Herein lies the benefit for self-worth protective students. While norm-referenced conditions emphasise success at the expense of other students, task-oriented learning situations lay stress on change in one's performance over time, so that self-improvement becomes the dominant goal. Cooperative learning, whereby an individual student within a team takes responsibility for some part of an achievement enterprise, is thus recommended for its de-emphasis of competition based on individual effort. This is also the case for contract learning, in which students establish work agreements with teachers and jointly develop plans to overcome obstacles in learning (Covington & Beery, 1976).

The outcome is a strengthening of the link between effort and performance, allowing more constructive interpretations of failure experiences" (Covington, 1984b, p. 17). As is evident in this claim, there is a presumed benefit in terms of attributional restructuring, particularly following failure outcomes. While failure-prone individuals explain their failures in terms of stable, internal factors such as inability and their successes in terms of external factors such as good luck or task ease, for success-oriented individuals the pattern is reversed.

Failures are disowned, while successes are explained on the basis of internal factors such as effort or ability.

While the anticipated advantages of cooperative learning for self-worth protective students are reasonable, the empirical evidence is incomplete. On the positive side, Slavin (1983), in a review of non-cognitive outcomes of cooperative learning, reports that cooperative learning programs do in fact promote components of cooperative and altruistic behaviours more than competitive or individualistic learning structures. On this basis, there is ground for assuming that cooperative learning structures may facilitate learning conditions of benefit to self-worth protective students by minimising the chances of failure-avoidance associated with competitive, individualistic achievement situations, where responsibility for successful performance and the negative implications of failure devolve entirely upon the individual.

With regard to gains in self-esteem, the findings from Experiment 3 have established that self-worth protective students have lower levels of academic self-esteem relative to non self-worth protective students, but are undifferentiated on the basis of their global self-esteem. While several studies report gains in social and global self-esteem as an outcome of cooperative learning programs (De Vries, Lucasse, & Shackman, 1979; Madden & Slavin, 1983, Schaeffer & Bratter, 1990), gains in academic self-esteem have either failed to register or were marginal (Slavin & Karweit, 1985). There is no dependable evidence then, that cooperative learning paradigms have beneficial effects in terms of enhancing students' academic self-esteem. Nor is there any direct empirical evidence that cooperative learning approaches establish conditions conducive to a reduction in fear of failure. However the assumption is probably reasonable, given that responsibility for failure will be shared among a group of students rather than belonging solely to the individual.

There is also evidence of benefits in relation to locus of control. Several studies (Chambers & Abrami, 1991; Johnson, Johnson, & Scott, 1978; Slavin,

1978; Wheeler & Ryan, 1973) report greater internality associated with students' perceptions of the causes of their academic success. The explanation given for these effects is that cooperative learning generally involves clearly delineated tasks and guidelines for achievement which students are required to complete in order to achieve a particular learning goal. These guidelines, together with the segmentation of learning tasks and care given to the sequencing of instructional tasks are presumed to multiply experiences of success and thereby, increase internal locus of control.

In summary, the anticipated learning benefits associated with noncompetitive learning structures for self-worth protective students stand largely justified in the above. These include promoting internal perceptions of control and reducing fear of failure through de-emphasising competitive behaviours and individualistic orientations.

#### 12.10 Concluding Comments

The review presented in the preceding sections has established the importance of minimising uncertainty and situations of evaluative threat for self-worth protective individuals. Attribution retraining programs which encourage students to assume due credit for their successes have been recommended as a means of addressing a known tendency on the part of self-worth protective students to reject their own agency as cause of their successes. This tendency on the part of self-worth protective students to misattribute the causes of their success can be further redressed by effective use of praise and evaluative feedback by teachers in the assessment and evaluation of student learning.

The advantages of cooperative learning structures which de-emphasise individualistic, competitive orientations have been shown to be largely vindicated in terms of their potential to reduce sources of evaluative threat and fear of failure. Care given to the sequencing of instructional tasks are



presumed to minimise both uncertainty in learning processes and multiply experiences of success, thereby enhancing feelings of personal control.

The discussion above which has been diagnostic of both the genesis and maintenance of self-worth protection has underscored the importance of the nature of the evaluative feedback students receive from teachers. The tendency on the part of self-worth protective students to see their successes as determined by factors outside their control, and as isolated and unrepeatable has been linked to exposure to noncontingent feedback. Exposure to rewards which are controlling rather than purely informational both diminish intrinsic motivation and constitute a performance pressure, conditions conducive to the adoption of failure-avoidant strategies. In the last section but one, an assessment was made that teachers' feedback is able to influence the attributional thinking of students, a finding carrying implications for teachers in countering students' self-defeating cognitions following success and failure outcomes.

Suggestion has also been made that for self-worth protective students, attributional retraining programs might more profitably focus on modifying attributions following success outcomes than attributions following failure. While not retracting from this assertion, it would seem advisable to design attributional retraining programs where unproductive attributions following both success and failure outcomes are addressed. This advice is given on the basis that while failure-avoiding students will benefit from programs which encourage internalisation of success, failure-accepting students will benefit from an approach which focuses on substituting inability attributions following failure in favour of attributions to lack of effort. Students manifesting either pattern of underachievement are doubtless to be found in most classrooms at whatever educational level.

### References

- Abramson, L. Y., Seligman, M. E. P., & Teasdale, J. D. (1978). Learned helplessness in humans: Critique and reformulation. Journal of Abnormal Psychology, 87, 49-74.
- Anderson, C.A. (1983). Motivational and performance deficits in interpersonal settings: The effects of attributional style. Journal of Personality and Social Psychology, 45, 1136-1147.
- Anderson, L., Evertson, C., & Brophy, J. (1979). An experimental study of effective teaching in first-grade reading groups. Elementary School Journal, 79, 193-223.
- Andrews, F. M. (1965). Factors affecting the manifestation of creative ability by scientists. Journal of Personality, 33, 140-152.
- Andrews, G.R., & Debus, R.L. (1978). Persistence and the causal perception of failure: Modifying cognitive attributions. Journal of Educational Psychology, 70, 154-166.
- Arkin, R. M., & Maruyama, C. M. (1979). Attribution, affect, and college exam performance. Journal of Educational Psychology, 71, 85-93.
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioural change. Psychological Review, 84, 191-215.
- Bandura, A. (1982). Self-efficacy in human agency. American Psychologist, 37, 122-147.
- Barber, J. G., & Winefield, A. H. (1986). Three accounts of the learned helplessness effect. Genetic, Social and General Psychology Monographs, 60, 143-163.
- Bates, J. A. (1979). Extrinsic reward and intrinsic motivation: A review with implications for the classroom. Review of Educational Research, 49, 557-576.

- Baumeister, R.F., & Jones, E. E. (1978). When self-presentation is constrained by the target's prior knowledge: Consistency and compensation. Journal of Personality and Social Psychology, 36, 608-618.
- Baumeister, R.F., & Tice, D.M. (1985). Self-esteem and responses to success and failure: Subsequent performance and intrinsic motivation. Journal of Personality, 53, 450-467.
- Baumeister, R. F., Tice, D. M., & Hutton, D. G. (1989). Self-presentational motives and personality differences in self-esteem. Journal of Personality, 57, 547-579.
- Baumgardner, A. H., Lake, E. M., & Arkin, R. M. (1985). Claiming mood as a self-handicap: The role of spoiled and unspoiled public identities. Personality and Social Psychology Bulletin, 11, 349-357.
- Baumgardner, A. H., & Levy, P. E. (1988). Role of self-esteem in perceptions of ability and effort: Illogic or insight? Personality and Social Psychology Bulletin, 14, 429-438.
- Beck, A. T., Emery, G., & Greenberg, R. L. (1985). Anxiety disorders and phobias: A cognitive perspective. New York: Basic Books.
- Beck, A. T., Rush, A. J., Shaw, B. F., & Emery, G. (1979). Cognitive therapy of depression. New York: Guilford.
- Beery, R. (1975). Fear of failure in the student experience. Personnel and Guidance Journal, 54, 191-203.
- Bellack, A., Kliebard, H., Hyman, R., & Smith, F. (1966). The language of the classroom. New York: Teachers College Press.
- Berglas, S. (1985). Self-handicapping and self-handicappers: A cognitive/ attributional model of interpersonal and self-protective behaviour. In R. Hogan (Ed.), Perspectives in Personality (Vol. 1, pp. 235-270). Greenwich, CT: JAI.
- Berglas, S. (1986). The success syndrome: Hitting the bottom when you reach the top. New York: Plenum.

- Berglas, S. (1987). Self-handicapping model. In H. T. Blane & K. E. Leonard (Eds.), Psychological theories of drinking and alcoholism pp. 305-341). New York: Guilford Press.
- Berglas, S. (1988). The three faces of self-handicapping: Protective self-presentation, a strategy for self-esteem enhancement, and a character disorder. In S. L. Zelen (Ed.), Self-representation: Clinical and theoretical applications of attributions (pp. 133-169). New York: Springer-Verlag.
- Berglas, S. (1990). Self-handicapping: Etiological and diagnostic considerations. In R. L. Higgins, C. R. Snyder, & S. Berglas (Eds.), Self-handicapping: The paradox that isn't. (pp. 152-182). Plenum Press: New York.
- Berglas, S., & Jones, E. E. (1978). Drug choice as a self-handicapping strategy in response to noncontingent success. Journal of Personality and Social Psychology, 36, 405-417.
- Birney, R. C., Burdick, H., & Teevan, R. C. (1969). Fear of failure. New York: Van Nostrand.
- Blumenfeld, P. C., Hamilton, V. L., Bossert, S. T., Wessels, K., & Meece, J. (1983). Teacher talk and student thought: Socialisation into the student role. In J. M. Levine & M. C. Wang (Eds.), Teacher and student perceptions: Implications for student learning. Lawrence Erlbaum: Hillsdale, New Jersey.
- Brewin, C. R., & Furnham, A. (1986). Attributional versus preattributional variables in self-esteem and depression: A comparison and test of learned helplessness theory. Journal of Personality and Social Psychology, 50, 1013-1020.
- Brickle, G. (1991). Anregungsbedingungen für scheinbar paradox(al)e Wirkungen von Lob und Tadel. (Stimulatory conditions of apparently paradoxical effects of praise and blame). Zeitschrift für Pädagogische Psychologie, 5, 21-32.

- Brookover, W., Schweitzer, J., Schneider, J., Beady, C., Flood, P., & Wisenbaker, J. (1978). Elementary school climate and school achievement. American Educational Research Journal, 15, 301-318.
- Brophy, J. (1981). Teacher praise: A functional analysis. Review of Educational Research, 51, 5-32.
- Brown, J., & Weiner, B. (1984). Affective consequences of ability versus effort ascriptions: Controversies, resolutions or quandries. Journal of Educational Psychology, 76, 146-158.
- Butler, R., & Nisan, M. (1986). Effects of no feedback, task-related comments, and grades on intrinsic motivation and performance. Journal of Educational Psychology, 78, 210-216.
- Butler, R., & Orion, R. (1990). When pupils do not understand the determinants of their success and failure in school: Relations between internal, teacher and unknown perceptions of control and school achievement. British Journal of Educational Psychology, 60, 63-75.
- Carver, C.S., & Ganellen, R.J. (1983). Depression and components of self-punitiveness: High standards, self-criticism and overgeneralisation. Journal of Abnormal Psychology, 92, 330-337.
- Carver, C.S., Ganellen, R.J., & Behar-Mitrani, V. (1983). Depression and cognitive style: Comparisons between measures. Journal of Personality and Social Psychology, 49, 722-728.
- Chambers, B., & Abrami, P. C. (1991). The relationship between student team learning outcomes and achievement, causal attributions and affect. Journal of Educational Psychology, 83, 140-146.
- Chapin, M., & Dyck, D.G. (1976). Persistence in children's reading behaviour as a function of N length and attribution retraining. Journal of Abnormal Psychology, 85, 511-515.

- Covington, M. V. (1983). Motivated cognitions. In S. G. Paris, G. M. Olsen, and H. W. Stevenson (Eds.), Learning and Motivation in the Classroom. Hillsdale, New Jersey: Lawrence Earlbaum Associates.
- Covington, M. V. (1984a). Motivation for self-worth. In R. Ames & C. Ames (Eds.), Research on motivation in education. New York: Academic Press.
- Covington, M. V. (1984b). The self-worth theory of achievement motivation: Findings and implications. Elementary School Journal, 85, 5-20.
- Covington, M. V. (1985). Test anxiety: Causes and effects over time. In H. van der Ploeg, R. Schwartz, & C. Spielberger (Eds.), Test anxiety research (Vol. 1, pp. 56-68). New York: Erlbaum.
- Covington, M. V., & Beery, R. (1976). Self-worth and school learning. New York: Holt, Rinehart & Winston.
- Covington, M. V., & Omelich, C. E. (1979a). Are causal attributions causal? A path analysis of the cognitive model of achievement motivation. Journal of Personality and Social Psychology, 37, 1487-1504.
- Covington, M. V., & Omelich, C. E. (1979b). Effort: The double-edged sword in school achievement. Journal of Educational Psychology, 71, 169-182.
- Covington, M. V., & Omelich, C. E. (1979c). It's best to be able and virtuous too: Student and teacher evaluative responses to successful effort. Journal of Educational Psychology, 71, 688-700.
- Covington, M. V., & Omelich, C. E. (1981). As failures mount: Affective and cognitive consequences of ability demotion in the classroom. Journal of Educational Psychology, 73, 796-808.
- Covington, M. V., & Omelich, C. E. (1984a). An empirical examination of Weiner's critique of attribution research. Journal of Educational Psychology, 76, 1214-1225.
- Covington, M. V., & Omelich, C. E. (1984b). Controversies or consistencies? A reply to Brown & Weiner. Journal of Educational Psychology, 76, 159-168.

- Covington, M. V., & Omelich, C. E. (1984c). Task-oriented versus competitive learning structures: Motivational and performance consequences. Journal of Educational Psychology, 76, 1038-1050.
- Covington, M. V., & Omelich, C. E. (1984d). The trouble with pitfalls: A reply to Brown & Weiner. Journal of Educational Psychology, 76, 1199-1213.
- Covington, M. V., & Omelich, C. E. (1985). Ability and effort valuation among failure-avoiding and failure-accepting students. Journal of Educational Psychology, 77, 446-459.
- Covington, M. V., & Omelich, C. E. (1987). "I knew it cold before the exam": A test of the anxiety blockage hypothesis. Journal of Educational Psychology, 79, 393-400.
- Covington, M. V., & Omelich, C. E. (1988). Achievement dynamics: The interaction of motives, cognitions and emotions over time. Anxiety Research, 1, 165-183.
- Covington, M. V., & Omelich, C. E. (1991). Need achievement revisited: Verification of Atkinson's original 2 x 2 model. In C. D. Spielberger, I. G. Sarason, Z. Kulcsár & G. L. Heck (Eds.), Stress and Emotion: Anxiety, Anger, Curiosity. (Vol. 14, pp. 85-105). New York: Hemisphere.
- Covington, M. V., Omelich, C. E., & Schwarzer, R. (1986). Anxiety, aspirations, and self-concept in the achievement process: A longitudinal model with latent variables. Motivation and Emotion, 10, 71-88.
- Covington, M. V., Spratt, M. F., & Omelich, C. E. (1980). Is effort enough or does diligence count too? Student and teacher reactions to effort stability in failure. Journal of Educational Psychology, 72, 717-729.
- Coyne, J. C., Aldwin, C., & Lazarus, R.S. (1981). Depression and coping in stressful episodes. Journal of Abnormal Psychology, 90, 439-447.
- Craske, M. L. (1985). Improving persistence through observational learning and attribution retraining. British Journal of Educational Psychology, 55, 138-147.

- Craske, M. L. (1988). Learned helplessness, self-worth protection and attribution retraining for primary school children. British Journal of Educational Psychology, 58, 152-164.
- Cullen, J.L., & Boersma, F.J. (1982). The influence of coping strategies on the manifestation of learned helplessness. Contemporary Educational Psychology, 7, 346-356.
- Deci, E. L. (1975). Intrinsic motivation. New York: Plenum Press.
- Deci, E. L. , Cascio, W. F., & Krusell, J. (1975). Cognitive evaluation theory and some comments on the Calder & Staw critique. Journal of Personality and Social Psychology, 31, 81-85.
- DeGree, C. E., & Snyder, C. R. (1985). Adler's psychology (of use) today: Personal history of traumatic life events as a self-handicapping strategy. Journal of Personality and Social Psychology, 48, 1512-1519.
- De Vries, D., Lucasse, P., & Shackman, S. (1979). Small group versus individualised instruction: A field test of their relative effectiveness. Paper presented at the annual convention of the American Psychological Association, New York.
- Dweck, C., Davidson, W., Nelson, S., & Enna, B. (1978). Sex differences in learned helplessness: II. The contingencies of evaluative feedback in the classroom and III. An experimental analysis. Developmental Psychology, 14, 268-276.
- Dweck, C., & Goetz, T. E. (1978). Attribution and learned helplessness. In J. H. Harvey, W. Ickes, & R. F. Kidd (Eds.), New directions in attributional research (Vol. 2, pp. 157-179). Hillsdale, New Jersey: Lawrence-Erlbaum.
- Dweck, C. S., & Reppucci, N.D. (1973). Learned helplessness and reinforcement responsibility in children. Journal of Personality and Social Psychology, 25, 109-116.



- Epstein, S. (1979). The stability of behaviour: 1. On predicting most of the people much of the time. Journal of Personality and Social Psychology, 37, 1097-1126.
- Feather, N. T. (1961). The relationship of persistence at a task to expectations of success and achievement-related motives. Journal of Abnormal and Social Psychology, 63, 552-561.
- Feather, N. T. (1963). Persistence at a difficult task with an alternative task of intermediate level of difficulty. Abnormal and Social Psychology, 63, 604-609.
- Feather, N. T. (1987). The rosy glow of self-esteem: Depression, Masculinity, and causal attributions. Australian Journal of Psychology, 39, 25-41.
- Feather, N. T., & Tiggesmann, M. (1984). A balanced measure of attributional style. Australian Journal of Psychology, 36, 267-283.
- Felker, D. W., Stanwyck, D. J., & Kay, R. S. (1973). The effects of a teacher program in self-concept enhancement on pupils' self-concept, anxiety, and intellectual achievement responsibility. The Journal of Educational Research, 66, 443-445.
- Ferrari, J. R. (1991). A second look at behavioural self-handicapping among women. Journal of Social Behaviour and Personality, 6, 195-206.
- Fowler, J. W., & Peterson, P. L. (1981). Increasing reading persistence and altering attributional style of learned helpless children. Journal of Educational Psychology, 73, 251-260.
- Frankel, A., & Snyder, M. L. (1978). Poor performance following unsolvable anagrams: Learned helplessness or egotism? Journal of Personality and Social Psychology, 36, 1415-1423.
- Gardner, J. (1961). Excellence: Can we be equal and excellent too? New York: Harper & Row.
- Gibbons, F. X., & Gaeddert, W. P. (1984). Focus of attention and placebo utility. Journal of Experimental Social Psychology, 20, 159-176.

- Gollwitzer, P. M., Earle, W. B., & Stephan, W. G. (1982). Affect as a determinant of egoism: Residual excitation and performance attributions. Journal of Personality and Social Psychology, 43, 702-709.
- Greenberg, J., & Psyzczynski, T. (1985). Compensatory self-inflation: A response to the threat to self-regard of public failure. Journal of Personality and Social Psychology, 49, 273-280.
- Greenberg, J., Psyzczynski, T., & Paisley, C. (1985). Effects of extrinsic incentives on use of test anxiety as an anticipatory attributional defence: Playing it cool when the stakes are high. Journal of Personality and Social Psychology, 47, 1136-1145.
- Gurney, P. (1987). Self-esteem enhancement in children: A review of research findings. Educational Research, 29, 130-136.
- Hammen, C., & Cochran, S. (1981). Cognitive correlations of life stress and depression in college students. Journal of Abnormal Psychology, 90, 23-27.
- Harari, O., & Covington, M. V. (1981). Reactions to achievement behaviour from a teacher and student perspective: A developmental analysis. American Educational Research Journal, 18, 15-28.
- Harris, R. N., & Snyder, C. R. (1986). The role of uncertain self-esteem in self-handicapping. Journal of Personality and Social Psychology, 51, 451-458.
- Harris, R. N., Snyder, C. R., Higgins, R. L. & Schrag, J. L. (1986). Enhancing the prediction of self-handicapping. Journal of Personality and Social Psychology, 51, 1191-1199.
- Higgins, R. L., & Harris, R. N. (1988). Strategic "alcohol" use: Drinking to self-handicap. Journal of Social and Clinical Psychology, 6, 191-202.
- Hiroto, D. S., & Seligman, M. E. P. (1975). Generality of learned helplessness in man. Journal of Personality and Social Psychology, 31, 311-327.
- Hoddap, V. (1989). Anxiety, fear of failure, and achievement: Two path analytic models. Anxiety Research, 1, 301-312.

- Hood, R. W. (1969). On creativity as defined by the remote associates test. Psychological Reports, 24, 914.
- Hood, R. W., & Ginsberg, G. P. (1970a). Connotative similarity of remote associates test items as a function of their cultural availability. Psychological Reports, 27, 127-130.
- Hood, R. W., & Ginsberg, G. P. (1970b). Cultural availability: A cross-culturally stable determinant of performance on Remote Associates Test items. Psychological Reports, 26, 755-758.
- Isleib, R.A., Vuchinich, R.E., & Tucker, J.A. (1988). Performance attributions and changes in self-esteem following self-handicapping with alcohol consumption. Journal of Social and Clinical Psychology, 6, 88-103.
- Jagacinski, C. M., & Nicholls, J. G. (1984). Conceptions of ability and related affects in task involvement and ego involvement. Journal of Educational Psychology, 76, 909-919.
- Jagacinski, C. M., & Nicholls, J. G. (1990). Reducing effort to protect perceived ability: "They'd do it but I wouldn't". Journal of Educational Psychology, 82, 15-21.
- Janoff-Bulman, R. (1979). Characterological versus behavioural self-blame: Inquiries into depression and rape. Journal of Personality and Social Psychology, 37, 1798-1809.
- Johnson, D. W., Johnson, R. T., & Scott, L. (1978). The effects of cooperative and individualised instruction on student attitudes and achievement. Journal of Social Psychology, 104, 207-216.
- Jones, E. E., Brenner, K. J., & Knight, J. G. (1990). When failure elevates self-esteem. Personality and Social Psychology Bulletin, 16, 200-209.
- Jones, E. E. & Berglas, S. (1978). Control of attributions about the self through self-handicapping strategies: The appeal of alcohol and the role of underachievement. Personality and Social Psychology Bulletin, 4, 200-206.

- Jones, E. E., & Davis, K. E. (1965). From acts to dispositions: The attribution process in person perception. In L. Berkowitz (ed.), Advances in experimental social psychology (Vol 2, pp. 219-266). New York: Academic Press.
- Jones, E. E., & Rhodewalt, F. (1982). The Self-handicapping Scale. (Available from the authors at the Department of Psychology, Princeton University, or the Department of Psychology, University of Utah).
- Jones, S. C. (1973). Self- and interpersonal evaluations: Esteem theories versus consistency theories. Psychological Bulletin, 79, 185-199.
- Karabenick, S. A., & Youssef, Z. I. (1968). Performance as a function of achievement motive level and perceived difficulty. Journal of Personality and Social Psychology, 10, 414-419.
- Keats, J. A. (1971). An Introduction to Quantitative Psychology. Sydney: Wiley.
- Keppel, G. (1973). Design and analysis: A researcher's handbook. Englewood Cliffs, New Jersey: Prentice-Hall.
- Kernis, M. H., Brochner, J., & Frankel, B. S. (1989). Self-esteem and reactions to failure: The mediating role of overgeneralization. Journal of Personality and Social Psychology, 57, 707-714.
- Kernis, M. H., Grannemann, B. D., & Barclay, L. C. (1992). Stability of self-esteem: Assessment, correlates, and excuse making. Journal of Personality, 60, 621-644.
- Kernis, M. H., Grannemann, B. D., & Mathis, L. C. (1991). Stability of self-esteem as a moderator of the relationship between level of self-esteem and depression. Journal of Personality and Social Psychology, 61, 80-84.
- Kimble, C. E., Funk, S. C., & DaPolito, K. L. (1990). The effects of self-esteem uncertainty on behavioural self-handicapping. Journal of Social Behaviour and Personality, 5, 137-149.

- Koestner, R., Ryan, R. M., Bernieri, F., & Holt, K. (1984). Setting limits on children's behaviour: The differential effects of controlling vs. informational styles on intrinsic motivation and creativity. Journal of Personality, 52, 233-248.
- Kofta, M., & Sedek, G. (1989a). Egotism versus generalisation of -uncontrollability explanations of helplessness: Reply to Snyder and Frankel (1989). Journal of Experimental Psychology: General, 118, 413-416.
- Kofta, M., & Sedek, G. (1989b). Repeated failure: A source of helplessness or a factor irrelevant to its emergence? Journal of Experimental Psychology: General, 118, 3-12.
- Kolditz, T. A., & Arkin, R. M. (1982). An impression management interpretation of the self-handicapping strategy. Journal of Personality and Social Psychology, 43, 492-502.
- Kun, A. (1977). Development of the magnitude-covariation and compensation schema in ability and effort attributions of performance. Child Development, 48, 862-873.
- Kun, A., & Weiner, B. (1973). Necessary versus sufficient causal schemata for success and failure. Journal of Research in Personality, 7, 197-207.
- Leary, M. R. (1983). A brief version of the fear of negative evaluation scale. Personality and Social Psychology Bulletin, 9, 371-375.
- Lepper, M. R. (1983). Extrinsic reward and intrinsic motivation: Implications for the classroom. In J. M. Levine & M. C. Wang (Eds.). Teacher and student perceptions: Implications for student learning. Lawrence Erlbaum: Hillsdale, New Jersey.
- Levine, M. (1966). Hypothesis behaviour by humans during discrimination learning. Journal of Experimental Psychology, 71, 331-338.
- Linville, P. W. (1985). Self-complexity and affective extremity: Don't put all your eggs in one cognitive basket. Social Cognition, 3, 94-120.

- Linville, P. W. (1987). Self-complexity as a cognitive buffer against stress-related depression and illness. Journal of Personality and Social Psychology, 52, 663-676.
- Madden, N. A. & Slavin, R. E. (1983). Effects of cooperative learning on the social acceptance of mainstreamed academically handicapped students. Journal of Special Education, 17, 171-182.
- Mandler, G., & Sarason, S. B. (1952). A study of anxiety and learning. Journal of Abnormal and Social Psychology, 47, 166-173.
- Maracek, J., & Mettee, D. R. (1972). Avoidance of continued success as a function of self-esteem, level of esteem certainty, and responsibility for success. Journal of Personality and Social Psychology, 22, 98-107.
- Marsh, H. W. (1990). Self-descriptive Questionnaire III Manual. The Psychological Corporation: San Antonio.
- Mayerson, N. H., & Rhodewalt, F. (1988). The role of self-protective attributions in the experience of pain. Journal of Social and Clinical Psychology, 6, 203-218.
- McCarry, M., Edwards, H. P., & Rozario, W. (1982). Ego-relevant feedback, affect, and self-serving attributional bias. Personality and Social Psychology Bulletin, 8, 189-194.
- McClelland, D. C., Atkinson, J. W., Clark, R. A., & Lowell, E. L. (1953). The achievement motive. New York: Appleton-Century-Crofts.
- McFarland, C., & Ross, M. (1982). Impact of causal attributions on affective reactions to success and failure. Journal of Personality and Social Psychology, 43, 937-946.
- McFarlin, D. B., & Blascovich, J. (1981). Effects of self-esteem and performance feedback on future affective preferences and cognitive expectations. Journal of Personality and Social Psychology, 40, 521-531.

- McFarlin, D. B., & Blascovich, J. (1984). On the remote associates test (RAT) as an alternative to illusory performance feedback: A methodological note. Basic and Applied Social Psychology, 5, 223-229.
- McNicoll, M., Annamunthodo, T., Mc Carrey, M., & Kamal, F. (1985). Self-enhancement, self-protection as a function of esteem-related feedback and success contingency. Psychological Reports, 56, 583-595.
- Mednick, S.A. (1962). The associative basis of the creative process. Psychological Review, 69, 220-232.
- Medway, F.J. & Venino, G.R. (1982). The effects of effort feedback and performance patterns on children's attribution and task persistence. Contemporary Educational Psychology, 7, 26-34.
- Mehrens, W. A., & Lehmann, I. J. (1973). Measurement and Evaluation in Education and Psychology (3rd ed.). New York: Holt, Rinehart & Winston.
- Meichenbaum, D. (1977). Cognitive behaviour modification: An integrative approach. New York: Plenum.
- Meyer, W. -U. (1982). Indirect communications about perceived ability estimates. Journal of Educational Psychology, 74, 888-897.
- Meyer, W. -U., Bachmann, M., Biermann, U., Hempelmann, M., Ploger, F.-O., & Spiller, H. (1979). The informational value of evaluative behaviour: Influences of praise and blame on perceptions of ability. Journal of Educational Psychology, 71, 259-268.
- Meyer, W. -U., Mittag, W., & Engler, U. (1986). Some effects of praise and blame on perceived ability and affect. Social Cognition, 4, 293-308.
- Miller, A. (1985). A developmental study of the cognitive bias of performance impairment after failure. Journal of Personality and Social Psychology, 49, 529-538.
- Miller, A. (1986). Performance impairment after failure: Mechanism and sex differences. Journal of Educational Psychology, 78, 486-491.

- Miller, D. T., & Ross, M. (1975). Self-serving bias in the attribution of causality: Fact or fiction? Psychological Bulletin, 82, 213-225.
- Moorland, R. L., & Sweeney, P. D. (1984). Self-expectancies and reactions to evaluations of personal performance. Journal of Personality, 52, 156-176.
- Nicholls, J. (1975). Causal attributions and other achievement-related conditions: Effects of task outcome, attainment value, and sex. Journal of Personality and Social Psychology, 31, 379-389.
- Nicholls, J. (1976). Effort is virtuous, but it's better to have ability: Evaluative responses to perceptions of effort and ability. Journal of Research in Personality, 10, 306-315.
- Nicholls, J. (1984). Achievement motivation: Conceptions of ability, subjective task experience, task choice, and performance. Psychological Review, 91, 328-346.
- Parsons, J.E., Meece, J.L., Adler, T.F., & Kaczala, C.M. (1982). Sex differences in attributions and learned helplessness. Sex Roles, 8, 421-432.
- Paulman, R. G., & Kennelly, K. J. (1984). Test anxiety and inefficient test-taking: Different names, same construct? Journal of Educational Psychology, 22, 279-288.
- Peterson, C., Semmel, A., von Baeyer, C., Abramson, L.Y., Metalsky, G.I., & Seligman, M.E.P. (1982). The attributional style questionnaire. Cognitive Therapy and Research, 6, 287-300.
- Phillips, B. N., Pitcher, G. D., Worcham, M. E., & Miller, S. C. (1980). Test anxiety and the school environment. In I. G. Sarason (Ed.) Test anxiety: Theory, research and applications (pp. 327-346). Hillsdale, New Jersey: Lawrence Erlbaum.
- Pittman, T. S., Davey, M. E., Alafat, K. A., Wetherill, K. V., & Kramer, N. A. (1980). Informational versus controlling verbal rewards. Personality and Social Psychology Bulletin, 6, 228-233.



- Pyszczynski, T., & Greenberg, J. (1983). Determinants of reduction of intended effort as a strategy for coping with anticipated failure. Journal of Research in Personality, 17, 412-422.
- Raps, C. S., Peterson, C., Reinhard, K. E. Abramson, L. Y., & Seligman, M. E. P. (1982). Attributional style among depressed patients. Journal of Abnormal Psychology, 91, 102-108.
- Rhodewalt, F. (1990). Self-handicappers: Individual differences in the preference for anticipatory, self-protective acts. In R. L. Higgins, C. R. Snyder, & S. Berglas (Eds.), Self-handicapping: The paradox that isn't (pp. 69-106). New York: Plenum Press.
- Rhodewalt, F., & Davison, J. (1986). Self-handicapping and subsequent performance: Role of outcome valence and attributional certainty. Basic and Applied Social Psychology, 7, 307-323.
- Rhodewalt, F., & Fairfield, M. (1991). Claimed self-handicaps and the self-handicapper: The relation of reduction in intended effort to performance. Journal of Research in Personality, 25, 402-417.
- Rhodewalt, F., Morf, C., Hazlett, S., & Fairfield, M. (1991). Self-handicapping: The role of discounting and augmentation in the preservation of self-esteem. Journal of Personality and Social Psychology, 61, 122-131.
- Rhodewalt, F., Saltzman, A.T., & Wittmer, J. (1984). Self-handicapping among competitive athletes: The role of practice in self-esteem protection. Basic and Applied Social Psychology, 5, 197-210.
- Rosenberg, M. (1965). Society and the adolescent self image. Princeton, NJ: Princeton University Press.
- Rothblum, E. D., & Solomon, L. J. & Murakami, J. (1984). Affective, cognitive, and behavioural differences between high and low procrastinators. Journal of Counseling Psychology, 33, 387-394.
- Russell, D. (1982). The causal dimension scale: A measure of how individuals perceive causes. Journal of Personality and Social Psychology, 42, 1137-1145.

- Sarason, I. G. (1978). The test anxiety scale: Concept and research. In I. G. Sarason & C. D. Spielberger (Eds.), Stress and Anxiety (Vol. 5, pp. 193-216). Washington: Hemisphere.
- Schaeffer, S. B., & Bratter, B. I. (1990). The uses of Glasser learning team model to evaluate the John Dewey Academy. Journal of Reality Therapy, 10, 46-53.
- Schlenker, B. R., Weigold, M. F., & Hallam, J. R. (1990). Self-serving attributions in social context: Effects of self-esteem and social pressure. Journal of Personality and Social Psychology, 58, 855-863.
- Schunk, D. (1981). Modelling and attributional effects on children's achievement: A self-efficacy analysis. Journal of Educational Psychology, 73, 93-105.
- Schunk, D. (1982). Effects of effort attributional feedback on children's perceived self-efficacy and achievement. Journal of Educational Psychology, 74, 548-556.
- Schunk, D. (1983). Ability versus effort attributional feedback: Differential effects of self-efficacy and achievement. Journal of Educational Psychology, 75, 848-856.
- Schwarzer, R., & Jerusalem, M. (1982). Self-serving attributions after performance feedback. Zeitschrift fur Entwicklungspsychologie und Padagogische Psychologie, 14, 47-57.
- Scott, W. A. (1955). Reliability of content analysis: The case of nominal scale coding. Public Opinion Quarterly, 19, 321-325.
- Self, E. A. (1990). Situational influences on self-handicapping. In R. L. Higgins, C. R. Snyder & S. Berglas (Eds.), Self-handicapping: The paradox that isn't. (pp. 37-68). Plenum Press: New York.
- Seligman, M. E. P., Abramson, L. Y., Semmel, A., & von Beyer, C. (1979). Depressive attributional style. Journal of Abnormal Psychology, 88, 242-247.

- Shepperd, J. A., & Arkin, R. M. (1989). Determinants of self-handicapping: Task importance and the effects of pre-existing handicaps on self-generated handicaps. Personality and Social Psychology Bulletin, 15, 101-112.
- Shepperd, J. A., & Arkin, R. M. (1991). Behavioural-other enhancement: Strategically obscuring the link between performance and evaluation. Journal of Personality and Social Psychology, 60, 79-88.
- Short, E. J., & Ryan, E. B. (1984). Metacognitive differences between skilled and less skilled readers: Remediating deficits through story grammar and attribution training. Journal of Educational Psychology, 76, 225-235.
- Shrauger, J. S. (1975). Responses to evaluation as a function of initial self-perceptions. Psychological Bulletin, 82, 581-596.
- Shrauger, J. S. (1982). Selection and processing of self-evaluative information: Experimental evidence and clinical implications. In G. Weary & H. L. Mirels (Eds.), Integrations of clinical and social psychology. New York: Oxford University Press.
- Sigall, H., & Gould, R. (1977). The effects of self-esteem and evaluator demandingness on effort expenditure. Journal of Personality and Social Psychology, 35, 12-20.
- Slavin, R. E. (1978). Student teams and comparison among equals: Effects on academic performance and student attitudes. Journal of Educational Psychology, 70, 532-538.
- Slavin, R. E. (1983). Non-cognitive outcomes of cooperative learning. In J. M. Levine & M. C. Wang (Eds.), Teacher and student perceptions: Implications for student learning. Lawrence Erlbaum: Hillsdale, New Jersey.
- Slavin, R. E., Karweit, N. L. (1985). Effects of whole class, ability grouped, and individualized instruction on mathematics achievement. American Educational Research Journal, 22, 351-367.

- Smith, C. P. (1983). Ethical Issues: Research on deception, informed consent and debriefing. In L. Wheeler & P. Shaver (Eds.), Review of Personality and Social Psychology, 4, 287-328.
- Smith, T. W., Snyder, C. R., & Handelsman, M. M. (1982). On the self-serving function of an academic wooden leg: test anxiety as a self-handicapping strategy. Journal of Personality and Social Psychology, 42, 314-321.
- Smith, T. W., Snyder, C.R., & Perkins, S. C. (1983). The self-serving function of hypochondriacal complaints: Physical symptoms as self-handicapping strategies. Journal of Personality and Social Psychology, 44, 787-79.
- Snyder, C.R. (1990). Self-handicapping processes and sequelae: On the taking of a psychological dive. In R. L. Higgins, C. R. Snyder, & S. Berglas (Eds.), Self-handicapping: The paradox that isn't (pp. 107-145). New York: Plenum Press.
- Snyder, C. R., & Higgins, R. L. (1988). Excuses: Their effective role in the negotiation of reality. Psychological Bulletin, 104, 23-35.
- Snyder, C. R., & Smith, T.W. (1982). Symptoms as self-handicapping strategies: The virtues of old wine in a new bottle. In G. Weary & H.L. Mirels (Eds), Integrations of clinical and social psychology (pp. 104-127). New York: Oxford University Press.
- Snyder, C. R., Smith, T. W., Augelli, R. W., & Ingram, R. E. (1985). On the self-serving function of social anxiety. Journal of Personality and Social Psychology, 48, 970-980.
- Snyder, M. L., & Frankel, A. (1989). Egotism versus learned helplessness as an explanation for the unsolvable problem effect: Comment on Kofta & Sedek (1989). Journal of Experimental Psychology: General, 118, 409-412.
- Snyder, M. L., Smoller, B., Strenta, A., & Frankel, A. (1981). A comparison of egotism, negativity, and learned helplessness as explanations for poor

- performance after unsolvable problems. Journal of Personality and Social Psychology, 40, 24-30.
- Snyder, M. L., Stephan, W.G., & Rosenfield, D. (1978). Attributional egotism. In J. H. Harvey, W. J. Ickes, & R. F. Kidd (Eds.), New directions in attribution research (Vol. 2, pp. 91-117). Hillsdale, New Jersey: Erlbaum.
- Sohn, D. (1977). Attribution-generating powers of effort and ability self-attributions of academic success and failure. Journal of Educational Psychology, 69, 500-505.
- Solomon, L. J., & Rothblum, E. D. (1984). Academic procrastination: Frequency and cognitive-behavioural correlates. Journal of Counseling Psychology, 31, 503-509.
- Speilberger, C. D., Gorsuch, R. L., Lushene, R., Vagg, P. R., & Jacobs, G. A. (1983). Manual for the State-Trait anxiety inventory. Consulting Psychologists Press: Palo Alto.
- Strube, M. J. (1986). An analysis of the self-handicapping scale. Basic and Applied Social Psychology, 7, 211-224.
- Strube, M. J., & Roemmele, L. A. (1985). Self-enhancement, self-assessment, and self-evaluative task choice. Journal of Personality and Social Psychology, 49, 981-993.
- Tabachnick, B. G., & Fidell, L. S. (1989). Using Multivariate Statistics. (2nd ed.). Harper Collins: New York.
- Tang, T. L., Lui, H., & Vermillion, W. H. (1987). Effects of self-esteem and task labels (difficult vs. easy) on intrinsic motivation, goal setting and task performance. Journal of General Psychology, 114, 249-262.
- Tice, D. (1991). Esteem protection or enhancement? Self-handicapping motives and attributions differ by trait self-esteem. Journal of Personality and Social Psychology, 60, 711-725.

- Tice, D. M., & Baumeister, R. F. (1990). Self-esteem, self-handicapping and self-presentation: The strategy of inadequate practice. Journal of Personality, 58, 443-464.
- Thompson, T. (1994). Symptoms and strategies of self-worth protection: Clinical observations, experimental findings and guidelines for therapeutic intervention. Unpublished Manuscript, University of Tasmania.
- Tresselt, M. E., & Mayzner, M. S. (1966). Normative solution times for a sample of 134 solution words and 378 associated anagrams. Psychonomic Monograph Supplements, 1, 293-298.
- Tucker, J. A., Vuchinich, R. E., & Sobell, M. (1981). Alcohol consumption as a self-handicapping strategy. Journal of Abnormal Psychology, 90, 220-230.
- Van Overwalle, F., & de Metsenaere, M. (1990). The effects of attribution-based intervention and study strategy training on academic achievement in college freshmen. British Journal of Educational Psychology, 60, 299-311.
- Van Overwalle, F., Segebarth, K., & Goldchstein, M. (1989). Improving performance of freshmen through attributional testimonies from fellow students. British Journal of Educational Psychology, 59, 75-85.
- Watson, D. & Friend, R. (1969). Measurement of social-evaluative anxiety. Journal of Consulting and Clinical Psychology, 33, 448-457.
- Weary, G. (1980). Examination of affect and egoism as mediators of bias in causal attributions. Journal of Personality and Social Psychology, 38, 348-357.
- Weiner, B. (1972). Theories of motivation: From mechanism to cognition. Chicago: Rand McNally.
- Weiner, B. (Ed.), (1974). Achievement motivation and attribution theory. New Jersey: General Learning Press.

- Weiner, B. (1977). An attributional model for educational psychology. In L. Shulman (Ed.), Review of Research in Education (Vol. 4). Itasca, Illinois: Peacock.
- Weiner, B. (1979). A theory of motivation for some classroom experiences. Journal of Educational Psychology, 71, 3-25.
- Weiner, B. (1983). Some methodological pitfalls in attributional research. Journal of Educational Psychology, 75, 530-543.
- Weiner, B. (1985). An attributional theory of achievement motivation and emotion. Psychological Review, 92, 548-573.
- Weiner, B. (1988). Attributional theory and attributional therapy: Some observations and suggestions. British Journal of Clinical Psychology, 27, 93-104.
- Weiner, B., Frieze, I., Kukla, A., Reed, L., Rest, S., & Rosenbaum, R. (1971). Perceiving the causes of success and failure. In E. E. Jones et al. (Eds.), Attribution: Perceiving the causes of behaviour. Morristown, New Jersey: General Learning Press.
- Weiner, B., Heckhausen, H., Meyer, W., & Cook, R. (1972). Causal ascriptions and achievement behaviour: A conceptual analysis of effort and reanalysis of locus of control. Journal of Personality and Social Psychology, 21, 239-248.
- Weiner, B., & Kukla, A. (1970). An attributional analysis of achievement motivation. Journal of Personality and Social Psychology, 15, 1-20.
- Weiner, B., & Sierad, J. (1975). Misattribution of failure and enhancement of achievement strivings. Journal of Personality and Social Psychology, 31, 415-421.
- Weinstein, R. (1976). Reading group membership in first grade: Teacher expectations and pupil experience over time. Journal of Educational Psychology, 68, 103-116.

- Wheeler, R., & Ryan, F. L. (1973). Effects of cooperative and competitive classroom environments on the attitudes and achievements of elementary school students engaged in social studies inquiry activities. Journal of Educational Psychology, 65, 402-407.
- Wilson, T. D., & Linville, P. W. (1982). Improving the academic performance of college freshmen: attribution therapy revisited. Journal of Personality and Social Psychology, 42, 367-376.
- Wilson, T. D., & Linville, P. W. (1985). Improving the performance of college freshmen with attributional techniques. Journal of Personality and Social Psychology, 49, 287-293.
- Winer, B. J. (1971). Statistical principles in experimental design. New York: McGraw-Hill.
- Zander, A., Fuller, R., & Armstrong, W. (1972). Attributed pride or shame in group and self. Journal of Personality and Social Psychology, 23, 346-352.
- Zatz, S., & Chassin, L. (1983). Cognitions of test-anxious children. Journal of Consulting and Clinical Psychology, 51, 526-534.
- Zautra, A. J., Guenther, R. T., & Chartier, G. M. (1985). Attributions for real and hypothetical events: Their relation to self-esteem and depression. Journal of Abnormal Psychology, 94, 530-540.
- Zimmerman, B. J., & Ringle, J. (1981). Effects of model persistence and statements of confidence on children's self-efficacy and problem solving. Journal of Educational Psychology, 73, 485-493.
- Zuckerman, M. (1979). Attribution of success and failure revisited or: The motivational bias is alive and well in attribution theory. Journal of Personality, 47, 245-287.



## List of Appendices

### Appendix A. Experimental Materials

- A1: Instructions to Subjects (Experiment 2)
- A2: ABC\*D Experimental Manipulation (Experiment 3)
- A3: Individual Difference Measures (Experiment 3)
- A4: Content Analysis Scoring Instructions for Feather & Tiggemann's (1984) B.A.S.Q. (Experiment 3)
- A5: Simultaneous Discrimination Task (Experiments 4 & 5)
- A6: Twenty Single Solution Anagrams (Experiment 4)
- A7: Instructions to Subjects (Experiments 4 & 5)
- A8: Russell Causal Dimensions Scale (Experiment 5)
- A9: Performance Manipulation Check (Experiment 5)

### Appendix B: Articles Published/Submitted for Publication

- B1 Thompson, T. (1993) Remote Associate Problems in Performance Feedback Paradigms. Personality and Individual Differences, 14, 4-11.
- B2 Thompson, T. (1993). Characteristics of Self-worth Protection. British Journal of Educational Psychology, 63, 469-488.
- B3 Thompson, T. (in press) Self-worth protection: Implications for the classroom. Educational Review.

## Appendix A1: Instructions to Subjects (Experiment 2).

### Experimental Instructions

Thankyou for your time and courtesy in participating in this study.

The purpose on this occasion is to gain some information in relation to a newly developed test of creativity and general intelligence called the Remote Associates Test. In the pages which follow you will be asked to complete three sets of remote associates: Sets A, B, and C.

The ability to solve items in the Remote Associates Test depends on both logical reasoning ability and 'insight'. Some people, as a consequence, see the answers straight away, while for others it is more difficult. You may then, do very well overall, or poorly, or well on some but not so well on others. After each set of remote associates your answers will be marked by the experimenter and your score made known to you before you progress to the next set. Interspersed with the four sets are some questions which tap your feelings about your performance.

The difficulty levels of the sets have been adjusted so that a person of 'average' intelligence should get at least half of the items correct - i.e., at least a score of 7 or 8 out of 15.

To preserve confidentiality you are asked to identify yourself by giving the first letter of your Christian name, the first two letters of your surname and finally, the day of the month you were born e.g.

TTh 4 for Ted Thompson (my name), & '4' for a birthday on the fourth of a month. Please identify yourself in this manner in the box below, and indicate your sex (M or F) and age in years and months.

Sex (M, F)

Age (yrs. & mo.)

## Appendix A2: ABC\*D Experimental Manipulation (Experiment 3).

### Experimental Session 2

Thankyou for your time and courtesy in attending this second data-gathering session.

The purpose on this occasion is to gain some information in relation to a newly developed test of creativity and general intelligence called the Remote Associates Test. In the pages which follow you will be asked to complete four sets of remote associates: Sets A, B, C and D.

The ability to solve items in the Remote Associates Test depends on both logical reasoning ability and 'insight'. Some people, as a consequence, see the answers straight away, while for others it is more difficult. You may then, do very well overall, or poorly, or well on some but not so well on others. After each set of remote associates your answers will be marked by the experimenter and your score made known to you before you progress to the next set. Interspersed with the four sets are some questions which tap your feelings about your performance.

Sets A, B and C are sets of equal difficulty, with difficulty levels adjusted so that a person of 'average' intelligence should get at least half of the items correct - i.e., at least a score of 7 or 8 out of 15. Set D is a more difficult set. For this reason you should not feel badly about poor performance on this set.

To enable me to match up information derived from this experimental session with that from the first, please identify yourself as you did on the previous occasion, i.e., by giving the first letter of your Christian name, the first two letters of your surname and finally, the day of the month you were born e.g.

TTh 4 for Ted Thompson (my name), & '4' for a birthday on the fourth of a month. Please identify yourself in this manner in the box below, and indicate your sex (M or F) and age in years and months.

Sex (M, F)

Age (yrs. & mo.)

REMOTE ASSOCIATES TEST

On the pages below are 4 sets of 'remote associates'. Three words are given with some connection with a fourth, unstated word, e.g.:

Flushes-Coffee-Tropics	Hot
Curiosity-Nap-Whiskers	Cat
Bride-Reception-Ring	Wedding
Honey-Swarm-Sting	Bee

Before attempting the first set, we'll spend some time with the practice examples given below. Write your answers on the dotted lines to the right of each of the three stimulus words. I'll give you approximately 4 minutes, at the end of which I'll tell you the answers.

Quack-Pond-Waddle	.....
Slither-Venomous-Bite	.....
Purr-Whiskers-Nap	.....
Pasteurised-Cow-Drink	.....
Dunes-Castle-Beach	.....
Tap-Spout-Fall	.....
Sheep-Clip-Jumper	.....

N.B. Please do not turn the page until you are told to do so.

Below is the first set of remote associates. Following each of the sets, you will be given feedback concerning your performance before proceeding to the next set. In the items which follow, write the answers on the dotted lines to the right of each of the three stimulus words.

Work quickly. Spend only 15 seconds or so on each, then move on to the next item. You have a total of four minutes to complete these items.

SET 'A'

- Twinkle-Celebrity-Bethlehem .....
- Go-Grass-Irish .....
- Scissors-Incision-Meat .....
- Screen-Tan-Light .....
- Sky-Ocean-Mood .....
- Bullion-Braid-Medal .....
- Bees-Comb-Moon .....
- Worm-End-Shop .....
- Board-Magic-Death .....
- Nap-Call-Black .....
- Sick-Swell-Mist .....
- Sign-Jam-Flow .....
- Wedding-Telephone-Conspiracy .....
- Light-Main-Sweeper .....
- Whisky-Tape-Thistle .....

Please wait for your answers to be scored.

SCORE:        0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Please do not turn the page until you are asked to do so.

A number of statements which people have used to describe themselves are given below. Read each statement and then circle the number to indicate how you feel right now, that is, at this moment. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your feelings best.

1. I feel calm.
- 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_
- Not at all                  Somewhat                  Moderately So                  Very Much So
2. I am tense
- 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_
- Not at all                  Somewhat                  Moderately So                  Very Much So
3. I feel at ease.
- 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_
- Not at all                  Somewhat                  Moderately So                  Very Much So
4. I am presently worrying over possible misfortunes.
- 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_
- Not at all                  Somewhat                  Moderately So                  Very Much So
5. I feel frightened.
- 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_
- Not at all                  Somewhat                  Moderately So                  Very Much So
6. I feel self-confident.
- 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_
- Not at all                  Somewhat                  Moderately So                  Very Much So
7. I am jittery.
- 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_
- Not at all                  Somewhat                  Moderately So                  Very Much So
8. I am relaxed.
- 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_
- Not at all                  Somewhat                  Moderately So                  Very Much So
9. I am worried.
- 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_
- Not at all                  Somewhat                  Moderately So                  Very Much So
10. I feel steady.
- 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_
- Not at all                  Somewhat                  Moderately So                  Very Much So

Please indicate when you have completed the above items.  
Do not turn to the next page until you are told to do so.

Below is the second set of remote associates. As for the previous set, three words are given with some connection with a fourth, unstated word. Again, write your answers on the dotted lines to the right of each of the three stimulus words. Work quickly. Spend only 15 seconds or so on each item and then move on to the next item. You have a total of four minutes to complete these items.

Set 'B'

- Bald-Screech-Emblem .....
- Curtain-Hot-Bar .....
- Colander-Effort-Stress .....
- Jam-Drug-Lights .....
- Whisky-Tape-Thistle .....
- Light-Rise-Way .....
- Subside-Kitchen-Scuttle .....
- Hens-Torch-Artillery .....
- Wash-Cheap-Truck .....
- Match-Ball-Fly .....
- Jump-Kill-Bliss .....
- Drink-Spirit-Priest .....
- Kitchen-Prevent-Duel .....
- Desert-Ice-Spell .....
- Team-Elected-Nation .....

Please wait for your answers to be scored before completing the scale on the next page.

SCORE:        0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Please do not turn the page until you are asked to do so.





N. B. Only answer the questions on this page if your score on Set B was equal or better than your score on Set A.

If your score on Set B was less than that on Set A, please rule a line through this page and answer the questions on the following page.

How important do you think each of the following were in influencing your performance on the previous set of remote associates (Set B)?

By referring to the scale beneath each item, circle the number which corresponds to your choice.

1. Effort

Very important								Not very important
1	2	3	4	5	6	7		

2. Ability

Very important								Not very important
1	2	3	4	5	6	7		

3. The ease of the items

Very important								Not very important
1	2	3	4	5	6	7		

4. Good luck

Very important								Not very important
1	2	3	4	5	6	7		

**N. B.** Only answer the questions on this page if you failed to meet with success on Set B relative to Set A, that is, if your score on Set B was less than that on Set A.

How important do you think each of the following were in influencing your performance on the previous set of remote associates (Set B)?  
By referring to the scale beneath each item, circle the number which corresponds to your choice.

1. Expending insufficient effort

Very important	Not very important
1_____2_____3_____4_____5_____6_____7	

2. Lack of ability

Very important	Not very important
1_____2_____3_____4_____5_____6_____7	

3. The difficulty of the items

Very important	Not very important
1_____2_____3_____4_____5_____6_____7	

4. Bad luck

Very important	Not very important
1_____2_____3_____4_____5_____6_____7	

Below is the third set of remote associates. The same instructions apply as for the previous sets.

Again, you have four minutes to complete the items.

Set 'C'

Stuff-Coffee-Tropics	.....
Door-Church-Ring	.....
Cough-Fire-Cigarette	.....
Sky-Sad-Ocean	.....
News-Plate-Clip	.....
Sea-Home-Stomach	.....
Athletes-Web-Rabbit	.....
Picture-Window-Door	.....
Surprise-Line-Birthday	.....
Daffodil-Fever-Peril	.....
Unbroken-Gramophone-Tape	.....
Bolt-Loaf-Squirrel	.....
Mouth-Speaker-Noise	.....
Hearted-Touch-Ball	.....
Fish-Mouse-Door	.....

Again, please wait for your answers to be scored before completing the scale on the next page.

SCORE:        0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Now turn the page for the final set of remote associates.

Below is the final set of remote associates. This set of remote associates is more difficult than the previous sets. As a result, you could hardly be expected to do very well. Nevertheless, do the best you can. Again, you have four minutes to complete the items.

Set 'D'

- Curry-Tropics-Stuff .....
- Elderly-Fashioned-Timer .....
- Love-Felt-Broken .....
- Coal-Soot-Pitch .....
- Base-Cricket-Soft .....
- Residence-Sick-Brew .....
- Book-Vertebrae-Echidna .....
- Cob-Joke-Pop .....
- Swept-Mill-Blown .....
- Ebony-Power-Hole .....
- Fall-Sighted-Breath .....
- Bottom-Spinning-Table .....
- Red-Crossing-Sign .....
- Leather-Conceal-Lair .....
- Car-Fog-French .....

Again, please wait for your answers to be scored.

SCORE:        0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

### Appendix A3: Individual Difference Measures (Experiment 3).

#### **Experiment Session 1**

Thankyou for agreeing to participate in this study.

The study examines the relationship between peoples' study habits and aspects of personality in relation to academic achievement.

Inside this booklet are a number of scales. As several of the scales examine similar things, you will find some items within the scales, if not the scales themselves, rather repetitious. Please bear with this and try to bring a fresh approach to each new scale.

To enable me to match up your responses on these measures with information gained in the second experimental session, please identify yourself by giving the first letter of your Christian name, the first two letters of your surname and finally, the day of the month you were born e.g.:

TTh 4 for Ted Thompson (my name), & '4' for a birthday on the fourth of a month. Please identify yourself in this manner in the box below, and indicate your sex (M or F), and your age in years and months.

Sex (M, F)

Age (yrs. & mo.)

Your responses are strictly anonymous and confidential. So please be as honest as you can. (Thankyou!)

*Appendix A3 - Marsh Global and Academic Self-esteem Subscales*

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**Self Descriptive Questionnaire III**

This is a chance for you to consider how you think and feel about yourself. This is not a test - there are no right or wrong answers, and everyone will have different responses. The purpose of the items which follow is to determine how people think and feel about themselves.

On this page and the pages which follow are a series of statements that are more or less true (or more or less false) descriptions of you. Please use the eight-point response scale to indicate how true (or false) each item is as a description of you. Respond to the items as you feel now even if you felt differently at some other time in your life. (e.g., an item about your present relationship with your parents if they are no longer alive). In such cases, respond to the item as you would have when it was appropriate. Try to avoid leaving any items blank.

By referring to the scale below each item, circle the number that corresponds to your choice.

1. I find many mathematical problems interesting and challenging.

Definitely False	False	Mostly false	More false than true	More true than false	Mostly true	True	Definitely true
1_____	2_____	3_____	4_____	5_____	6_____	7_____	8_____

2. I have trouble expressing myself when trying to write something.

Definitely False	False	Mostly false	More false than true	More true than false	Mostly true	True	Definitely true
1_____	2_____	3_____	4_____	5_____	6_____	7_____	8_____

3. I enjoy doing work for most academic subjects.

Definitely False	False	Mostly false	More false than true	More true than false	Mostly true	True	Definitely true
1_____	2_____	3_____	4_____	5_____	6_____	7_____	8_____

4. Overall, I have a lot of respect for myself.

Definitely False	False	Mostly false	More false than true	More true than false	Mostly true	True	Definitely true
1_____	2_____	3_____	4_____	5_____	6_____	7_____	8_____

Appendix A3 - Marsh Global and Academic Self-esteem Subscales

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5. I have hesitated to take courses that involve mathematics.

Definitely False	False	Mostly false	More false than true	More true than false	Mostly true	True	Definitely true
1	2	3	4	5	6	7	8

6. I can write effectively.

Definitely False	False	Mostly false	More false than true	More true than false	Mostly true	True	Definitely true
1	2	3	4	5	6	7	8

7. I hate studying for many academic subjects.

Definitely False	False	Mostly false	More false than true	More true than false	Mostly true	True	Definitely true
1	2	3	4	5	6	7	8

8. Overall, I lack self-confidence.

Definitely False	False	Mostly false	More false than true	More true than false	Mostly true	True	Definitely true
1	2	3	4	5	6	7	8

9. I have generally done better in mathematics courses than other courses.

Definitely False	False	Mostly false	More false than true	More true than false	Mostly true	True	Definitely true
1	2	3	4	5	6	7	8

10. I have a poor vocabulary.

Definitely False	False	Mostly false	More false than true	More true than false	Mostly true	True	Definitely true
1	2	3	4	5	6	7	8

Appendix A3 - Marsh Global and Academic Self-esteem Subscales

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11. I like most academic subjects.

Definitely False	False	Mostly false	More false than true	More true than false	Mostly true	True	Definitely true
1_____	2_____	3_____	4_____	5_____	6_____	7_____	8_____

12. Overall, I am pretty accepting of myself.

Definitely False	False	Mostly false	More false than true	More true than false	Mostly true	True	Definitely true
1_____	2_____	3_____	4_____	5_____	6_____	7_____	8_____

13. Mathematics makes me feel inadequate.

Definitely False	False	Mostly false	More false than true	More true than false	Mostly true	True	Definitely true
1_____	2_____	3_____	4_____	5_____	6_____	7_____	8_____

14. I am an avid reader.

Definitely False	False	Mostly false	More false than true	More true than false	Mostly true	True	Definitely true
1_____	2_____	3_____	4_____	5_____	6_____	7_____	8_____

15. I have trouble with most academic subjects.

Definitely False	False	Mostly false	More false than true	More true than false	Mostly true	True	Definitely true
1_____	2_____	3_____	4_____	5_____	6_____	7_____	8_____

16. Overall, I don't have much respect for myself.

Definitely False	False	Mostly false	More false than true	More true than false	Mostly true	True	Definitely true
1_____	2_____	3_____	4_____	5_____	6_____	7_____	8_____



*Appendix A3 - Marsh Global and Academic Self-esteem Subscales*

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17. I am quite good at mathematics.

Definitely False	False	Mostly false	More false than true	More true than false	Mostly true	True	Definitely true
1_____	2_____	3_____	4_____	5_____	6_____	7_____	8_____

18. I do not do well on tests that require a lot of verbal reasoning ability.

Definitely False	False	Mostly false	More false than true	More true than false	Mostly true	True	Definitely true
1_____	2_____	3_____	4_____	5_____	6_____	7_____	8_____

19. I'm good at most academic subjects.

Definitely False	False	Mostly false	More false than true	More true than false	Mostly true	True	Definitely true
1_____	2_____	3_____	4_____	5_____	6_____	7_____	8_____

20. Overall I have a lot of self-confidence.

Definitely False	False	Mostly false	More false than true	More true than false	Mostly true	True	Definitely true
1_____	2_____	3_____	4_____	5_____	6_____	7_____	8_____

21. I have trouble understanding anything that is based on mathematics.

Definitely False	False	Mostly false	More false than true	More true than false	Mostly true	True	Definitely true
1_____	2_____	3_____	4_____	5_____	6_____	7_____	8_____

22. Relative to most people, my verbal skills are quite good.

Definitely False	False	Mostly false	More false than true	More true than false	Mostly true	True	Definitely true
1_____	2_____	3_____	4_____	5_____	6_____	7_____	8_____

*Appendix A3 - Marsh Global and Academic Self-esteem Subscales*

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23. I'm not particularly interested in most academic subjects.

Definitely False	False	Mostly false	More false than true	More true than false	Mostly true	True	Definitely true
1	2	3	4	5	6	7	8

24. Overall, I have a very good self-concept.

Definitely False	False	Mostly false	More false than true	More true than false	Mostly true	True	Definitely true
1	2	3	4	5	6	7	8

25. I have always done well in mathematics classes.

Definitely False	False	Mostly false	More false than true	More true than false	Mostly true	True	Definitely true
1	2	3	4	5	6	7	8

26. I often have to read things several times before I understand them.

Definitely False	False	Mostly false	More false than true	More true than false	Mostly true	True	Definitely true
1	2	3	4	5	6	7	8

27. I learn quickly in most academic subjects.

Definitely False	False	Mostly false	More false than true	More true than false	Mostly true	True	Definitely true
1	2	3	4	5	6	7	8

28. Overall, nothing that I do is very important.

Definitely False	False	Mostly false	More false than true	More true than false	Mostly true	True	Definitely true
1	2	3	4	5	6	7	8

*Appendix A3 - Marsh Global and Academic Self-esteem Subscales*

29. I never do well on tests that require mathematical reasoning.

Definitely False	False	Mostly false	More false than true	More true than false	Mostly true	True	Definitely true
1_____	2_____	3_____	4_____	5_____	6_____	7_____	8_____

30. I am good at expressing myself.

Definitely False	False	Mostly false	More false than true	More true than false	Mostly true	True	Definitely true
1_____	2_____	3_____	4_____	5_____	6_____	7_____	8_____

31. I hate most academic subjects.

Definitely False	False	Mostly false	More false than true	More true than false	Mostly true	True	Definitely true
1_____	2_____	3_____	4_____	5_____	6_____	7_____	8_____

32. Overall, I have pretty positive feelings about myself.

Definitely False	False	Mostly false	More false than true	More true than false	Mostly true	True	Definitely true
1_____	2_____	3_____	4_____	5_____	6_____	7_____	8_____

33. At school, my friends always came to me for help in mathematics.

Definitely False	False	Mostly false	More false than true	More true than false	Mostly true	True	Definitely true
1_____	2_____	3_____	4_____	5_____	6_____	7_____	8_____

34. Overall, I have a pretty poor self-concept.

Definitely False	False	Mostly false	More false than true	More true than false	Mostly true	True	Definitely true
1_____	2_____	3_____	4_____	5_____	6_____	7_____	8_____

Appendix A3 - Marsh Global and Academic Self-esteem Subscales

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35. In school I had more trouble learning to read than most other students.

Definitely False	False	Mostly false	More false than true	More true than false	Mostly true	True	Definitely true
1_____	2_____	3_____	4_____	5_____	6_____	7_____	8_____

36. I get good marks in most academic subjects.

Definitely False	False	Mostly false	More false than true	More true than false	Mostly true	True	Definitely true
1_____	2_____	3_____	4_____	5_____	6_____	7_____	8_____

37. Overall, I have pretty negative feelings about myself.

Definitely False	False	Mostly false	More false than true	More true than false	Mostly true	True	Definitely true
1_____	2_____	3_____	4_____	5_____	6_____	7_____	8_____

38. I have never been very excited about mathematics.

Definitely False	False	Mostly false	More false than true	More true than false	Mostly true	True	Definitely true
1_____	2_____	3_____	4_____	5_____	6_____	7_____	8_____

39. I have good reading comprehension.

Definitely False	False	Mostly false	More false than true	More true than false	Mostly true	True	Definitely true
1_____	2_____	3_____	4_____	5_____	6_____	7_____	8_____

40. Overall, I do lots of things that are important.

Definitely False	False	Mostly false	More false than true	More true than false	Mostly true	True	Definitely true
1_____	2_____	3_____	4_____	5_____	6_____	7_____	8_____

*Appendix A3 - Marsh Global and Academic Self-esteem Subscales*

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41. I could never achieve academic honours, even if I worked harder.

Definitely False	False	Mostly false	More false than true	More true than false	Mostly true	True	Definitely true
1_____	2_____	3_____	4_____	5_____	6_____	7_____	8_____

42. Overall, I am not very accepting of myself.

Definitely False	False	Mostly false	More false than true	More true than false	Mostly true	True	Definitely true
1_____	2_____	3_____	4_____	5_____	6_____	7_____	8_____

### Appendix A3 - Attitude Towards Self Scale

Read each of the following statements and consider how true each one is according to the scale beneath each of the items. By referring to the scale below each item, circle the number that corresponds to your choice.

1. Noticing one fault in myself makes me think about other faults I have.

**extremely untrue**

extremely true

1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5 \_\_\_\_\_ 6 \_\_\_\_\_

2. It would be hard for anyone to do as well as I want myself to do.

**extremely untrue**

**extremely true**

1                      2                      3                      4                      5                      6

3. Though I take it in my stride when things go well, I react strongly if I think I am doing badly.

**extremely untrue**

**extremely true**

1 2 3 4 5 6

4. When even one thing goes wrong I begin to feel badly and wonder if I can do well at anything at all.

**extremely untrue**

extremely true

1 2 3 4 5 6

5. I am not satisfied with anything less than what I expect from myself.

**extremely untrue**

**extremely true**

1                      2                      3                      4                      5                      6

6. How I feel about myself overall is easily influenced by a single mistake.

**extremely untrue**

**extremely true**

1                      2                      3                      4                      5                      6

### Appendix A3 - Attitude Towards Self Scale

7. Other people think I expect a lot from myself.

**extremely untrue**                      **extremely true**

1          2          3          4          5          6

8. The standards I set for myself are higher than the standards other people seem to set for themselves.

**extremely untrue**                      **extremely true**

1          2          3          4          5          6

9. I expect a lot from myself.

**extremely untrue**                      **extremely true**

1          2          3          4          5          6

10. When I don't do as well as I hoped to, I often get upset at myself.

**extremely untrue**                      **extremely true**

1          2          3          4          5          6

11. I am a perfectionist in setting my goals.

**extremely untrue**                      **extremely true**

1          2          3          4          5          6

12. The things about myself that other people like and respect are unimportant to me when I feel down.

**extremely untrue**                      **extremely true**

1            2            3            4            5            6





*Appendix A3 - Fear of Negative Evaluation Scale*

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Read each of the statements below carefully. By referring to the scale below each item, circle the number that corresponds to your choice.

1. I worry about what other people think of me even when I know it won't make any difference.

1_____	2_____	3_____	4_____	5_____
Not at all characteristic of me	Slightly characteristic of me	Moderately characteristic of me	Very characteristic of me	Extremely characteristic of me

2. I am unconcerned even if I know people are forming an unfavourable impression of me.

1_____	2_____	3_____	4_____	5_____
Not at all characteristic of me	Slightly characteristic of me	Moderately characteristic of me	Very characteristic of me	Extremely characteristic of me

3. I am frequently afraid of other people noticing my shortcomings.

1_____	2_____	3_____	4_____	5_____
Not at all characteristic of me	Slightly characteristic of me	Moderately characteristic of me	Very characteristic of me	Extremely characteristic of me

4. I rarely worry about what kind of impression I am making on someone.

1_____	2_____	3_____	4_____	5_____
Not at all characteristic of me	Slightly characteristic of me	Moderately characteristic of me	Very characteristic of me	Extremely characteristic of me

Appendix A3 - Fear of Negative Evaluation Scale

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5. I am afraid that others will not approve of me.

1	2	3	4	5
Not at all characteristic of me	Slightly characteristic of me	Moderately characteristic of me	Very characteristic of me	Extremely characteristic of me

6. I am afraid that other people will find fault with me.

1	2	3	4	5
Not at all characteristic of me	Slightly characteristic of me	Moderately characteristic of me	Very characteristic of me	Extremely characteristic of me

7. Other people's opinions of me do not bother me.

1	2	3	4	5
Not at all characteristic of me	Slightly characteristic of me	Moderately characteristic of me	Very characteristic of me	Extremely characteristic of me

8. When I am talking to someone, I worry about what they may be thinking about me.

1	2	3	4	5
Not at all characteristic of me	Slightly characteristic of me	Moderately characteristic of me	Very characteristic of me	Extremely characteristic of me

9. I am usually worried about what kind of impression I make.

1	2	3	4	5
Not at all characteristic of me	Slightly characteristic of me	Moderately characteristic of me	Very characteristic of me	Extremely characteristic of me

*Appendix A3 - Fear of Negative Evaluation Scale*

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10. If I know someone is judging me, it has little effect on me.

1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5

Not at all characteristic of me	Slightly characteristic of me	Moderately characteristic of me	Very characteristic of me	Extremely characteristic of me
---------------------------------------	-------------------------------------	---------------------------------------	---------------------------------	--------------------------------------

11. Sometimes I think I am too concerned with what other people think of me.

1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5

Not at all characteristic of me	Slightly characteristic of me	Moderately characteristic of me	Very characteristic of me	Extremely characteristic of me
---------------------------------------	-------------------------------------	---------------------------------------	---------------------------------	--------------------------------------

12. I often worry that I will say or do the wrong things.

1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5

Not at all characteristic of me	Slightly characteristic of me	Moderately characteristic of me	Very characteristic of me	Extremely characteristic of me
---------------------------------------	-------------------------------------	---------------------------------------	---------------------------------	--------------------------------------

### Appendix A3 - Sarason Test Anxiety Scale

Read each of the statements below carefully. By referring to the scale below each item, circle the number which corresponds to your choice.

1. While taking an important exam I find myself thinking how much brighter other students are than I am.

1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5  
Extremely False Unsure True Extremely  
false true

2. If I were to take an intelligence test, I would worry a great deal before taking it.

[illegible]

3. If I knew I was going to take an intelligence test, I would feel confident and relaxed, beforehand.

1 2 3 4 5  
Extremely False Unsure True Extremely  
false true

4. When I take an important examination, I perspire a great deal.

1 2 3 4 5  
Extremely False Unsure True Extremely  
false true

5. During examinations I find myself thinking of things unrelated to the actual course material.

1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5  
Extremely False Unsure True Extremely  
false true

### Appendix A3 - Sarason Test Anxiety Scale

6. I get very panicky when I have to take an exam.

1 2 3 4 5  
Extremely False Unsure True Extremely  
false true

7. During tests I find myself thinking of the consequences of failing.

1 2 3 4 5  
Extremely False Unsure True Extremely  
false true

8. After important tests I am frequently so tense my stomach gets upset.

1 2 3 4 5  
Extremely False Unsure True Extremely  
false true

9. I freeze up on things like intelligence tests and final examinations.

1 2 3 4 5  
Extremely False Unsure True Extremely  
false true

10. Getting a good mark on one test doesn't seem to increase my confidence in getting a good mark on the second.

1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5  
Extremely False Unsure True Extremely  
false true

11. I sometimes feel my heart beating very fast during important tests.

1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5  
Extremely False Unsure True Extremely  
false true

*Appendix A3 - Sarason Test Anxiety Scale*

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12. After taking a test I always feel I could have done better than I actually did.

1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5 \_\_\_\_\_  
Extremely False Unsure True Extremely  
false true

13. I usually get depressed after taking a test.

1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5 \_\_\_\_\_  
Extremely False Unsure True Extremely  
false true

14. I have an uneasy, upset feeling before taking an examination.

1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5 \_\_\_\_\_  
Extremely False Unsure True Extremely  
false true

15. When taking a test my emotional feelings do not interfere with my performance.

1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5 \_\_\_\_\_  
Extremely False Unsure True Extremely  
false true

16. During a course examination I frequently get so nervous that I forget facts I already know.

1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5 \_\_\_\_\_  
Extremely False Unsure True Extremely  
false true

17. I seem to defeat myself while working on important tests.

1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5 \_\_\_\_\_  
Extremely False Unsure True Extremely  
false true

*Appendix A3 - Sarason Test Anxiety Scale*

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18. The harder I work at taking a test or studying for one, the more confused I get.

1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5  
Extremely False Unsure True Extremely  
false true

19. As soon as an exam is over I try to stop worrying about it, but I just can't.

1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5  
Extremely False Unsure True Extremely  
false true

20. During exams I sometimes wonder if I'll ever get through.

1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5  
Extremely False Unsure True Extremely  
false true

21. I would rather write a paper than take an examination for my grade in a course.

1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5  
Extremely False Unsure True Extremely  
false true

22. I wish examinations did not bother me so much.

1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5  
Extremely False Unsure True Extremely  
false true

23. I think I could do much better on tests if I could take them alone and not feel pressured by a time limit.

1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5  
Extremely False Unsure True Extremely  
false true

*Appendix A3 - Sarason Test Anxiety Scale*

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24. Thinking about the grade I may get for a subject interferes with my studying and my performance on tests.

1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5  
 Extremely False Unsure True Extremely  
 false true

25. If examinations could be done away with I think I would actually learn more.

1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5  
 Extremely False Unsure True Extremely  
 false true

26. On exams I take the attitude "If I don't know it now there's no point worrying about it".

1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5  
 Extremely False Unsure True Extremely  
 false true

27. I really don't see why some people get so upset about tests.

1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5  
 Extremely False Unsure True Extremely  
 false true

28. Thoughts of doing poorly interfere with my performance on tests.

1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5  
 Extremely False Unsure True Extremely  
 false true

29. I don't study any harder for final exams than for the rest of my course work.

1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5  
 Extremely False Unsure True Extremely  
 false true



1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5  
Extremely False Unsure True Extremely  
false true

1 2 3 4 5  
Extremely False Unsure True Extremely  
false true

1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5  
Extremely False Unsure True Extremely  
false true

1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5  
Extremely False Unsure True Extremely  
false true

1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5  
Extremely False Unsure True Extremely  
false true

1 2 3 4 5  
Extremely False Unsure True Extremely  
false true

*Appendix A3 - Sarason Test Anxiety Scale*

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36. I start feeling very uneasy just before getting a test paper back.

1\_\_\_\_\_2\_\_\_\_\_3\_\_\_\_\_4\_\_\_\_\_5  
Extremely False Unsure True Extremely  
false true

37. I dread subjects where the lecturer has the habit of giving tests without notice.

1\_\_\_\_\_2\_\_\_\_\_3\_\_\_\_\_4\_\_\_\_\_5  
Extremely False Unsure True Extremely  
false true

*Appendix A3 - Strube (1986) Self-handicapping Scale*

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Read each of the statements carefully. By referring to the scale below each item, circle the number which corresponds to your choice.

1. I tend to make excuses when I do something wrong.

1	2	3	4	5	6
Disagree very much	Disagree pretty much	Disagree a little	Agree a little	Agree pretty much	Agree very much

2. I tend to put things off until the last moment.

1	2	3	4	5	6
Disagree very much	Disagree pretty much	Disagree a little	Agree a little	Agree pretty much	Agree very much

3. I suppose I feel "under the weather" more often than most people.

1	2	3	4	5	6
Disagree very much	Disagree pretty much	Disagree a little	Agree a little	Agree pretty much	Agree very much

4. I always try to do my best, no matter what.

1	2	3	4	5	6
Disagree very much	Disagree pretty much	Disagree a little	Agree a little	Agree pretty much	Agree very much

5. I am easily distracted by noises or by my own daydreaming when I am trying to read.

1	2	3	4	5	6
Disagree very much	Disagree pretty much	Disagree a little	Agree a little	Agree pretty much	Agree very much

*Appendix A3 - Strube (1986) Self-handicapping Scale*

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6. I try not to get too involved in competitive activities so it won't hurt too much if I do poorly.

1	2	3	4	5	6
Disagree very much	Disagree pretty much	Disagree a little	Agree a little	Agree pretty much	Agree very much

7. I would do a lot better if I tried harder.

1	2	3	4	5	6
Disagree very much	Disagree pretty much	Disagree a little	Agree a little	Agree pretty much	Agree very much

8. I sometimes enjoy being mildly ill for a day or two.

1	2	3	4	5	6
Disagree very much	Disagree pretty much	Disagree a little	Agree a little	Agree pretty much	Agree very much

9. I tend to rationalise when I don't live up to others' expectations.

1	2	3	4	5	6
Disagree very much	Disagree pretty much	Disagree a little	Agree a little	Agree pretty much	Agree very much

10. I overindulge in food and drink more often than I should.

1	2	3	4	5	6
Disagree very much	Disagree pretty much	Disagree a little	Agree a little	Agree pretty much	Agree very much

*Appendix A3 - Global Self-esteem Certainty*

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This scale asks two things of you. First, please read each of the statements below and indicate your agreement or disagreement by circling 'Like me' or 'Unlike me'. Then complete the question immediately below each item which asks you how sure you are of your response.

1. Overall, I have a lot of respect for myself.      Unlike me    Like me    (Circle)

*How certain are you of your response to the above item? Indicate your degree of certainty by circling one of the numbers 1 to 5 on the scale below.*

Not at all Certain					Very Certain
1	2	3	4		5

2. Overall, I lack self-confidence.      Unlike me    Like me    (Circle)

*How certain are you of your response to the above item? Indicate your degree of certainty by circling one of the numbers 1 to 5 on the scale below.*

Not at all Certain					Very Certain
1	2	3	4		5

3. Overall, I am pretty accepting of myself.      Unlike me    Like me    (Circle)

*How certain are you of your response to the above item? Indicate your degree of certainty by circling one of the numbers 1 to 5 on the scale below.*

Not at all Certain					Very Certain
1	2	3	4		5

4. Overall, I don't have much respect for myself.      Unlike me    Like me    (Circle)

*How certain are you of your response to the above item? Indicate your degree of certainty by circling one of the numbers 1 to 5 on the scale below.*

Not at all Certain					Very Certain
1	2	3	4		5

Appendix A3 - Global Self-esteem Certainty

5. Overall I have a lot of self-confidence.      Unlike me    Like me    (Circle)

*How certain are you of your response to the above item? Indicate your degree of certainty by circling one of the numbers 1 to 5 on the scale below.*

Not at all Certain					Very Certain
1	2	3	4		5

6. Overall, I have a very good self-concept.      Unlike me    Like me    (Circle)

*How certain are you of your response to the above item? Indicate your degree of certainty by circling one of the numbers 1 to 5 on the scale below.*

Not at all Certain					Very Certain
1	2	3	4		5

7. Overall, nothing that I do is very important.    Unlike me    Like me    (Circle)

*How certain are you of your response to the above item? Indicate your degree of certainty by circling one of the numbers 1 to 5 on the scale below.*

Not at all Certain					Very Certain
1	2	3	4		5

8. Overall, I have pretty positive feelings about myself.      Unlike me    Like me    (Circle)

*How certain are you of your response to the above item? Indicate your degree of certainty by circling one of the numbers 1 to 5 on the scale below.*

Not at all Certain					Very Certain
1	2	3	4		5

Appendix A3 - Global Self-esteem Certainty

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9. Overall, I have a pretty poor self-concept.      Unlike me    Like me    (Circle)

*How certain are you of your response to the above item? Indicate your degree of certainty by circling one of the numbers 1 to 5 on the scale below.*

Not at all Certain					Very Certain
1	2	3	4	5	

10. Overall, I have pretty negative feelings about myself.      Unlike me    Like me    (Circle)

*How certain are you of your response to the above item? Indicate your degree of certainty by circling one of the numbers 1 to 5 on the scale below.*

Not at all Certain					Very Certain
1	2	3	4	5	

11. Overall, I do lots of things that are important.      Unlike me    Like me    (Circle)

*How certain are you of your response to the above item? Indicate your degree of certainty by circling one of the numbers 1 to 5 on the scale below.*

Not at all Certain					Very Certain
1	2	3	4	5	

12. Overall, I am not very accepting of myself.      Unlike me    Like me    (Circle)

*How certain are you of your response to the above item? Indicate your degree of certainty by circling one of the numbers 1 to 5 on the scale below.*

Not at all Certain					Very Certain
1	2	3	4	5	

## 4-Day Diary Record

Thankyou very much for your cooperation with my research. The task here is very simple.

There is just the one scale to be completed on two occasions each day, once in the morning (as close as you can manage to 10 a.m.), and once in the evening (as close as you can manage to 10 p.m.) time on 4 consecutive days. Its probably best to complete the forms on weekdays, unless this is very difficult.

Please make sure, however, that they are consecutive days. You may be tempted to look back over your previous answers with successive completions of the scale. It is best that you refrain from doing this however. Try if you can to bring a fresh approach to the scale on each occasion that you complete it, without referring back to your responses on previous occasions.

To enable your responses to remain anonymous whilst scoring, please identify yourself by giving the first letter of your Christian name, the first two letters of your surname and finally, the day in the month you were born e.g.:

TTh 4 for Ted Thompson (my name), & '4' for a birthday on the fourth of a month. Please identify yourself in this manner in the space below, and indicate your sex (M or F).

Sex (M, F)

Age (yrs. & mo.)



Day 1 (Morning)

Please enter date: ..... Please enter time of day: .....

Please read each of the statements below, and indicate the extent of your agreement/disagreement by circling one of the numbers 1 to 9. Respond to each statement on the basis of how you feel right now. Do not refer back to the previous scales to compare your responses.

1. I find many mathematical problems interesting and challenging.

Strongly Agree  
1 2 3 4 5 6 7 8 9  
Strongly Disagree
2. I have trouble expressing myself when trying to write something.

Strongly Agree  
1 2 3 4 5 6 7 8 9  
Strongly Disagree
3. I enjoy doing work for most academic subjects.

Strongly Agree  
1 2 3 4 5 6 7 8 9  
Strongly Disagree
4. I have hesitated to take courses that involve mathematics.

Strongly Agree  
1 2 3 4 5 6 7 8 9  
Strongly Disagree
5. I can write effectively.

Strongly Agree  
1 2 3 4 5 6 7 8 9  
Strongly Disagree
6. I hate studying for many academic subjects.

Strongly Agree  
1 2 3 4 5 6 7 8 9  
Strongly Disagree
7. I have generally done better in mathematics courses than other courses.

Strongly Agree  
1 2 3 4 5 6 7 8 9  
Strongly Disagree
8. I have a poor vocabulary.

Strongly Agree  
1 2 3 4 5 6 7 8 9  
Strongly Disagree
9. I like most academic subjects.

1 2 3 4 5 6 7 8 9  
Strongly Agree  
Strongly Disagree
10. Mathematics makes me feel inadequate.

1 2 3 4 5 6 7 8 9  
Strongly Agree  
Strongly Disagree

*Appendix A3 - Academic Self-esteem Stability*

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11. I am an avid reader.	Strongly Agree	1	2	3	4	5	6	7	8	9	Strongly Disagree
12. I have trouble with most academic subjects.	Strongly Agree	1	2	3	4	5	6	7	8	9	Strongly Disagree
13. I am quite good at mathematics.	Strongly Agree	1	2	3	4	5	6	7	8	9	Strongly Disagree
14. I do not do well on tests that require a lot of verbal reasoning ability.	Strongly Agree	1	2	3	4	5	6	7	8	9	Strongly Disagree
15. I'm good at most academic subjects.	Strongly Agree	1	2	3	4	5	6	7	8	9	Strongly Disagree
16. I have trouble understanding anything that is based on mathematics.	Strongly Agree	1	2	3	4	5	6	7	8	9	Strongly Disagree
17. Relative to most people, my verbal skills are quite good.	Strongly Agree	1	2	3	4	5	6	7	8	9	Strongly Disagree
18. I'm not particularly interested in most academic subjects.	Strongly Agree	1	2	3	4	5	6	7	8	9	Strongly Disagree
19. I have always done well in mathematics classes.	Strongly Agree	1	2	3	4	5	6	7	8	9	Strongly Disagree
20. I often have to read things several times before I understand them.	Strongly Agree	1	2	3	4	5	6	7	8	9	Strongly Disagree
21. I learn quickly in most academic subjects.	Strongly Agree	1	2	3	4	5	6	7	8	9	Strongly Disagree
22. I never do well on tests that require mathematical reasoning.	Strongly Agree	1	2	3	4	5	6	7	8	9	Strongly Disagree

*Appendix A3 - Academic Self-esteem Stability*

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- |   |                   |   |   |   |   |   |   |   |   |   |                      |
|---|-------------------|---|---|---|---|---|---|---|---|---|----------------------|
| 23. I am good at expressing myself.   | Strongly<br>Agree | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Strongly<br>Disagree |
| 24. I hate most academic subjects.  | Strongly<br>Agree | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Strongly<br>Disagree |
| 25. At school, my friends always came to me for help in mathematics.        | Strongly<br>Agree | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Strongly<br>Disagree |
| 26. In school I had more trouble learning to read than most other students. | Strongly<br>Agree | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Strongly<br>Disagree |
| 27. I get good marks in most academic subjects.                             | Strongly<br>Agree | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Strongly<br>Disagree |
| 28. I have never been very excited about mathematics.                       | Strongly<br>Agree | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Strongly<br>Disagree |
| 29. I have good reading comprehension.                                      | Strongly<br>Agree | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Strongly<br>Disagree |
| 30. I could never achieve academic honours, even if I worked harder.        | Strongly<br>Agree | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Strongly<br>Disagree |

*Appendix A3 - Balanced Attributional Style Questionnaire*

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**One final measure.**

Please try to vividly imagine yourself in the situations that follow. If such a situation happened to you, what would you feel would have caused it? While events may have many causes, I would like you to pick only one - the *major* cause of the event if it happened to you. Please write this cause in the blank space provided after each event. Next I would like you to answer some questions about the *cause* and a final question about the situation.

To summarise, I would like you to:

1. Read each situation (described in **bold type**) and vividly imagine it happening to you.
2. Decide what you feel would be the major cause if it happened to you.
3. Write one cause in the blank provided.
4. Answer three questions about the cause.
5. Answer one question about the situation.
6. Go on to the next situation.

**1. You have been looking for a job unsuccessfully for some time.**

1. Write down the one major cause \_\_\_\_\_
2. Is the cause of your unsuccessful job search due to something about you or to something about other people or circumstances? (Circle one number).

totally due to other

totally due to me

people or circumstances    1   2   3   4   5   6   7

3. In the future when you are unsuccessful in searching for a job, will this cause again be present? (Circle one number).

will never again be present

1   2   3   4   5   6   7

will always be present

4. Is the cause something that just influences your being unsuccessful in searching for a job, or does it influence other areas of your life? (Circle one number)

influences just this

influences all

particular situation

1   2   3   4   5   6   7

situations in my life

*Appendix A3 - Balanced Attributional Style Questionnaire*

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5. How important would this situation be if it happened to you? (Circle one number).

not at all important	1 2 3 4 5 6 7	extremely important
-------------------------	---------------	------------------------

2. You go to a party where most people are friendly towards you.

1. Write down the one major cause \_\_\_\_\_

2. Is the cause of most people being friendly to you at the party due to something about you or due to something about other people or circumstances? (Circle one number).

totally due to other people or circumstances	1 2 3 4 5 6 7	totally due to me
---	---------------	-------------------

3. In the future when most people at a party are friendly towards you, will this cause again be present? (Circle one number).

will never again be present	1 2 3 4 5 6 7	will always be present
-----------------------------	---------------	------------------------

4. Is the cause something that just influences most people being friendly to you at a party, or does it influence other areas of your life? (Circle one number).

influences just this particular situation	1 2 3 4 5 6 7	influences all situations in my life
--	---------------	---

5. How important would this situation be if it happened to you? (Circle one number).

not at all important	1 2 3 4 5 6 7	extremely important
-------------------------	---------------	------------------------

3. You go out on a date and it all goes badly.

1. Write down the one major cause \_\_\_\_\_

2. Is the cause of the date going badly due to something about you or due to something about other people or circumstances? (Circle one number).

totally due to other people or circumstances	1 2 3 4 5 6 7	totally due to me
---	---------------	-------------------

will never again be present 1 2 3 4 5 6 7 will always be present

4. Is the cause something that just influences a date going badly for you, or does it influence other areas of your life? (Circle one number).

influences just this particular situation	1	2	3	4	5	6	7	influences all situations in my life
1. The way I feel about myself								
2. The way I feel about others								
3. The way I feel about the world								
4. The way I feel about the future								
5. The way I feel about the past								
6. The way I feel about the present								
7. The way I feel about the future								

5. How important would this situation be if it happened to you? (Circle one number).

not at all								extremely
important	1	2	3	4	5	6	7	important

**4. You start a small business and it's a success.**

1. Write down the one major cause \_\_\_\_\_

2. Is the cause of your business success due to something about you or to something about other people or circumstances? (Circle one number).

totally due to other people or circumstances      1   2   3   4   5   6   7      totally due to me

3. In the future when you have success in business, will this cause again be present?

will never again be present 1 2 3 4 5 6 7 will always be present

4. Is the cause something that just influences your success in business, or does it influence other areas of your life? (Circle one number).

influences just this particular situation	1	2	3	4	5	6	7	influences all situations in my life
1. The way I feel about myself								
2. The way I feel about others								
3. The way I feel about the world								
4. The way I feel about the future								
5. The way I feel about the past								
6. The way I feel about the present								
7. The way I feel about the future								

5. How important would this situation be if it happened to you? (Circle one number).

<b>not at all</b>								<b>extremely</b>
<b>important</b>	1	2	3	4	5	6	7	<b>important</b>

*Appendix A3 - Balanced Attributional Style Questionnaire*

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**5. Someone you know fails to invite you to a party.**

1. Write down the one major cause \_\_\_\_\_

2. Is the cause of your not being invited to the party due to something about you or something about other people or circumstances? (Circle one number).

totally due to other

totally due to me

people or circumstances    1   2   3   4   5   6   7

3. In the future when you aren't invited to a party, will this cause again be present?

will never again be present    1   2   3   4   5   6   7

will always be present

4. Is the cause something that just influences your not being invited to a party, or does it influence other areas of your life? (Circle one number).

influences just this

influences all

particular situation    1   2   3   4   5   6   7

situations in my life

5. How important would this situation be if it happened to you? (Circle one number).

not at all

extremely

important    1   2   3   4   5   6   7

important

**6. You score poorly on a final examination at school, college, or university.**

1. Write down the one major cause \_\_\_\_\_

2. Is the cause of your poor exam performance due to something about you or to something about other people or circumstances? (Circle one number).

totally due to other

totally due to me

people or circumstances    1   2   3   4   5   6   7

3. In the future when you perform poorly on an exam, will this cause again be present?

will never again be present    1   2   3   4   5   6   7

will always be present

*Appendix A3 - Balanced Attributional Style Questionnaire*

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4. Is the cause something that just influences your poor exam performance, or does it influence other areas of your life? (Circle one number).

influences just this  
particular situation

1 2 3 4 5 6 7

influences all  
situations in my life

5. How important would this situation be if it happened to you? (Circle one number).

not at all  
important

1 2 3 4 5 6 7

extremely  
important

7. You apply for a job you want badly and you get it.

1. Write down the one major cause \_\_\_\_\_

2. Is the cause of your successful job application due to something about you or to something about other people or circumstances? (Circle one number).

totally due to other  
people or circumstances

1 2 3 4 5 6 7

totally due to me

3. In the future when you are successful with a job application, will this cause again be present? (Circle one number)

will never again be present 1 2 3 4 5 6 7

will always be present

- 4 Is the cause something that just influences your success with job applications, or does it influence other areas of your life? (Circle one number).

influences just this  
particular situation

1 2 3 4 5 6 7

influences all  
situations in my life

5. How important would this situation be if it happened to you? (Circle one number).

not at all  
important

1 2 3 4 5 6 7

extremely  
important



*Appendix A3 - Balanced Attributional Style Questionnaire*

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**8. A group that you like rejects you as a member.**

1. Write down the one major cause \_\_\_\_\_

2. Is the cause of your rejection by the group due to something about you or to something about other people or circumstances? (Circle one number).

totally due to other

totally due to me

people or circumstances    1   2   3   4   5   6   7

3. In the future when you are rejected by a group, will this cause again be present? (Circle one number)

will never again be present   1   2   3   4   5   6   7

will always be present

4. Is the cause something that just influences your being rejected by a group, or does it influence other areas of your life? (Circle one number).

influences just this

influences all

particular situation        1   2   3   4   5   6   7

situations in my life

5. How important would this situation be if it happened to you? (Circle one number).

not at all

extremely

important                    1   2   3   4   5   6   7

important

**9. You do very well in a sporting competition.**

1. Write down the one major cause \_\_\_\_\_

2. Is the cause of your doing well in the sporting competition due to something about you or to something about other people or circumstances? (Circle one number).

totally due to other

totally due to me

people or circumstances    1   2   3   4   5   6   7

3. In the future when you do well in a sporting competition, will this cause again be present? (Circle one number)

will never again be present   1   2   3   4   5   6   7

will always be present

*Appendix A3 - Balanced Attributional Style Questionnaire*

---

4. Is the cause something that just influences your performance in a sporting competition, or does it influence other areas of your life? (Circle one number).

influences just this  
particular situation

1 2 3 4 5 6 7

influences all  
situations in my life

5. How important would this situation be if it happened to you? (Circle one number).

not at all  
important

1 2 3 4 5 6 7

extremely  
important

10. You go out on a date and it all goes well.

1. Write down the one major cause \_\_\_\_\_

2. Is the cause of the date going well due to something about you or to something about other people or circumstances? (Circle one number).

totally due to other  
people or circumstances

1 2 3 4 5 6 7

totally due to me

3. In the future when a date goes well, will this cause again be present? (Circle one number)

will never again be present 1 2 3 4 5 6 7

will always be present

4. Is the cause something that just influences your having a date that goes well, or does it influence other areas of your life? (Circle one number).

influences just this  
particular situation

1 2 3 4 5 6 7

influences all  
situations in my life

5. How important would this situation be if it happened to you? (Circle one number).

not at all  
important

1 2 3 4 5 6 7

extremely  
important

Appendix A3 - Balanced Attributional Style Questionnaire

---

**11. You start a small business and it's a failure.**

1. Write down the one major cause \_\_\_\_\_

2. Is the cause of the business venture failing due to something about you or to something about other people or circumstances? (Circle one number).

totally due to other		totally due to me
people or circumstances	1 2 3 4 5 6 7	

3. In the future when you have a business venture which fails, will this cause again be present? (Circle one number)

will never again be present	1 2 3 4 5 6 7	will always be present
-----------------------------	---------------	------------------------

4. Is the cause something that just influences your having a business venture which fails, or does it influence other areas of your life?  
(Circle one number).

influences just this		influences all
particular situation	1 2 3 4 5 6 7	situations in my life

5. How important would this situation be if it happened to you? (Circle one number).

not at all		extremely
important	1 2 3 4 5 6 7	important

**12. Someone you know invites you to a party.**

1. Write down the one major cause \_\_\_\_\_

2. Is the cause of your being invited to the party due to something about you or to something about other people or circumstances? (Circle one number).

totally due to other		totally due to me
people or circumstances	1 2 3 4 5 6 7	

3. In the future when you are invited to a party, will this cause again be present? (Circle one number)

will never again be present	1 2 3 4 5 6 7	will always be present
-----------------------------	---------------	------------------------

*Appendix A3 - Balanced Attributional Style Questionnaire*

---

4. Is the cause something that just influences your being invited to a party, or does it influence other areas of your life? (Circle one number).

influences just this  
particular situation

1 2 3 4 5 6 7

influences all  
situations in my life

5. How important would this situation be if it happened to you? (Circle one number).

not at all  
important

1 2 3 4 5 6 7

extremely  
important

**13. You score well in a final examination at school, college or university.**

1. Write down the one major cause \_\_\_\_\_

2. Is the cause of your good exam performance due to something about you or to something about other people or circumstances? (Circle one number).

totally due to other  
people or circumstances

1 2 3 4 5 6 7

totally due to me

3. In the future when you perform well on an exam, will this cause again be present? (Circle one number).

will never again be present 1 2 3 4 5 6 7

will always be present

4. Is the cause something that just influences your good exam performance, or does it influence other areas of your life?

influences just this  
particular situation

1 2 3 4 5 6 7

influences all  
situations in my life

5. How important would this situation be if it happened to you? (Circle one number).

not at all  
important

1 2 3 4 5 6 7

extremely  
important

*Appendix A3 - Balanced Attributional Style Questionnaire*

---

**14. You go to a party at which hardly anyone speaks to you.**

1. Write down the one major cause \_\_\_\_\_
2. Is the cause of hardly anyone speaking to you due to something about you or to something about other people or circumstances? (Circle one number).

totally due to other	1 2 3 4 5 6 7	totally due to me
people or circumstances		

3. In the future when go to a party at which hardly anyone speaks to you, will this cause again be present? (Circle one number)

will never again be present	1 2 3 4 5 6 7	will always be present
-----------------------------	---------------	------------------------

4. Is the cause something that just influences few people speaking to you at a party, or does it influence other areas of your life? (Circle one number).

influences just this	1 2 3 4 5 6 7	influences all
particular situation		situations in my life

5. How important would this situation be if it happened to you? (Circle one number).

not at all	1 2 3 4 5 6 7	extremely
important		important

**15. You do very poorly in a sporting competition.**

1. Write down the one major cause \_\_\_\_\_
2. Is the cause of your poor performance in the sporting competition due to something about you or to something about other people or circumstances? (Circle one number).

totally due to other	1 2 3 4 5 6 7	totally due to me
people or circumstances		

*Appendix A3 - Balanced Attributional Style Questionnaire*

---

3. In the future when you perform poorly in a sporting competition, will this cause again be present? (Circle one number)

will never again be present    1   2   3   4   5   6   7                      will always be present

4. Is the cause something that just influences your poor performance in a sporting competition, or does it influence other areas of your life? (Circle one number).

influences just this particular situation	1   2   3   4   5   6   7	influences all situations in my life
--	---------------------------	---

5. How important would this situation be if it happened to you? (Circle one number).

not at all important	1   2   3   4   5   6   7	extremely important
-------------------------	---------------------------	------------------------

**16. A group that you like accepts you as a member.**

1. Write down the one major cause \_\_\_\_\_

2. Is the cause of your acceptance as a member of the group due to something about you or to something about other people or circumstances? (Circle one number).

totally due to other people or circumstances	1   2   3   4   5   6   7	totally due to me
---	---------------------------	-------------------

3. In the future when you are accepted as a member of a group, will this cause again be present? (Circle one number)

will never again be present    1   2   3   4   5   6   7                      will always be present

4. Is the cause something that just influences your being accepted as a member of a group, or does it influence other areas of your life? (Circle one number).

influences just this particular situation	1   2   3   4   5   6   7	influences all situations in my life
--	---------------------------	---

*Appendix A3 - Balanced Attributional Style Questionnaire*

---

5. How important would this situation be if it happened to you? (Circle one number).

not at all										extremely
important	1	2	3	4	5	6	7			important

Appendix A4: Content Analysis Scoring Instructions for Feather & Tiggemann's (1984) B.A.S.O. (Experiment 3).

Characterological Causes:

- cause refers to some stable, relatively enduring or unmodifiable characteristic that the person was said to possess e.g.: shyness, business ability, sporting talent, qualifications, personality, athletic ability, "no fear of exams".
- global attributions such as "me", or "just me I guess", "my personality", "who I am", "what I'm like" belong within this category.

Behavioural Causes:

- cause refers to some action or variable intention of the person that influenced the event e.g.: lack of effort, study, amount of training, desire to succeed, determination, degree of motivation.
- with the above, there is generally some quantification of the quality mentioned: e.g. "lack of motivation" (although the word "motivation" alone might be interpreted as referring to a variable cause. On the other hand, a statement such as "I am a motivated person" might be interpreted as making a claim of an enduring quality and therefore would be coded as characterological).

External Causes:

- cause refers to situations or external circumstances that produced the event
- e.g. other people, luck, "the job market", "the economic situation", "work pressures", "opportunity to study" ... .

Mixed Causes:

- cause implies a mixture of attributions.
- e.g. "similar interests", "compatibility", "personality clash", "lack of communication" - these imply an action or attribute possessed (or not possessed) by both the respondent and other people.

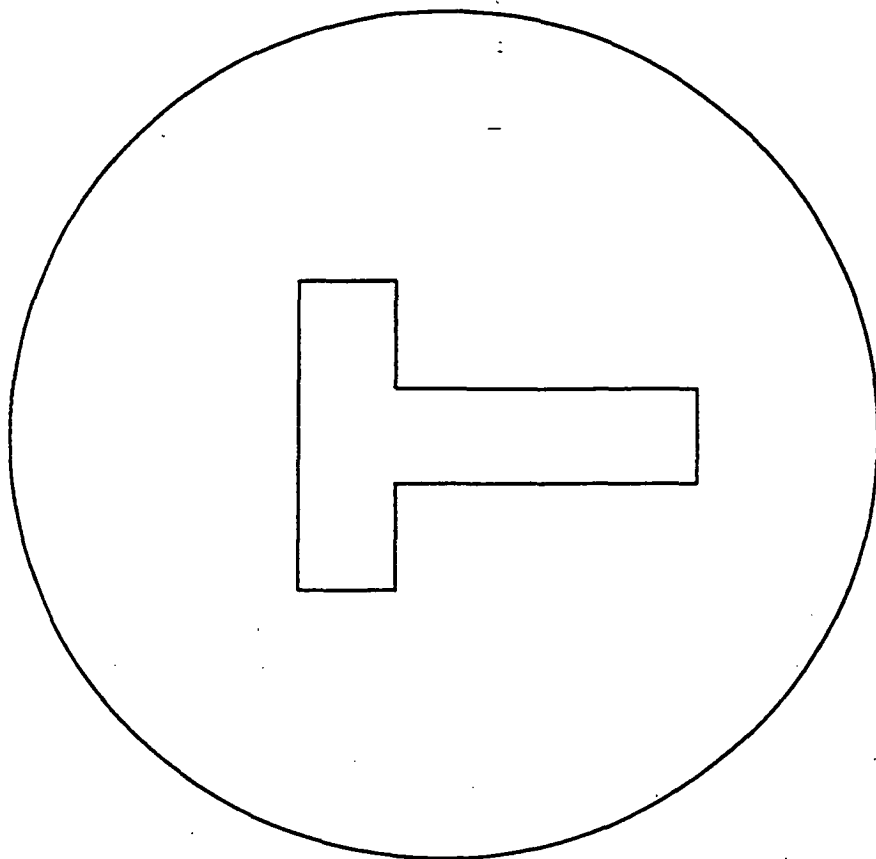
Uncoded:

- causes that cannot be assigned to the above categories are listed as codeable.

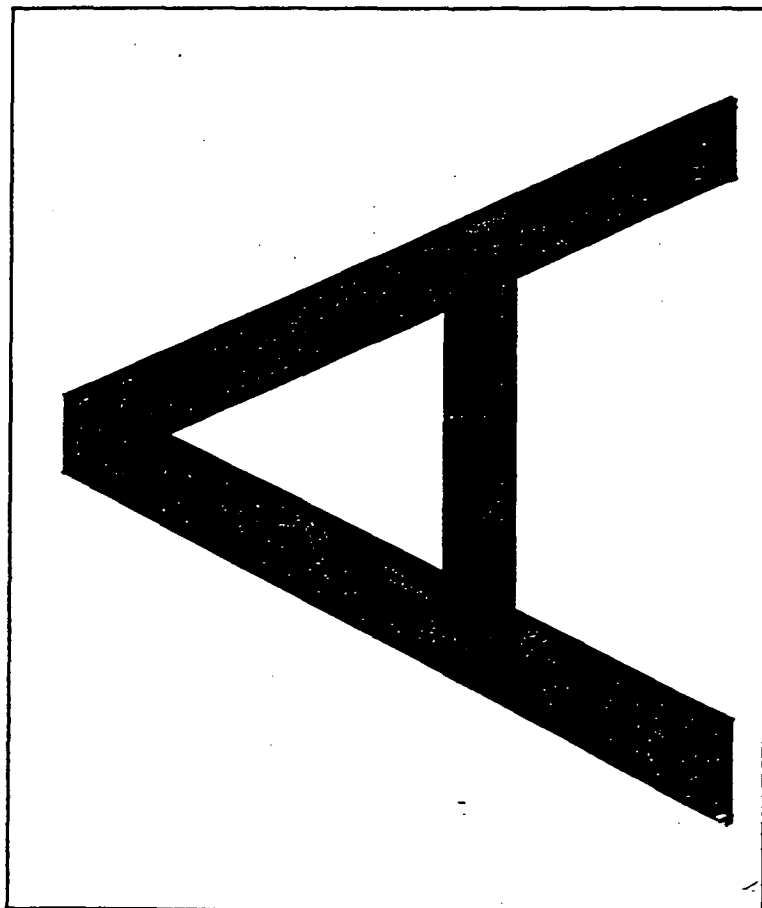


Appendix A5: Simultaneous Discrimination Task (Experiments 4 and 5).

2



1



Appendix A6: Twenty Single Solution Anagrams (Experiment 4)

JUDGE

CLIMB

BEACH

UNCLE

WATER

POWER

HAVOC

FLING

CLOTH

BATCH

APRON

TRAIN

FAULT

POUND

PAUSE

FLIRT

GIANT

BIRTH

TONIC

GROIN

## Appendix A7: Instructions to Subjects (Experiments 4 and 5).

### A. Cover Story

#### 1. Success, failure & face-saving conditions (Experiment 4):

This experiment examines peoples' ability to discover a code or underlying principle in order to solve a problem. Something I am interested in is whether people's ability to discover one type of code is related to their ability to discover another type of code. This experiment explores this idea.

You will be asked to solve two types of problems. One is called a simultaneous discrimination task, the other involves solving a number of anagrams (scrambled words). Here's the first set of problems.

#### 2. No pre-treatment condition (Experiment 4):

This experiment examines peoples' ability to discover a code or underlying principle in order to solve a problem. You will be asked to solve a number of anagrams (scrambled words). Here are the instructions for the task.

#### 3. Success and failure conditions (Experiment 5):

The purpose of the experiment is to examine peoples' ability to discover a code or underlying principle in order to solve a problem. To this end, you will be asked to solve a number of simultaneous discrimination tasks.

### B. Instructions for the simultaneous discrimination task

In front of you is a deck of 10 cards, each with two letters of the alphabet ('A' and 'T') within either a square or circle. If you look at the figure on the right and the figure on the left you'll find that the two figures differ in a total of four ways.

One is the size of the letter: small or large. Another is the letter itself: 'A' or 'T'. A third way is the type of border: square or circle. The fourth way is whether the letter of the alphabet is black or white.

One of these eight features has been chosen as the correct answer for you to discover as the cards are turned. The answer is one of the following: black, white, small, large, circle, square, the letter 'T', or the letter 'A'.

There are four problems in all, so we go through the deck of cards four times altogether. Each time there is a different correct answer.

For example, if circle was the correct answer, then 'two' would be correct on Card One. Turn to the next card. 'One' would be correct on Card 2. Turn to the next card. 'Two' would be correct on Card 3. Turn to the next card. 'Two' would be correct on Card 4, and (turn to the next card) 'one' would be correct on Card 5, and so on. Get the idea?

For the first card, you have no idea of the answer, so you have to guess whether the answer is contained in the figure on the left or the figure on the right. What you do is to simply guess 'one' or 'two', above the figures. Thereafter when you choose 'one' or 'two' and I'll simply say "correct" or "incorrect" and offer no further feedback. From there on, its up to you to discover the correct answer by a process of elimination. Correct solution of the problem would be indicated by my saying

*Appendix A7: Instructions to Subjects*

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"correct", "correct", "correct", card after card. Are you clear on what to do?

O.K. Again let me remind you. First select 'one' or 'two' on the first card and thereafter, again simply call out 'one' or 'two' to let me know which of the two figures contains the correct answer.

As you proceed through the deck of cards, you can't turn back to the previous card to remember what you said before. You have four seconds to make a decision on each card. Let's start.

C. Experimenter feedback

1. Success condition:

**Problem 1. Answer = Black**

Card 1	1 = Correct
Card 2	1 = Correct
Card 3	1 = Correct
Card 4	2 = Correct
Card 5	2 = Correct
Card 6	2 = Correct
Card 7	1 = Correct
Card 8	2 = Correct
Card 9	2 = Correct
Card 10	1 = Correct

**Problem 2. Answer = Circle**

Card 1	2 = Correct
Card 2	1 = Correct
Card 3	2 = Correct
Card 4	2 = Correct
Card 5	1 = Correct
Card 6	1 = Correct
Card 7	1 = Correct
Card 8	2 = Correct
Card 9	1 = Correct
Card 10	2 = Correct

**Problem 3. Answer = 'T'**

Card 1	2 = Correct
Card 2	2 = Correct
Card 3	2 = Correct
Card 4	2 = Correct
Card 5	2 = Correct
Card 6	2 = Correct
Card 7	2 = Correct
Card 8	2 = Correct
Card 9	2 = Correct
Card 10	2 = Correct

**Problem 4. Answer = Large**

Card 1	1 = Correct
Card 2	2 = Correct
Card 3	2 = Correct
Card 4	2 = Correct
Card 5	1 = Correct
Card 6	2 = Correct
Card 7	1 = Correct
Card 8	1 = Correct
Card 9	2 = Correct
Card 10	1 = Correct

2. Failure condition:

- 1. CIICCIICCI
- 2. ICICCCICICI
- 3. ICICICCCICI
- 4. CCICIIICICI

D. Instructions for anagrams

1. Failure, success and NPT conditions.

Now we turn to the second set of problems. If you could leave the red cover down for the moment I will go through the instructions. In front of you is a set of anagrams (scrambled words). There are 20 anagrams in all, all of them solvable.

Note that there could be a pattern or principle by which to solve the anagrams. But that's up to you to discover. After the experiment I'll answer

any questions you may have. You are allowed a maximum of 100 seconds to solve each anagram. When you've solved the word let me know what it is.

After 100 seconds has elapsed I'll simply say "turn", indicating you are to turn to the next anagram. As I need to record the time taken to solve each anagram, please don't turn to the next card until I've had opportunity to do so.

## 2. Face-saving condition.

Now we turn to the second set of problems. If you could leave the red cover down for the moment I will go through the instructions.

Before we start, I should say that with the task you have just completed, not being able to turn back to the previous cards to remember what you said before makes it extremely difficult to solve the discrimination task. You need to remember back two or three cards to solve the problem.

For this reason, you should not take your performance on the previous set of problems as a reflection of your ability in any sense. Also, figuring out the principle that enables you to solve the anagrams which follow can be made difficult as a result of this. Either way then, you shouldn't take it as a reflection on your ability if you don't do very well.

Now to the second set of problems. In front of you is a set of anagrams (scrambled words). There are 20 anagrams in all, all of them solvable.

Note that there could be a pattern or principle by which to solve the anagrams, but that's up to you to discover.

After the experiment I'll answer any questions you may have. You are allowed a maximum of 100 seconds to solve each anagram. When you've solved the word let me know what it is.

After 100 seconds has elapsed I'll simply say "turn", indicating you are to turn to the next anagram. As I need to record the time taken to solve each anagram, please don't turn to the next card until I've had opportunity to do so.

### Appendix A8: Performance Manipulation Check (Experiment 5)

You are now asked some questions concerning your performance on the task you have just completed.

1. How well did you perform in the task you have just completed?

Way below  
Average

Way above  
Average

1      2      3      4      5      6      7

2. How happy are you about your performance?

Very unhappy  
about my  
performance

Very happy  
about my  
performance

1      2      3      4      5      6      7

3. Do you consider your performance to have been:

A total  
failure

A total  
success

1      2      3      4      5      6      7



### Appendix A9: Russell Causal Dimensions Scale (Experiment 5).

Please try to think of one major cause for your performance on the previous set of anagrams. Write this cause in the space below:

One major cause: \_\_\_\_\_

Now think about the reason or reasons you have written above. The items below concern your impressions or opinions of this cause or causes of your outcome. Circle one number for each of the following scales.

1. Is the cause(s) something that:

Reflects an aspect of yourself	1	2	3	4	5	6	7	8	9	Reflects an aspect of the situation
--------------------------------	---	---	---	---	---	---	---	---	---	-------------------------------------

2. Is the cause(s):

Controllable by you or other people	1	2	3	4	5	6	7	8	9	Uncontrollable by you or other people
-------------------------------------	---	---	---	---	---	---	---	---	---	---------------------------------------

3. Is the cause(s) something that is:

Permanent	1	2	3	4	5	6	7	8	9	Temporary
-----------	---	---	---	---	---	---	---	---	---	-----------

4. Is the cause(s) something:

Intended by you or other people	1	2	3	4	5	6	7	8	9	Unintended by you or other people
---------------------------------	---	---	---	---	---	---	---	---	---	-----------------------------------

5. Is the cause(s) something that is:

Outside of you	1	2	3	4	5	6	7	8	9	Inside of you
----------------	---	---	---	---	---	---	---	---	---	---------------

6. Is the cause(s) something that is:

Variable time	1	2	3	4	5	6	7	8	9	Stable over over time
---------------	---	---	---	---	---	---	---	---	---	-----------------------

Appendix A8: Russell Causal Dimensions Scale

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7. Is the cause(s):

Something about you	1	2	3	4	5	6	7	8	9	Something about others
------------------------	---	---	---	---	---	---	---	---	---	---------------------------

8. Is the cause(s) something that is:

Changeable	1	2	3	4	5	6	7	8	9	Unchanging
------------	---	---	---	---	---	---	---	---	---	------------

9. Is the cause(s) something for which:

No one is responsible	1	2	3	4	5	6	7	8	9	Someone is responsible
--------------------------	---	---	---	---	---	---	---	---	---	---------------------------

Appendix B1: Thompson, T. (1993) Remote Associate Problems in  
Performance Feedback Paradigms. Personality and Individual Differences,  
14, 7-11.

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## REMOTE ASSOCIATE PROBLEM SETS IN PERFORMANCE FEEDBACK PARADIGMS

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(Received 17 April 1992)

**Summary**—Normative data in the form of solution rates was collected for 130 remote associate problems for both undergraduate university students ( $N = 156$ ), and senior secondary students ( $N = 156$ ) in Tasmania, Australia, in order to construct multiple, including parallel sets for use in performance feedback paradigms. Items were separately vetted for each sample in terms of their discriminating power. A single list of  $N = 78$  items was generated for each of the samples with the relative easiness of items across samples highly intercorrelated ( $r = 0.947$ ). From this pool of items three parallel sets, a difficult (failure) set, and one easy (practice) set of problems were generated, each comprised of  $N = 15$  items. A number of properties of remote associates were suggested which recommend their use in performance feedback paradigms.

All too frequently, performance feedback studies rely on illusory feedback as a means of manipulating subsequent performance (Baumeister & Tice, 1985; Craske, 1985, 1988; McFarlin & Blascovich, 1981; McNicoll, Annamunthodo, McCarrey & Kamal, 1985; Snyder, Smoller & Strenta, 1981; Tang, Lui & Vermillion, 1987). Many such studies employ anagrams and involve deception in the use of unsolvable problems. A number of problems associated with deception have been documented, not the least of which is the effect of *Ss'* suspicions and resultant risks to external validity (Smith, 1983).

Remote associate problems have been suggested by McFarlin and Blascovich (1984) as an alternative to the 'heavy deception' involved in many performance feedback studies, suggesting that where the manipulation of performance is necessary, it should be operationalized in such a way as to minimize deception. Remote associates, they claim, allow one to manipulate performance in such a way as to enable feedback which is 'veridical, credible, and impactful' (p. 228).

To date, however, there have been no attempts to generate normative data for a sufficient number of remote associates to allow the construction of multiple, including parallel sets. McFarlin and Blascovich (1984) report investigations with 30 remote associates, rated 'difficult', 'moderately difficult' or 'easy' on the basis of *Ss'* report, while the original Remote Associates Test (RAT) developed by Mednick (1962) likewise contained 30 items, these ungraded in terms of level of difficulty.

The present study thus undertook to establish normative data allowing the construction of multiple, including parallel sets and thereby, the manipulation of difficulty levels free from the illusory performance feedback involved in studies such as those cited above.

### METHOD

A total of 130 remote associate items developed by the author were normed on two samples: one, a sample of 156 university students enrolled in a variety of courses at the Launceston campus of the University of Tasmania, the other, 156 senior secondary students enrolled in senior secondary colleges within the same state.

*Ss* were presented with a number of practice examples before beginning the test sample of problems. No time limit was imposed, although *Ss* were instructed to work quickly, spending only 15 sec or so on each problem before moving on to the next.

The order of presentation of the remote associates to each *S* was randomized as a control for fatigue and practice effects. No student had previously encountered remote associates problems.

## Appendix B1: Thompson, T. (1993) P.A.I.D. Article

12

TED THOMPSON

## RESULTS AND DISCUSSION

The relative easiness of items was calculated as the proportion of *Ss* giving the correct response. Items with poor discriminating power were discarded in the manner outlined by Keats (1971). *Ss* in the upper and lower scoring 30% were separated from the middle 40%. A chi-square analysis was used to identify those items which did not adequately discriminate between upper and lower scoring groups. Items with phi-coefficients which failed to achieve a recommended 1% level of

Table 1. Remote associate sets for college and university samples

University		College	
UNI Set A		COLL Set A	
Twinkle-Celebrity-Bethlehem	Star	Dunes-Castle-Beach	Sand
Go-Grass-Irish	Green	Keel-Sail-Row	Boat
Scissors-Incision-Meat	Cut	Rose-Blood-Anger	Red
Screen-Tan-Light	Sun	Twinkle-Celebrity-Bethlehem	Star
Sky-Ocean-Mood	Blue	Go-Grass-Irish	Green
Bullion-Braid-Medal	Gold	Bees-Comb-Moon	Honey
Bees-Comb-Moon	Honey	Bullion-Braid-Medal	Gold
Worm-End-Shop	Book	Board-Magic-Death	Black
Board-Magic-Death	Black	Worm-End-Shop	Book
Nap-Call-Black	Cat	Nap-Call-Black	Cat
Sick-Swell-Mist	Sea	Brow-Glass-Level	Eye
Sign-Jam-Flow	Traffic	Sign-Jam-Flow	Traffic
Wedding-Telephone-Conspiracy	Ring	Light-Main-Sweeper	Street
Light-Main-Sweeper	Street	Wedding-Telephone-Conspiracy	Ring
Whisky-Tape-Thistle	Scotch	Bass-Complex-Sleep	Deep
UNI Set B		COLL Set B	
Stuff-Coffee-Tropics	Hot	Bark-Beware-Kennel	Dog
Door-Church-Ring	Bell	Stuff-Coffee-Tropics	Hot
Cough-Fire-Cigarette	Smoke	Sugar-Sixteen-Heart	Sweet
Sky-Sad-Ocean	Blue	Cough-Fire-Cigarette	Smoke
News-Plate-Clip	Paper	Screen-Burnt-Stroke	Sun
Sea-Home-Stomach	Sick	News-Plate-Clip	Paper
Athletes-Web-Rabbit	Foot	Sky-Sad-Ocean	Blue
Picture-Window-Door	Frame	Athletes-Web-Rabbit	Foot
Surprise-Line-Birthday	Party	Door-Church-Ring	Bell
Daffodil-Fever-Peril	Yellow	Picture-Window-Door	Frame
Unbroken-Gramophone-Tape	Record	Daffodil-Fever-Peril	Yellow
Bolt-Loaf-Squirrel	Nut	Water-Asleep-Autumn	Fall
Mouth-Speaker-Noise	Loud	Food-Butterflies-Pump	Stomach
Hearted-Touch-Ball	Soft	Hearted-Touch-Ball	Soft
Fish-Mouse-Door	Trap	Mouth-Church-Recital	Organ
UNI Set C		COLL Set C	
Curry-Tropics-Stuff	Hot	Curry-Tropics-Stuff	Hot
Elderly-Fashioned-Timer	Old	Love-Felt-Broken	Heart
Love-Felt-Broken	Heart	Coal-Soot-Pitch	Black
Coal-Soot-Pitch	Black	Elderly-Fashioned-Timer	Old
Base-Cricket-Soft	Ball	Scissors-Incision-Meat	Cut
Residence-Sick-Brew	Home	Cob-Joke-Pop	Corn
Book-Vertebrate-Echidna	Spine	Base-Cricket-Soft	Ball
Cob-Joke-Pop	Corn	Swept-Mill-Blown	Wind
Swept-Mill-Blown	Wind	Candle-Dawn-Feather	Light
Ebony-Power-Hole	Black	Book-Vertebrate-Echidna	Spine
Fall-Sighted-Breath	Short	Greeting-Birthday-Joker	Card
Bottom-Spinning-Table	Top	Red-Crossing-Sign	Stop
Red-Crossing-Sign	Stop	Fall-Sighted-Breath	Short
Leather-Conceal-Lair	Hide	Residence-Sick-Brew	Home
Car-Fog-French	Horn	Bottom-Spinning-Table	Top
Sets common to both samples			
Difficult set		Easy set	
Bald-Screech-Emblem	Eagle	Quack-Pond-Waddle	Duck
Curtain-Hot-Bar	Rod	Slither-Venomous-Bite	Snake
Collander-Effort-Stress	Strain	Purr-Whiskers-Nap	Cat
Jam-Drug-Lights	Traffic	Pasteurised-Cow-Drink	Milk
Whisky-Tape-Thistle	Scotch	Shelf-Read-Worm	Book
Light-Rise-Way	High	Dunes-Castle-Beach	Sand
Subside-Kitchen-Scuttle	Sink	Tap-Spout-Fall	Water
Hens-Torch-Artillery	Battery	Sheep-Clip-Jumper	Wool
Wash-Cheap-Truck	Dirt	Flushes-Coffee-Tropics	Hot
Match-Ball-Fly	Fire	Curiosity-Nap-Whiskers	Cat
Jump-Kill-Bliss	Joy	Honey-Swarm-Sting	Bee
Drink-Spirit-Priest	Whisky	Bride-Reception-Ring	Wedding
Kitchen-Prevent-Duel	Foil	Funnell-Web-Bite	Spider
Desert-Ice-Spell	Dry	Bark-Beware-Kennel	Dog
Team-Elected-Nation	Member	Matches-Smoke-Bush	Fire

## Remote associate problem sets in performance feedback paradigms

13

Table 2. Means and standard deviations for university ( $N = 156$ ) and college ( $N = 156$ ) normative samples for difficult and easy sets, and parallel sets A, B, and C

Set	University		College	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
A	7.571	3.119	7.758	3.033
B	7.571	2.896	7.758	2.784
C	7.571	3.031	7.758	2.898
Difficult	1.724	1.484	1.078	1.408
Easy	14.077	1.514	14.372	1.091

significance were rejected. Items solved by a disproportionate number of females relative to males were also discarded. No gender differences were apparent for the numbers of remote associates solved for college and university samples either considered separately or combined. For the combined sample, means were 45.737 and 47.691 for males and females, respectively,  $t(310) = 1.124$ ,  $P = 0.262$ .

On the above bases, the same 50 items for each of the college and university samples were rejected as being inadequately discriminating, leaving 78 of the original 128 items used in pretest. A high level of agreement in the relative easiness of items was evident across university and college samples [ $r(78) = 0.947$ ]. Amongst those rejected were 3 items either not solved by any *S* or one *S* only in each sample, and 11 very easy items, solved by all but a few *Ss*. These very easy and very difficult items were included within difficult (failure) and easy (practice) sets given in Table 1. Table 1 presents 5 sets of items in all, each comprised of 15 items: 3 parallel sets of items of moderate difficulty (Sets A, B and C), together with the failure and practice sets. Items within Sets A, B, C and the failure set were graded in terms of difficulty, with easier items given at the beginning of each list. The discriminating power of the item was not a criterion for selection of items within either failure or practice sets.

Table 2 presents means and standard deviations of Sets A, B and C as well as for the failure and practice sets for university and college samples. The requirement of equal variance for parallel Sets A, B and C (Winer, 1971) was satisfied in each case for college and university samples, with the *F* statistic not reaching the 0.05 level of significance in either case, thereby indicating an absence of a significant departure from parallelism in each case:  $F_{\max}(156) = 1.160$ ,  $P > 0.05$  (university sample), and  $F_{\max}(156) = 1.188$ ,  $P > 0.05$  (college sample). Correlations between performance scores on Sets A, B, and C range between 0.653 and 0.692 for the university sample and 0.629 and 0.690 for the college sample. (See Table 3.)

As an independent check of the adequacy of the simple 'proportion correct' criterion of easiness, three parallel sets of remote associates, Sets A, B, and C were administered to undergraduate psychology students ( $N = 24$ ) with no prior experience of working with remote associate problems. Eight easily-solved practice examples were completed prior to attempting the 3 sets. A total of 4 min was allowed for completion of each set. Pre-test with a handful of students had established that this length of time was sufficient for *Ss* to attempt all 15 items, and that additional time was of little avail in terms of the number of remote associates solved.

Means and standard deviations for the number of items correctly solved are presented in Table 4. Performance scores were comparable, showing no evidence of a practice effect, thereby providing support for the simple 'proportion correct' method in determining the relative easiness of items. A one-way analysis of variance failed to detect a significant difference between the parallel forms:  $F(2,23) = 0.05$ ,  $P = 0.9515$ . Pairwise correlations in the validation study were  $r_{AB} = 0.701$ ,  $r_{BC} = 0.775$  and  $r_{AC} = 0.694$ .

Table 3. Correlations between performance scores on Sets A, B, and C for university ( $N = 156$ ) and college normative samples ( $N = 156$ )

Set	A	B	C	
A	1	0.661	0.692	University sample
B	0.673	1	0.653	
C	0.629	0.690	1	
	College sample			

Table 4. Means and standard deviations for performance scores on Sets A, B, C ( $N = 24$ )

Set	<i>M</i>	<i>SD</i>
A	10.625	2.826
B	10.583	2.376
C	10.708	2.645

Several features of remote associates may recommend their use over other problem types in performance feedback paradigms. Believed by Mednick (1962) to be a test of creativity, subsequent studies have questioned the adequacy of the RAT as a measure of creative potential (Andrews, 1965; Hood, 1969). Whatever the RAT measures, Hood and Ginsberg (1970) suggest that two variables determine the correct solution of RAT items. These are the connotative similarity of the stimulus words relative to the answer and 'cultural availability': the extent to which the answers to RAT items are readily available in the culture as associates to the stimulus words.

'Serendipity' (contiguous environmental appearance of stimuli eliciting associative elements) is suggested as most significant in contributing to the correct solution of RAT items which are high in cultural availability and connotatively dissimilar, while other cognitive processes such as similarity and mediation are suggested to underly correct solution of items more connotatively similar but less culturally available (Hood & Ginsberg, 1970).

While cultural availability in particular would likely have potential to contribute to differences in normative information gathered for different subsections of the population, there is little evidence of variability in relative easiness, and no evidence of differences in the discriminating power of items tested for the two quite different student populations employed in the present study. Without evidence of differences between these two different student populations, it is unlikely that normative data gathered from different undergraduate samples would be appreciably different.

As correct solution of RAT items depends both on logical reasoning processes and insight, deductive reasoning alone will not necessarily guarantee a correct solution. A 'snap' quality is involved, much as is the case in the solution of crosswords: the word has to arrive 'out of the blue', and in this sense, there is an element of unpredictability and as a consequence, a perception of at least incomplete control.

For this reason, it may be that RAT items somewhat more sensitively register the impact of performance (and particularly failure) feedback due to a feeling of incomplete control. As a consequence, they may more readily register the effects of variables known to mediate the effects of failure in terms of subsequent performance. In short, RAT items may more sensitively convey the effects of performance feedback than other problem types relying on logical processes alone.

Using the same reasoning, RAT items may be less subject to practice effects than, say, anagrams, analogies or other problem types which rely on straight reasoning processes. On these grounds, use of remote associates in performance feedback studies may carry advantages over anagrams, analogies, progressive matrices and similar puzzles variously used in performance feedback studies.

## REFERENCES

- Andrews, F. M. (1965). Factors affecting the manifestation of creative ability by scientists. *Journal of Personality*, 33, 140-152.
- Baumeister, R. F. & Tice, D. M. (1985). Self-esteem and responses to success and failure: Subsequent performance and intrinsic motivation. *Journal of Personality*, 53, 450-467.
- Craske, M. L. (1985). Improving persistence through observational learning and attribution retraining. *British Journal of Educational Psychology*, 55, 138-147.
- Craske, M. L. (1988). Learned helplessness, self-worth motivation and attribution retraining for primary school children. *British Journal of Educational Psychology*, 58, 152-164.
- Hood, R. W. (1969). On creativity as defined by the remote associates test. *Psychological Reports*, 24, 914.
- Hood, R. W. & Ginsberg, G. P. (1970). Connotative similarity of remote associates test items as a function of their cultural availability. *Psychological Reports*, 27, 127-130.
- Keats, J. A. (1971). *An introduction to quantitative psychology*. Sydney: Wiley.
- Mednick, S. A. (1962). The associative basis of the creative process. *Psychological Review*, 69, 220-232.
- McFarlin, D. B. & Blascovich, J. (1981). Effects of self-esteem and performance feedback on future affective preferences and cognitive expectations. *Journal of Personality and Social Psychology*, 40, 521-531.
- McFarlin, D. B. & Blascovich, J. (1984). On the remote associates test (RAT) as an alternative to illusory performance feedback: A methodological note. *Basic and Applied Social Psychology*, 5, 223-229.
- McNicoll, M., Annamunthodo, T., McCarrey, M. & Kamal, F. (1985). Self-enhancement, self-protection as a function of esteem-related feedback and success contingency. *Psychological Reports*, 56, 583-595.
- Smith, C. P. (1983). Ethical Issues: Research on deception, informed consent and debriefing. In Wheeler, L. & Shaver, P. (Eds). *Review of Personality and Social Psychology*, 4, 287-328.
- Snyder, M. L., Smoller, B. & Strenta, A. (1981). A comparison of egoism, negativity and learned helplessness as explanations for poor performance after unsolvable problems. *Journal of Personality and Social Psychology*, 40, 24-30.
- Tang, T. L., Lui, H. & Vermillion, W. H. (1987). Effects of self-esteem and task labels (difficult vs easy) on intrinsic motivation, goal setting and task performance. *Journal of General Psychology*, 114, 249-262.
- Winer, B. J. (1971). *Statistical principles in experimental design*. New York: Mc-Graw Hill.

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## Characteristics of self-worth protection in achievement behaviour

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Two experiments are reported comprising an investigation of individual difference variables associated with self-worth protection. This is a phenomenon whereby students in achievement situations adopt one of a number of strategies, including withdrawing effort, in order to avoid damage to self-esteem which results from attributing failure to inability. Experiment 1 confirmed the adequacy of an operational definition which identified self-worth students on the basis of two criteria. These were deteriorated performance following failure, together with subsequent enhanced performance following a face-saving excuse allowing students to explain failure without implicating low ability.

The results of Experiment 2 established that the behaviour of self-worth protective students in achievement situations may be understood in terms of their low academic self-esteem coupled with uncertainty about their level of global self-esteem. Investigation of the manner in which self-worth students explain success and failure outcomes failed to demonstrate a tendency to internalise failure but revealed a propensity on the part of these students to reject due credit for their successes.

The implications of these findings in terms of the prevention and modification of self-worth protective reactions in achievement situations are discussed.

According to the self-esteem analysis of achievement behaviour, a sense of shame following failure is brought about by attributing failure to inability. As effort (study) increases so do inferences to low ability, which in turn trigger shame and a diminished expectancy of future success, factors which are known to influence subsequent achievement outcomes (Covington & Omelich, 1979, 1981). Covington & Omelich, (1981) point out that this deterioration in feelings towards the self and in terms of expectancies of future success is accelerated over successive failures by the decreasing plausibility of attempts to attribute responsibility to factors outside the self. With the stock of externally attributable reasons such as teacher capriciousness, bad luck or task difficulty discredited, the individual's sources of self-protection wither, and there is no recourse but to attribute failure to inability. The tendency to do so increases with increased effort expenditure, so that a tension arises between a motive to secure the glory of success by trying hard and a motive to avoid the ignominy of defeat by withdrawing effort.

Inferences to inability can, therefore, be offset by withholding effort. This thinking is implicit in the self-worth theory of achievement motivation (Beery, 1975; Covington, 1984a,

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470

*Ted Thompson*

1984b; Covington & Beery, 1976). Self-worth theory states that in some circumstances students stand to gain by not trying, and is based on the notion that much of a student's behaviour is designed to maintain a self-concept of high ability, or at least to defend against inferences to inability.

Covington, Spratt & Omelich (1980) observe that perceptions of inability are to be avoided due to society's tendency to equate personal worth with the ability to achieve competitively. The assumption is that students motivated to protect self-worth place particular emphasis on achievement as a criterion of self-worth: that for these students there is, as Beery (1975) puts it, 'a postulated equivalency between ability and personal worth' (p. 200). Where ability proven through achievement-related endeavour is not weighed against other sources of self-relevant feedback which have comparable status in preserving a sense of self-worth, failure which results in an inference of inability is all the more likely to give rise to shame and diminished self-evaluations.

Students motivated to protect self-worth in achievement situations do so as a consequence of fear of failure (Beery, 1975; Birney, Burdick & Teevan, 1969; Covington & Beery, 1976). Whatever the basis of fear of failure, whether it be to avoid the consequences of failure (such as failing to graduate or secure a university place in a chosen field) or to avoid censure from others, there is evidence that individuals who are either low in self-esteem or uncertain about their evaluations in the eyes of others are most inclined to strategically withdraw effort (Baumgardner & Levy, 1988). On the other hand, the performance of students who are particularly afraid of failing is improved when a task is described as very difficult (Feather, 1961, 1963; Karabenick & Youssef, 1968). With a ready-made attribution to task difficulty rather than to person the threat to self-esteem is removed.

The above establishes the logic behind an operational definition proposed by Craske (1988), who identified self-worth protective students in terms of two criteria. The first was a deterioration in performance following failure. Four sets of cognitive problems were used: Sets A, B, C and D. Set A established an original or criterion level of performance against which subsequent performance was measured. Set B, comprised of difficult problems, constituted a failure set, while Set C assessed performance following failure. Set D then registered the performance effect of a face-saving excuse delivered immediately prior to that set. The effect of the face-saving excuse upon subsequent performance established the second criterion. For self-worth protective students, performance following face-saving improved with a ready-made attributional defence to a factor other than inability, namely task difficulty.

The explanation for the performance deficit following failure for self-worth students thus differs from that invoked by learned helplessness theory. The learned helplessness explanation (Abramson, Seligman & Teasdale, 1978) proposes that deteriorated performance following failure occurs as a result of a perception of non-contingency: that a desired outcome cannot be achieved by expending effort or, conversely, that failure will occur whether one tries or not. Under the egotism or self-worth protection hypothesis, poor performance is assumed to be due to a voluntary withdrawal of effort as a means of protecting self-esteem (Frankel & Snyder, 1978; Miller, 1985; Snyder, Smoller, Strenta & Frankel, 1981). There is consistency between this explanation and Craske's (1988) finding of lower inability attributions following failure for primary school students classified as self-worth protective relative to those classified as learned helpless. While an isolated finding, the deteriorated performance of self-worth students following failure would seem more directly related to



*Characteristics of self-worth protection*

471

the motivational dynamics of self-worth protection, involving risk calculations of success and failure outcomes, than to attributional mediation.

On this basis, it is unlikely that self-worth students explain failure outcomes in terms of internal, stable factors such as inability, as is the tendency of learned helpless students (e.g., Dweck & Reppucci, 1973; Dweck, Goetz, & Strauss, 1980). If there is an attributional basis to the performance of self-worth students in achievement situations, the possibility remains that these students, while failing to internalise their failures, may nonetheless fail to internalise (accept due credit for) their successes. Such a possibility would be consistent with the opportunism revealed in the enhanced performance of self-worth students in response to a face-saving excuse. It would also be consistent with the selective perceptual mechanism associated with low self-esteem individuals whereby past successes are selectively excepted as a basis for predicting future performance outcomes (Shrauger, 1982). For low self-esteem individuals, past failures rather than past successes form the basis for predicting future achievement outcomes.

It may be then that self-worth protective individuals are distinguishable as a subset of low self-esteem individuals in terms of a curiosity of attributional style whereby their attributions following success, but not failure outcomes, conform to a pattern established for low self-esteem individuals. While low self-esteem individuals attribute their failures to internal, stable factors such as lack of ability and their successes to external, unstable factors such as good luck or task ease, for high self-esteem individuals the pattern is reversed. Failure is explained by external factors, while successes are opportunistically embraced as confirming talent or ability. Evidence for such a claim would be given by an individual difference variable related to different performance effects for subgroups of low self-esteem individuals.

Such a possibility is given in a number of findings which suggest that level of self-esteem certainty is related to performance in achievement situations. One such study, by Marecek & Mettee (1972), involved manipulating skill vs. luck perceptions of performance on a problem-solving task for high and low self-esteem groups, each group subdivided on the basis of self-esteem certainty (high vs. low). When individuals with low self-esteem who were uncertain of their self-evaluations were led to believe that skill, rather than luck, governed their performance, the performance of these individuals improved to a level matching that of both certain and uncertain high self-esteem groups. However, the performance of certain low self-esteem students remained depressed. There is evidence from this study, then, that the performance of certain and uncertain low self-esteem individuals can be quite different in situations where an achievement outcome will reflect positively on perceptions of ability.

Self-esteem certainty is likewise implicated in self-handicapping behaviour. First coined by Jones & Berglas (Berglas & Jones, 1978; Jones & Berglas, 1978), the term self-handicapping refers to 'any action or choice of performance setting that enhances the opportunity to externalise (or excuse) failure and to internalise (reasonably accept credit for) success' (Berglas & Jones, 1978, p. 406). Examining certainty of self-esteem in relation to self-handicapping, Harris & Snyder (1986) found that uncertain males voluntarily practised less (self-handicapped more) prior to an ego-threatening test of non-verbal intelligence than did certain males and females, and uncertain females.

Two aspects of their findings are noteworthy. First, for uncertain males, a decrease in practice was associated with less of an increase in anxiety across the practice period,

suggesting a self-protective benefit associated with not practising in terms of reduced anxiety. Second, uncertain individuals (both males and females) tended to underestimate the amount of time they spent practising relative to certain individuals, a finding of particular interest in the case of females who, in Harris & Snyder's (1986) observation, may have been 'capitalising on the effects of practice although cognitively misrepresenting the amount of time they actually spend preparing' (p. 456). These self-protective benefits correspond to symptoms of self-worth protectiveness noted by Beery (1975), Covington (1984b) and Covington & Beery (1976).

Self-worth protective students self-handicap through a variety of strategies, most notably through withdrawal of effort (including ineffective study and procrastination), by selecting low, easily achieved goals (thereby minimising damage to self-esteem through low risk-taking), selecting unrealistically high goals (providing an opportunity to externalise failure to task difficulty) or by setting goals commensurate with their ability and ensuring the attainment of these goals by 'superstriving': working as if their very life depended on it. Within the self-handicapping literature, unattainable goal choice (Greenberg, 1985), and withdrawal of effort (Ferrari, 1991; Harris & Snyder, 1986; Pyszczynski & Greenberg, 1983; Tice & Baumeister, 1990) have been investigated as forms of self-handicapping.

There is, in the above, evidence for both an association between self-esteem certainty and the self-handicapping of self-worth protective individuals manifest in voluntary withdrawal of effort in risk-of-failure situations which forebode damage to self-esteem. There is also the suggestion that self-esteem certainty may be an important variable related to the propensity for self-worth individuals to capitalise on an opportunity for self-enhancement in the manner associated with high self-esteem individuals. This occurs when effort expenditure (and likelihood of success) is associated with a calculation of low risk-taking and thereby, minimal repercussions for self-esteem. Such a calculation may be based on known characteristics of the task in hand (e.g., task ease) or given in a ready-made attributional defence, as with the face-saving excuse involved in the operational definition of self-worth protection described earlier.

The above discussion yields evidence for several things. First, there is evidence that two distinct groups of low self-esteem persons can be identified on the basis of level of self-esteem certainty, with the achievement behaviour of uncertain self-esteem individuals distinguished by marked gains in performance in situations which allow them to deduce personal responsibility for success. These individuals, according to Marecek & Mettee (1972) are characterised by reward-seeking tendencies which, in performance situations, have less regard to consistency concerns than to enhancement. Second, consistent with the failure-avoidant strategies of self-worth protective students, low, uncertain self-esteem individuals may be expected to manifest the self-handicapping behaviour characteristics of self-worth protective persons in achievement situations.

There is finally, evidence for a relationship between self-worth protection and low self-esteem. Contrary findings have been reported concerning the relationship between level of self-esteem and self-worth protection. Students with high self-esteem have been reported as likely to defend self-worth (Schwarzer & Jerusalem, 1982), as well as those low in academic self-concept (Covington & Omelich, 1979). Craske (1988) found primary school children classified as either learned helpless or self-worth protective to have lower self-esteem relative to those not so classified. In view of the assumption that self-worth students place a high value on the goal of academic success but have a low expectancy of success, the assumption is that self-worth students will have lower levels of academic self-esteem relative to non self-worth subjects.

*Characteristics of self-worth protection*

473

Several predictions thus guide the present investigation. One is that self-worth protective students will externalise their successes, failing to acknowledge that they are the agents responsible for their success. Another is that self-worth students will have lower academic self-esteem relative to non self-worth students. Finally, self-worth students are expected to be more uncertain of their level of global self-esteem.

**Experiment 1**

Experiment 1 tested the adequacy of the face-saving and failure manipulations within the experimental manipulation described above. This experimental manipulation was used in Experiment 2 as a basis for identifying self-worth protective students and is here referred to as the ABC\*D manipulation, where Sets A, C and D are problem sets equal in level of difficulty and Set B is a failure set. The asterisk denotes a face-saving excuse given immediately prior to the ensuing set.

Generally within studies investigating the effects of failure feedback there is not, as here, prior exposure to an initial set of problems which may effectively inoculate individuals against the impact of subsequent failure. The possible inoculating effect of Set A within the ABC\*D manipulation thus raised the question as to whether the failure and face-saving experiences within the ABC\*D manipulation function effectively in these terms, divorced from the likely ameliorating effect of prior practice on Set A.

The logic fuelling the scepticism in each case runs as follows. In the case of the failure experience, the possible inoculation provided by prior experience on Set A may overrule the intended effect of failure on Set B in terms of deteriorated performance on Set C. In the case of face-saving, the anticipated effect was of enhanced performance on Set D relative to Set C. In the present context however, prior experience on Set A may facilitate a practice effect, not immediately evident on Set C due to the interpolated experience of failure on Set B, but manifest in terms of enhanced performance on Set D. This could occur as a result of more favourable performance on Set C relative to Set B, re-establishing an expectation for good performance on Set D.

Within the ABC\*D manipulation, both the impact of failure and that of face-saving are thus potentially confounded by the context in which they occur. A more adequate test of the effects of face-saving would thus be given by comparing the effects of performance following failure both with and without face-saving prior to subsequent performance. In similar fashion, test of the effect of failure may be gained by comparing performance following failure with performance where no failure occurs.

Three experimental conditions were devised for this purpose. A failure without face-saving condition (BCD) tested the effect of failure without the inoculating effect of prior practice provided by Set A in the ABC\*D condition. The impact of face-saving following failure was tested in a B\*CD condition, while an ACD condition provided a baseline for comparing performance on Sets C and D for each of the B\*CD and BCD conditions, as well as serving as further test of the parallel nature of these three sets.

Using one-way analyses of variance performed separately on Sets C, D as dependent measures, the expectations driving the investigations were as follows. With the face-saving excuse (denoted by the asterisk) within the B\*CD condition given immediately prior to Set C expected to soften the impact of failure in terms of performance on Set C, there was no anticipation of depressed performance on Set C relative to the same set in the BCD condi-

474

*Ted Thompson*

tion. There was, however, an expectation of lower performance on Set C within the BCD condition relative to each of the B\*CD and ACD conditions. This expectation is consistent with a number of studies (see reviews by Jones, 1973; Shrauger, 1975, 1982). Performance feedback on Set C was expected to buoy depressed expectations following failure on Set B, establishing an expectation for subsequent performance more in line with that provided by the instructional set. As a consequence, no effect was expected across any of ACD, BCD and B\*CD conditions for scores on Set D.

Finally, a comparison of scores on Sets A, C and D was expected to give evidence of the parallel nature of these sets.

### Method

#### *Sample*

Individuals in Experiment 1 were undergraduate students enrolled in a variety of degree programmes at the University of Tasmania. Twenty-four students with no prior experience of working with remote associate problems were randomly allocated to each of the experimental conditions (ACD, B\*CD and BCD), making a total of 72 students altogether.

#### *Procedure*

Students were tested individually and informed that the purpose of the experiment was to gather data in connection with 'a newly developed test of creativity and general intelligence called the Remote Associates Test'. Advice on the frontispiece of the test booklets established a pressure for individuals to score at least 7 or 8 out of 15 remote associates correct. Individuals were advised that a person of 'average' ability should score 'at least 7 or 8 out of 15' with the latter phrase underlined for emphasis. Exceptions to this advice were the face-saving excuses given for Set C within the B\*CD experimental condition of the present experiment, and Set D within the ABC\*D manipulation forming the basis of Experiment 2. These face-saving excuses were delivered prospectively — i.e., in advance of performance on the sets affected. In each case, individuals were informed that the sets in question were 'very difficult' and that as a consequence, they 'could not be expected to do very well'. Individuals' responses on each successive set were scored before moving on to the next. Under the surveillance of the experimenter, individuals totalled their own scores, recorded these at the bottom of the page for each set and called their scores to the experimenter before proceeding:

Four minutes were allocated for completion of each set of remote associates. Pre-test with a handful of students established that this length of time was sufficient for students to attempt all 15 items, and that additional time was of little avail in terms of the number of remote associates solved. The manner in which the remote associates were normed and difficulty levels established is described elsewhere (Thompson, 1993).

In order to minimise possible expectancy effects arising from communication between students, students were informed that four experimental conditions were being run concurrently and that any information conveyed by prior experimental participants might, as a consequence, be misleading.

#### *Use of remote associates*

Remote associates problems were chosen for two reasons: first, in order to avoid illusory

*Characteristics of self-worth protection*

475

feedback involved in many studies using unsolvable problems as a means of manipulating subsequent performance (Baumeister & Tice, 1985; Craske, 1985, 1988; McFarlin & Blascovich, 1981; McNicoll, Annamunthodo, McCarrey & Kamal, 1985; Snyder *et al.*, 1981; Tang, Lui & Vermillion, 1987). As a result, performance feedback could be guaranteed consistent with students' estimations of their actual performance. Second, remote associate problems have been suggested as both less subject to practice effects and more likely to register the effects of failure than other problem types such as analogies, anagrams and progressive matrices relying on logical reasoning processes alone (Thompson, 1993).

Remote associates consist of three stimulus words that are somehow related to a fourth, unstated word, which the subject is asked to determine and write down. For example, an item might consist of the words 'flushes', 'coffee', 'tropics'. A correct response would be the fourth word 'hot'. Hood & Ginsberg (1970a, 1970b) suggest that ability to solve remote associate problems is related to various cognitive abilities.

**Results and discussion**

Table 1 presents means and standard deviations for performance on Sets C, D across failure, practice and face-saving conditions. Within the ACD condition, means for Sets A, C, and D are shown to be essentially comparable (10.63, 10.58 and 10.71 for Sets A, C and D, respectively), thereby providing reassurance of the parallel nature of these sets.

**Table 1.** Means and standard deviations for scores on parallel sets across experimental condition

Condition	Set	Mean	SD
ACD	A	10.63	2.83
ACD	C	10.58	2.38
ACD	D	10.71	2.65
B*CD	C	10.21	2.80
B*CD	D	10.58	2.23
BCD	C	9.33	2.71
BCD	D	10.88	2.65

One-way analyses of variance using Tukey-Kramer post-hoc tests (Keppel, 1973) were applied separately for Sets C, D as dependent measures for the three experimental conditions BCD, B\*CD and ACD. Consistent with predictions, scores on Set C within the BCD (failure) condition were depressed relative to those within the B\*CD (face-saving) and ACD (parallel sets) conditions:  $F(2,69) = 23.63, p < .0001$ . No effect was apparent for scores on Set D:  $F(2,69) = .86, p > .40$ . Presumably, the effect of failure is lost as a consequence of performance feedback following Set C consistent with expectations engendered by the instructional set.

Without the potentially inoculating effect provided by Set A within the ABC\*D manipulation, the above results thus confirm the potential of both failure and face-saving manipulations to register their intended effects on subsequent performance. Without prior experience on Set A, a single experience of failure is sufficient to bring about a deteriora-

476

Ted Thompson

tion in performance. In like fashion, a face-saving excuse delivered immediately following failure and prior to repeat performance effectively ameliorates the effect of failure in terms of ensuing depressed performance.

### Experiment 2

With the experimental manipulation enabling identification of self-worth protection thus investigated in terms of the effectiveness of each of the face-saving and failure components, Experiment 2 undertook to test assumptions associated with self-worth protection identified earlier.

### Method

#### Overview

Eighty-two undergraduate students ( $N = 28$  males,  $N = 54$  females) enrolled in a variety of degree programmes at the University of Tasmania constituted the sample for the study. Students completed four sets of remote associate problems: Sets A, B, C and D, Sets A, C and D being sets of equal difficulty and Set B a difficult (failure) set. A face-saving excuse was given immediately prior to Set D. Students later completed a range of individual difference measures described below, including measures of global and academic self-esteem, self-esteem certainty and stability, attributional style, test anxiety and fear of negative evaluation from others.

#### Identification of Self-worth (SW), Decrement, Facilitation and No Effect groups

A means of identifying self-worth protective students was adopted based on that used by Craske (1988). Students whose performance decreased following failure but whose performance improved following provision of a face-saving excuse were identified as motivated to protect self-worth. Those whose performance on Set D remained depressed despite the provision of a mitigating circumstance constituted a Decrement group, whilst those whose performance was enhanced following failure with this effect carrying through to Set D constituted a Facilitation group. Undergraduates whose scores remained unchanged across Sets A, C and D within the limits of tolerance described below constituted a No Effect group.

Normative data in connection with the remote associate sets, together with properties recommending their use in failure feedback paradigms, have been presented by the author (Thompson, 1993). On the basis of that data, one very difficult set and three parallel sets of remote associate problems were constructed, the latter forms having equal means and meeting the requirement of equal variance (Winer, 1971).

Normative data for the items comprising the three parallel forms revealed that between 85 per cent and 87 per cent of scores were encompassed by a range of plus and minus three difference scores for comparisons across parallel forms (A & C, A & D and C & D). Accordingly, a latitude of tolerance was built into operational definitions enabling identification of Self-worth, Decrement and Facilitation groups, as follows:

- (i) Self-worth:  $C \leq A-3, D \geq C+3$ ;
- (ii) Decrement group:  $C \leq A-3, D \leq C$ , and
- (iii) Facilitation group:  $C \geq A+3, D \geq C$ .

*Characteristics of self-worth protection*

477

The No Effect group was defined by the parameter:  $\max \text{ of } (IA-CI, IC-DI, IA-DI) = 2$ . The latter operational definition was devised to identify the residual of students whose performance did not differ from set to set beyond the margin of error given for Self-worth, Decrement or Facilitation students. While the operational definitions are not exhaustive, they nonetheless enabled categorisation of all 82 students in the present study.<sup>1</sup>

In this connection, a methodological flaw is evident within the Craske (1988) study, where no allowance was made for the non-equivalence of scores across parallel forms. Inevitably, parallel forms fail to yield neatly equivalent scores individual by individual across parallel sets. An operational definition premised on this presumption thus necessitates some form of correction for both false positives and false negatives arising from score fluctuations associated with measurement error rather than being a direct result of the experimental manipulation. No such correction was made by Craske (1988).

*Manipulation check*

Odd- and even-numbered items from the Spielberger (Spielberger, Gorsuch, Lushene, Vagg & Jacobs, 1983) State-Trait Anxiety Inventory (STAI) were used to create parallel forms as a means of assessing the impact of failure on individuals' anxiety states before and after failure. These forms were administered immediately before and after completion of Set B. A median internal consistency (KR-20) of .93 is reported for the full scale form of the State STAI, (Spielberger *et al.*, 1983).

*Post-hoc attribution measures*

Attribution measures were administered after Set B in order to facilitate confirmation that self-worth students have lower attributions to inability following failure relative to decrement students. Attributions used were those identified by Weiner (1979): luck, task-difficulty, effort and ability. Students rated the importance of each on a seven-point scale ranging from 1: 'not at all important' to 7: 'extremely important'.

Following the procedures used by Arkin & Maruyama (1979) and followed by others (Craske, 1988; Gollwitzer, Earle & Stephan, 1982), the four attributional measures were combined to create two dimensions, identified in Weiner's (1972, 1974) taxonomy of causes: internal-external and stable-unstable. An index of internality was obtained by subtracting luck-plus-task-difficulty from the sum of effort-plus-ability scores, while the index for stability was calculated by subtracting luck-plus-effort from the sum of ability-plus-task-difficulty scores. The possible range for internality and stability scores fall within the range of from -12 to +12, with positive scores indicating internal or stable attributions and negative scores external or unstable attributions.

*Individual difference measures*

*Attributional style questionnaire.* The Balanced Attributional Style Questionnaire (BASQ) of Feather & Tiggemann (1984) resembles the Attributional Style Questionnaire (ASQ) used by Seligman, Abramson & von Beyer (1979), but differs in that it contains an equal number of items concerned with achievement and affiliation situations, with an equal balance of positive versus negative outcomes. After each item (e.g. 'You go out on a date and it all goes badly') respondents were asked to vividly imagine the cause and write in a space provided 'the major cause if this event happened to you'. Respondents then evaluated the stability, globality, internality and importance of the cause on a rating scale numbered 1 to 7.

Following Feather & Tiggenmann's (1984) recommendation, scores were summed for each of these attributional dimensions across achievement and affiliation situations. The resulting score range is from 8 to 56.

*Fear of negative evaluation.* The Fear of Negative Evaluation Scale (FNE), originally developed by Watson & Friend (1969), is a measure commonly used to assess the extent to which people experience apprehension about being negatively evaluated by other people. The brief form of the FNE scale (Leary, 1983) uses 12 of the original 30 items of Watson & Friend (1969). Individuals were asked to rate how characteristic each statement was to them on a five-point scale with the designations 'not at all', 'slightly', 'moderately', 'very' and 'extremely ... characteristic of me'. An inter-item reliability of .90 and test-retest reliability of .75 were reported (Leary, 1983).

*Test anxiety.* On the basis of relevant empirical and theoretical literature, Phillips, Pitcher, Worsham & Miller (1980) argue an equation between high test anxiety and fear of failure, coupled with motives to avoid failure and negative evaluation from others. On this basis, use of Sarason's (1978) Test Anxiety Scale was used as a measure of fear of failure.

The Test Anxiety Scale consists of 37 items such as 'I wish examinations did not bother me so much'. The true, false response format of the Sarason scale was substituted in favour of a five-point scale in line with other individual difference measures administered. Scale point designations were as for the FNE scale, above. Sarason (1978) reports adequate psychometric properties for this scale.

*Self-esteem.* Global and academic subscales of the Marsh (1990) Self Descriptive Questionnaire III were selected for use. The global subscale contains 12 items and the academic subscale 30 items. Students indicated how true each statement was to them on an eight-point scale with the designations ranging from 'Definitely false' to 'Definitely true'. Adequate psychometric information is reported by Marsh (1990).

*Self-esteem certainty and stability.* Measures of global self-esteem certainty and stability of academic self-esteem were established. Certainty of global self-esteem was gained by formatting the Marsh items into dichotomous option format ('like me', 'unlike me'), then asking students to rate how certain they were of their response on a five-point scale ranging from 1 = 'Not at all certain' to 5 = 'Very certain'. Mean scores across the certainty questions for the 12 items thus constituted the measure of global self-esteem certainty. Harris & Snyder (1986), Kimble, Funck & Da Polito (1990) and Marecek & Mettee (1972) report using the above method using subscale scores of the California Psychological Inventory.

Stability of academic self-esteem was established in a somewhat different manner, asking individuals to complete Marsh's academic self-esteem subscale items at 10 a.m. and 10 p.m. over four consecutive days. Anchor points of 'strongly agree' and 'strongly disagree' were separated by numbers ranging from 1 to 9. Students were asked to circle a number that best reflected how they felt at the moment they completed the form. Stability of academic self-esteem was computed as the standard deviation of students' total scores across the resulting eight occasions of completing the measure. High standard deviation scores indicated less stable academic self-esteem. This method follows that used by Kernis, Grannemann & Mathis (1991).

## Results

The experimental manipulation yielded  $N = 15$  Decrement students,  $N = 15$  Facilitation students,  $N = 16$  Self-worth students and  $N = 36$  No Effect students. Table 2 presents means



*Characteristics of self-worth protection*

479

and standard deviations for performance on Sets A, B, C and D for the total of  $N = 82$  students. While the investigations reported in Experiment 1 confirm the impact of both failure and face-saving manipulations, analyses of the face-saving and failure manipulations within the present experiment confirm the effectiveness of the face-saving excuse but not the impact of failure. In order to assess the effectiveness of face-saving, scores on Sets C and D were compared, revealing enhanced performance on Set D relative to Set C:  $t(81) = 2.90$ ,  $p < .01$  (one-tailed). As noted earlier, the possibility remains that the significant result noted for face-saving may be due (at least in part) to a delayed practice effect, again occasioned by Set A.

On the other hand, no impact of failure is revealed when scores on Sets A and C are compared:  $t(81) = 1.20$ ,  $p > .10$ . As noted earlier, the plausible interpretation is that Set A effectively inoculates students against the effect of failure. While there was no reliable deterioration in performance following failure, the experience of failure nonetheless resulted in increased anxiety assessed by state anxiety measures administered before and after failure (i.e., immediately prior to and following Set B):  $t(81) = 8.39$ ,  $p < .0001$ .

**Table 2.** Means and standard deviations for scores on Sets A, B, C and D

Set	Mean	SD
A	10.46	2.72
B	1.92	1.40
C	10.07	2.65
D	10.76	2.23

**Table 3.** Mean ratings on individual difference measures for Self-worth, Decrement, Facilitation and No Effect groups

Variable	Group				F values for: Group effect
	Self-worth	Decrement	Facilitation	No Effect	
Academic Self-Esteem (ASE)	130.69 <sup>a</sup>	171.93 <sup>b</sup>	157.07 <sup>b</sup>	162.08 <sup>b</sup>	11.70***
ASE Stability	7.89 <sup>a</sup>	5.53 <sup>b</sup>	5.77 <sup>ab</sup>	7.07 <sup>ab</sup>	3.61*
Global Self-Esteem (GSE)	64.81	78.07	69.07	72.94	1.70
GSE Uncertainty	3.26 <sup>a</sup>	4.04 <sup>b</sup>	4.01 <sup>b</sup>	3.92 <sup>b</sup>	4.18**
Test Anxiety	135.56 <sup>a</sup>	95.33 <sup>b</sup>	114.47 <sup>a</sup>	111.42 <sup>a</sup>	4.27**
Fear of Negative Evaluation	39.38	38.80	37.07	36.39	.65

\* $p < .05$ \*\* $p < .01$ \*\*\* $p < .001$ 

*Note.* In cases of statistically significant results, means not sharing at least one common alphabetic subscript element are significantly different.

480

Ted Thompson

**Table 4.** Mean attributional ratings for Self-worth, Decrement, Facilitation and No Effect groups

Variable	Outcome	Group				F values for: Group effect
		Self-worth	Decrement	Facilitation	No Effect	
Internality	Good events	33.69 <sup>a</sup>	43.40 <sup>b</sup>	40.93 <sup>b</sup>	41.50 <sup>b</sup>	6.26**
	Bad events	40.86	38.07	36.93	37.78	1.10
Stability	Good events	40.44 <sup>a</sup>	46.07 <sup>b</sup>	43.53 <sup>ab</sup>	44.39 <sup>ab</sup>	3.35*
	Bad events	35.69	37.47	36.00	34.89	0.55
Globality	Good events	37.44 <sup>a</sup>	44.88 <sup>b</sup>	35.93 <sup>a</sup>	40.44 <sup>ab</sup>	5.84**
	Bad events	32.75	29.40	27.87	29.86	.98
Importance	Good events	44.00	47.07	42.27	43.36	2.23
	Bad events	40.44	37.47	38.27	37.08	0.83
Good	—	156.63 <sup>a</sup>	181.40 <sup>b</sup>	162.67 <sup>a</sup>	168.69 <sup>ab</sup>	5.02**
Bad	—	149.75	142.40	139.07	139.03	1.02
Ability (Post-hoc)	—	3.94	3.40	3.40	3.74	0.43
Effort “ “	—	2.67	2.80	2.73	2.51	0.14
Luck “ “	—	1.88	1.93	1.53	1.46	1.06
Task Difficulty “ “	—	4.81	4.13	4.27	4.26	0.88
Internality “ “	—	0.06	0.13	0.33	0.48	0.11
Stability “ “	—	4.13	2.80	3.40	4.03	0.66

\* $p < .05$  \*\* $p < .01$  \*\*\* $p < .001$ 

Note. In cases of statistically significant results, means not sharing at least one common alphabetic subscript element are significantly different.

Results were first analysed using two-way analyses of variance on the basis of the four experimental groups (Self-worth, Decrement, Facilitation and No Effect) and gender. As neither interaction nor main effects emerged in relation to gender the analyses reported here were based on one-way analyses of variance. Tukey-Kramer post hoc tests were used (Keppel, 1973).

Tables 3 and 4 present mean scores for males and females on the individual difference and attributional measures respectively, together with  $F$  values for one-way analyses of variance for group (Self-worth, Decrement, Facilitation and No Effect).

#### Self-esteem findings

Consistent with expectations Self-worth students were found to have lower academic self-esteem (ASE) relative to all other student groups:  $F(3,78) = 11.70, p < .0001$ . On the other hand, no group was different from any other group on the basis of global self-esteem:  $F(3,78) = 1.70, p > .10$ .

*Characteristics of self-worth protection*

481

Turning to the data in relation to certainty and stability of self-esteem, Self-worth students' ASE scores were more unstable relative to Decrement students:  $F(3, 74) = 3.61$ ,  $p < .05$ . In contrast, Self-worth students were more uncertain of their global self-esteem relative to all other groups:  $F(3, 74) = 4.18$ ,  $p < .01$ . These findings are consistent with performance effects noted by Marecek & Mettee (1972), as well as the self-handicapping behaviour associated with uncertain self-esteem noted by Harris & Snyder (1986). Together with the attributional findings noted below, these results add support to the interpretation by Marecek & Mettee (1972) that uncertain self-appraisals may assuage consistency concerns, leaving the success-deprived low self-esteem person anxious for the self-produced success that will vindicate his or her refusal to fully internalise past failures. The finding of an association between low academic self-esteem and self-worth protection is consistent both with Covington & Omelich's (1979) finding as well as with the decrement in performance shown by low self-esteem students following failure (see reviews by Jones, 1973; Shrauger, 1975, 1982).

Self-worth students were also found to have higher levels of test anxiety relative to Decrement students as determined by Sarason's (1978) Test Anxiety Scale  $F(3, 78) = 4.27$ ,  $p < .01$ . The result does not come as unexpected given the reported correlation between academic self-esteem and test anxiety (Marsh, 1990), low academic self-esteem being associated with high levels of test anxiety. On the basis of Leary's (1983) FNE measure, there was no support for the inference based on findings by Baumgardner & Levy (1988) and Baumgardner, Lake & Arkin (1985) that strategic withdrawal of effort on the part of Self-worth students is related to self-presentational concerns and loss of esteem in the eyes of others.

*Attributional findings*

The attributional results from the present study substantially confirmed predictions. Significant results were obtained in relation to three attributional dimensions (internality, stability and globality) of Feather & Tigglemann's (1984) measure of attributional style for successful outcomes. Self-worth students had lower internality scores relative to all other groups:  $F(3, 78) = 6.26$ ,  $p < .001$ . For stability and globality scores, the effect was relative to Decrement students alone. Relative to Decrement students, Self-worth students had lower stability scores:  $F(3, 78) = 3.35$ ,  $p < .05$ , and lower globality scores:  $F(3, 78) = 5.84$ ,  $p < .001$ . Facilitation students also had lower globality scores relative to Decrement students.

Relative to all other student groups, both male and female Self-worth students thus have a greater tendency to ascribe successful outcomes to other people or circumstances rather than to assume due credit for their achievements on the basis of factors such as effort or ability. Relative to Decrement students, Self-worth students see the cause of good outcomes as unlikely to have a role in determining other good outcomes, and as isolated to the situation in question. In other words, the causes of successful outcomes are seen as neither repeatable nor general across situations. As a consequence of these effects, Self-worth students have lower scores for good outcomes (scores summed across internality, stability, globality and importance dimensions). Facilitation students also had lower scores for good outcomes relative to Decrement students:  $F(3, 78) = 5.02$ ,  $p < .01$ .

No attributional differences on Feather & Tigglemann's (1984) individual difference measure were apparent for failure outcomes. Neither were there significant main effects for post-hoc attributions following Set B within the experimental manipulation. It seems reasonable

to link the absence of main effects associated with post hoc attributional measures with the inoculating effect of Set A. Without evidence of the impact of failure upon subsequent performance, the absence of any effect on post-hoc attributions appears logical.

### Discussion

#### *The attributional bases of self-worth protection*

An attributional paradox is presented in the findings for self-worth students based on Feather & Tiggemann's (1984) BASQ. Whilst self-worth students fail to internalise their failure, blaming factors such as inability, they nonetheless externalise the cause of their success, refusing to assume authorship for the successes they have brought about through their own endeavour. While the failure of self-worth students to fully internalise their success is consistent with their low academic self-esteem (and the understanding of the motivational dynamics of self-worth protection mentioned earlier: Frankel & Snyder, 1978), the fact that they are undifferentiated from all other student groups in this study on the basis of their attributions following failure is not.

The former findings are nonetheless consistent with the perpetual fear of failure driving the achievement behaviour of the high achiever (Beery, 1975), namely a failure to fully internalise success and regard it as anything more than specific to the occasion. The fragility of the performance increment shown by self-worth students following failure in terms of its dependence on a mitigating excuse also appears consistent with a finding of external and specific attributions associated with success outcomes.

A finding by Craske (1988) as well as those from the present study may be put together to draw a single conclusion. Craske found lower attributions to inability following failure for self-worth students relative to those classified as learned helpless. In the present study, Self-worth students were not found to be differentiated from No Effect, Decrement or Facilitation students on any of internality, globality or stability dimensions for failure outcomes. Both findings are consistent with the defensive failure-avoidant strategies characteristic of self-worth students emphasised in preceding discussion. Mindful of the conceptual link suggested earlier between self-worth protection and self-handicapping, further support for the Craske (1988) finding comes from a study by Rhodewalt, Morf, Hazlett & Fairfield (1991) who found that high self-handicappers (irrespective of their level of trait self-esteem) discounted attributions to inability following failure feedback.

Comments by Covington (1984a) in connection with the motivational bases of self-worth protection assist an understanding of the attributional findings of the present study. Covington suggests that self-worth students are somewhere along a continuum marked by anchor points of failure-acceptance and success orientation. At one end of the scale, success-oriented students tend to attribute their successes to skill and effort and their failures to lack of effort. At the other end of the scale, failure-accepting students attribute their successes externally to factors such as luck, task ease or the generosity (or capriciousness) of the teacher, and their failure to lack of skill or ability. These students actively avoid success due to the obligation to produce a repeat performance (Marecek & Mettee, 1972).

The attributional findings thus add a new and arresting dimension to the popularly assumed attributional bases of underachievement. While attribution retraining programmes have generally addressed achievement-limiting attributions to inability following failure (e.g., Craske, 1985, 1988; Van Overwalle & de Metsenaere, 1990; Wilson & Linville, 1982,

*Characteristics of self-worth protection*

483

1985), the advice from the present study is that student achievement is also limited by a tendency on the part of certain students to see their successes as determined by factors outside their control, and as isolated and unrepeatable. For these students, it is not their explanations of failure outcomes which are the problem but the manner in which they explain their success. This finding has implications in terms of the modification of self-worth protection through attributional retraining programmes, discussed below.

*The achievement careers of self-worth protective students*

In the context of the present discussion, comment on the achievement outcomes of self-worth students can be ventured. The eventual consequence of perpetual failure avoidance, in Covington's (1984a) view, is acceptance of failure. The defensive and self-defeating tactics of failure avoidance 'progressively cut students off from an already scarce supply of classroom rewards' (p. 91). The assumption is that opportunity to externalise failure on the part of self-worth students reduces as the credibility of self-defensive alibis wither. As failures accumulate, there is ultimately no recourse but to attribute failure to inability. While the strategy of self-worth students is to externalise failure, the tactic ultimately backfires. The end result is internalisation of failure, diminished expectancies for future success and as a consequence, low achievement.

Evidence in this connection is given by Covington & Omelich (1981). Within the naturalistic context of a mastery-based psychology course, these researchers gained support for a process of diminishing self-perceptions of ability over successive failures on parallel forms of the one test as self-serving attributions such as inadequate study time or insufficient effort became increasing implausible.

While there is potential for failure-avoidant strategies to end in acceptance of failure, the prognosis needs to be seen as restricted to the particular strategy of failure avoidance used. Self-worth protection is not, invariably, manifest in chronic underachievement. One tactic within the self-worth protective students' repertoire of failure avoidance is 'overstriving' (Beery, 1975; Covington & Beery, 1976). This is a tactic of setting high academic goals and achieving them through a combination of outstanding application and high ability. These are students with exceptional academic records and low academic self-esteem who, observes Covington (1984a), 'remain doubtful of their abilities despite an enviable record of accomplishments' (p. 12). These 'overstrivers' are nevertheless caught in a double bind. Due to the degree of effort invested in the pursuit of success, failure, when it does occur, is all the more certain an indicator of lack of ability.

It appears that self-worth students are neither inured to failure nor inoculated against it. While the performance of self-worth students deteriorates following failure provision of a face-saving excuse has a marked facilitating effect, even to the point of enhancing their ability to solve difficult problems. Self-worth students thus appear to inhere motivational characteristics of both high and low self-esteem individuals as described by Baumeister, Tice & Hutton (1989). On the basis of a review of the self-esteem literature, Baumeister *et al.* conclude that while high self-esteem people are more likely to engage in strategic attributional ploys to enhance success, low self-esteem individuals are more concerned to protect against failure. The lower inability attributions of self-worth students following failure noted by Craske (1988), coupled with enhanced performance following success, suggest that their deterioration in performance following failure is a function of strategic withdrawal of effort rather than a function of self-fulfilling prophecy arising from a percep-

tion that they are powerless to produce good outcomes, and powerless to forestall bad outcomes.

*Modification of self-worth protection: proactive intervention*

The combined results form the present investigation offer valuable guidance in relation to strategies for enhancing the academic attainment of self-worth protective students. The evidence from the present study suggests that the attributional mainspring within self-worth students' failure-avoidant tactics is a failure to fully internalise their successes. As self-worth students fail to internalise failure in the manner consistent with low self-esteem students, then attributional retraining programmes (at least insofar as they are addressed to failure outcomes) will be 'water off a duck's back': they will fail to respond.

This being so, attributional retraining strategies might more profitably focus on encouraging self-worth students to reasonably accept credit for their successes rather than concentrating on training students to substitute inability attributions following failure for lack of effort. Neither from the present study nor from the results gained by Craske (1988) is there evidence that inability attributions following failure underlie self-worth protection. Such a recommendation is not inconsistent with Craske's finding of the differential effectiveness of attribution retraining strategies for learned helpless versus self-worth primary school children. Craske's intervention strategy focused on modifying attributions following failure by training students to substitute inability explanations with explanations of lack of effort. While the achievement of students classified as learned helpless improved with this training the achievement of self-worth students did not.

As far as self-worth students are concerned, the advice from the present study, consistent with Craske's (1988) findings, is thus to restructure attributions following success. In this regard, several studies aimed at restructuring attributions following failure argue the effectiveness of attributional testimonies from fellow students presented on videotape (Van Overwalle & de Metsenaere, 1990; Van Overwalle, Segebarth & Goldchstein, 1989). Much, however, can be done in informal interactional contexts between teacher and pupil in situations of returning assignments, offering assessment feedback and the like.

Added to these suggestions come those from Covington (1984a, 1984b). Covington advocates the use of non-competitive learning structures wherever possible. The rationale is that while norm-referenced learning conditions emphasise success at the expense of other students, task-oriented learning situations accent changes in one's performance over time, so that self-improvement becomes the dominant goal. Mastery learning, allowing students multiple test/study opportunities, are seen as desirable in that while the standard for successful performance is held constant, amount of study time is allowed to vary, thereby emphasising the causal roles of skilled effort and persistence. Co-operative learning, whereby an individual student within a team takes responsibility for some part of an achievement enterprise, is recommended on the same basis, as is contract learning, in which students establish work agreements with teachers and jointly develop plans to overcome obstacles in learning (Covington & Beery, 1976). The common thread with all these recommendations is a strengthening of the link between effort and performance, promoting 'realistic goal setting and ... [allowing] more constructive interpretations of failure experiences' (Covington, 1984b, p. 17). Instruction in study strategies is also recommended, an issue which runs through the attribution retraining literature (e.g., Van Overwalle & de Metsenaere, 1990).

Many of the principles which can be suggested by way of proactive intervention follow

*Characteristics of self-worth protection*

485

from strategies recommended to enhance self-esteem (e.g. Felker, Stanwyck & Kay, 1973; Gurney, 1987). Students need to be put in touch with the requirements of their academic programmes in order to assume responsibility for their self-produced success and to understand the bases on which judgments and evaluations are made concerning their academic work. Two imperatives stem from the tendency on the part of self-worth students to reject their own agency as cause of their success. One is that assessment feedback offered by teachers needs to make explicit self as causal agent of achievement success. The other is that those responsible for assessment feedback clearly identify the criteria or bases of assessment against which successful performance has been judged. A factor of relevance here is that it is likely in new learning environments where students are unfamiliar with the requirements and expectations of their academic programmes that they least understand the determinants of their success. In such situations, it is unlikely that students identify luck or chance as causes of success or failure, but that they simply remain unaware of the causes of their achievement outcomes. Butler & Orion (1990) found such a sense of 'unknown control' associated with poor achievement in primary school children. Comments by Berglas & Jones (1978) concerning the genesis of self-handicapping add fuel to this observation. These researchers suggest that the strategic orientation of self-handicappers stems from a 'capricious, chaotic reinforcement history' ... [claiming] 'it is not that their histories are pocked with repeated failure; they have been amply rewarded, but in ways and on occasions that leave them deeply uncertain about what the reward was for' (p. 407).

*Ecological validity*

The ecological validity of the present study devolves largely on the issue as to whether the experimental paradigm used to identify self-worth students in the present study in fact identified students manifesting symptoms of self-worth protection as described by Beery (1975) and Covington & Beery (1976), reported earlier. While there was no systematic attempt to gather qualitative data towards this end, many (often unsolicited) comments volunteered from students in the course of debriefing bore similarity to observations by Beery (1975) concerning the behaviour of self-worth protective students in achievement situations. A final year female education student asked during debriefing how she approached her studies offered: 'I never aim too high ... if you aim for the tree tops you don't have far to fall, whereas if you aim for the stars the disappointment can be too great. So I am careful about the goals I set myself ...'. A male graduate student conceded that throughout his undergraduate career he had chosen courses that he knew were 'well within the limits of my ability, [since] failing at a course that interested me, but where I was not confident would have been ... shattering'.

Other self-worth students taught by the experimenter were observed to manifest rigid compliance with coursework demands, low goal-setting or seemingly excessive effort and an exaggerated concern to meet the requirements of their academic work: all symptoms noted by Beery (1975) and Covington & Beery (1976) as strategies geared to guarantee success and thereby avoid failure. Clear in the memory of the experimenter is one student who, while in receipt of an unbroken record of outstanding results assignment by assignment, would evince an attitude of unmistakable relief when greeted with the news of the demands of yet another assignment successfully negotiated. Conspicuous by its absence was any form of self-congratulatory recognition of success or pride in achievement, symptoms bespeaking the primacy of a motive to avoid failure, as well as a characteristic

tendency to deny (or overlook) one's own causal efficacy in achieving academic success.

<sup>1</sup> I acknowledge the suggestion of the operational definition for No Effect students to Dr John Davidson.

### References

- Abramson, L. Y., Seligman, M. E. P. & Teasdale, J. D. (1978). Learned helplessness in humans: critique and reformulation. *Journal of Abnormal Psychology*, **87**, 49-74.
- Arkin, R. M. & Maruyama, C. M. (1979). Attribution, affect, and college exam performance. *Journal of Educational Psychology*, **71**, 85-93.
- Baumeister, R. F. & Tice, D. M. (1985). Self-esteem and responses to success and failure: subsequent performance and intrinsic motivation. *Journal of Personality*, **53**, 450-467.
- Baumeister, R. F., Tice, D. M. & Hutton, D. G. (1989). Self-presentational motives and personality differences in self-esteem. *Journal of Personality*, **57**, 547-579.
- Baumgardner, A. H. & Levy, P. E. (1988). Role of self-esteem in perceptions of ability and effort: illogic or insight? *Personality and Social Psychology Bulletin*, **14**, 429-438.
- Baumgardner, A. H., Lake, E. M. & Arkin, R. M. (1985). Claiming mood as a self-handicap: the role of spoiled and unspoiled public identities. *Personality and Social Psychology Bulletin*, **11**, 349-357.
- Beery, R. (1975). Fear of failure in the student experience. *Personnel and Guidance Journal*, **54**, 191-203.
- Berglas, S. & Jones, E. E. (1978). Drug choice as a self-handicapping strategy in response to noncontingent success. *Journal of Personality and Social Psychology*, **36**, 405-417.
- Birney, R. C., Burdick, H. & Teevan, R. C. (1969). *Fear of Failure*. New York: Van Nostrand.
- Butler, R. & Orion, R. (1990). When pupils do not understand the determinants of their success and failure in school: relations between internal, teacher and unknown perceptions of control and school achievement. *British Journal of Educational Psychology*, **60**, 63-75.
- Covington, M. V. (1984a). The motive for self-worth. In R. Ames & C. Ames (Eds), *Research on Motivation in Education*. New York: Academic Press.
- Covington, M. V. (1984b). The self-worth theory of achievement motivation: findings and implications. *Elementary School Journal*, **85**, 5-20.
- Covington, M. V. & Beery, R. (1976). *Self-worth and School Learning*. New York: Holt, Rinehart & Winston.
- Covington, M. V. & Omelich, C. E. (1979). Are causal attributions causal? A path analysis of the cognitive model of achievement motivation. *Journal of Personality and Social Psychology*, **37**, 1487-1504.
- Covington, M. V. & Omelich, C. E. (1981). As failures mount: affective and cognitive consequences of ability demotion in the classroom. *Journal of Educational Psychology*, **73**, 796-808.
- Covington, M. V., Spratt, M. F. & Omelich, C. E. (1980). Is effort enough or does diligence count too? Student and teacher reactions to effort stability in failure. *Journal of Educational Psychology*, **72**, 717-729.
- Craske, M. L. (1985). Improving persistence through observational learning and attribution retraining. *British Journal of Educational Psychology*, **55**, 138-147.
- Craske, M. L. (1988). Learned helplessness, self-worth protection and attribution retraining for primary school children. *British Journal of Educational Psychology*, **58**, 152-164.
- Dweck, C. S. & Reppucci, N. D. (1973). Learned helplessness and reinforcement responsibility in children. *Journal of Personality and Social Psychology*, **25**, 109-116.
- Dweck, C. S., Goetz, T. E. & Strauss, N. L. (1980). Sex differences in learned helplessness: IV. An experimental and naturalistic study of failure generalisation and its mediators. *Journal of Personality and Social Psychology*, **38**, 441-452.
- Feather, N. T. (1961). The relationship of persistence at a task to expectations of success and achievement-related motives. *Journal of Abnormal and Social Psychology*, **63**, 552-561.
- Feather, N. T. (1963). Persistence at a difficult task with an alternative task of intermediate level of difficulty. *Journal of Abnormal and Social Psychology*, **66**, 604-609.
- Feather, N. T. & Tiggemann, M. (1984). A balanced measure of attributional style. *Australian Journal of Psychology*, **36**, 267-283.



## Characteristics of self-worth protection

487

- Felker, D. W., Stanwyck, D. J. & Kay, R. S. (1973). The effects of a teacher program in self-concept enhancement on pupils' self-concept, anxiety, and intellectual achievement responsibility. *Journal of Educational Research*, **66**, 443-445.
- Ferrari, J. R. (1991). A second look at behavioural self-handicapping among women. *Journal of Social Behaviour and Personality*, **6**, 195-206.
- Frankel, A. & Snyder, M. L. (1978). Poor performance following unsolvable anagrams: learned helplessness or egotism? *Journal of Personality and Social Psychology*, **36**, 1415-1423.
- Gollwitzer, P. M., Earle, W. B. & Stephan, W. G. (1982). Affect as a determinant of egoism: residual excitation and performance attributions. *Journal of Personality and Social Psychology*, **43**, 702-709.
- Greenberg, J. (1985). Unattainable goal choice as a self-handicapping strategy. *Journal of Applied Social Psychology*, **15**, 140-152.
- Gurney, P. (1987). Self-esteem enhancement in children: a review of research findings. *Educational Research*, **29**, 130-136.
- Harris, R. N. & Snyder, C. R. (1986). The role of uncertain self-esteem in self-handicapping. *Journal of Personality and Social Psychology*, **51**, 451-458.
- Hood, R. W. & Ginsberg, G. P. (1970a). Connotative similarity of remote associates test items as a function of their cultural availability. *Psychological Reports*, **27**, 127-130.
- Hood, R. W. & Ginsberg, G. P. (1970b). Cultural availability: a cross-culturally stable determinant of performance on Remote Associates Test items. *Psychological Reports*, **26**, 755-758.
- Jones, E. E. & Berglas, S. (1978). Control of attributions about the self through self-handicapping strategies: the appeal of alcohol and the role of underachievement. *Personality and Social Psychology Bulletin*, **4**, 200-206.
- Jones, S. C. (1973). Self- and interpersonal evaluations: esteem theories versus consistency theories. *Psychological Bulletin*, **79**, 185-199.
- Karabenick, S. A. & Youssef, Z. I. (1968). Performance as a function of achievement motive level and perceived difficulty. *Journal of Personality and Social Psychology*, **10**, 414-419.
- Keppel, G. (1973). *Design and Analysis: A Researcher's Handbook*. Englewood Cliffs, NJ: Prentice-Hall.
- Kernis, M. H., Grannemann, B. D. & Mathis, L. C. (1991). Stability of self-esteem as a moderator of the relationship between level of self-esteem and depression. *Journal of Personality and Social Psychology*, **61**, 80-84.
- Kimble, C. E., Funk, S. C. & Da Polito, K. L. (1990). The effects of self-esteem uncertainty on behavioural self-handicapping. *Journal of Social Behaviour and Personality*, **5**, 137-149.
- Leary, M. R. (1983). A brief version of the fear of negative evaluation scale. *Personality and Social Psychology Bulletin*, **9**, 371-375.
- Maracek, J. & Mettee, D. R. (1972). Avoidance of continued success as a function of self-esteem, level of esteem certainty, and responsibility for success. *Journal of Personality and Social Psychology*, **22**, 98-107.
- Marsh, H. W. (1990). *Self-descriptive Questionnaire III Manual*. San Antonio: The Psychological Corporation.
- McFarlin, D. B. & Blascovich, J. (1981). Effects of self-esteem and performance feedback on future affective preferences and cognitive expectations. *Journal of Personality and Social Psychology*, **40**, 521-531.
- McNicoll, M., Annamunthodo, T., McCarrey, M. & Kamal, F. (1985). Self-enhancement, self-protection as a function of esteem-related feedback and success contingency. *Psychological Reports*, **56**, 583-595.
- Miller, A. (1985). A developmental study of the cognitive bias of performance impairment after failure. *Journal of Personality and Social Psychology*, **49**, 529-538.
- Phillips, B. N., Pitcher, G. D., Worsham, M. E. & Miller, S. C. (1980). Test anxiety and the school environment. In I. G. Sarason (Ed), *Test Anxiety: Theory, Research and Applications*, pp. 327-346. Hillsdale, NJ: Lawrence Erlbaum.
- Pyzczynski, T. & Greenberg, J. (1983). Determinants of reduction of intended effort as a strategy for coping with anticipated failure. *Journal of Research in Personality*, **17**, 412-422.
- Rhodewalt, F., Morf, C., Hazlett, S. & Fairfield, M. (1991). Self-handicapping: the role of discounting and augmentation in the preservation of self-esteem. *Journal of Personality and Social Psychology*, **61**, 122-131.
- Sarason, I. G. (1978). The test anxiety scale: concept and research. In I. G. Sarason & C. D. Spielberger (Eds), *Stress and Anxiety Vol. 5*, pp. 193-216. Washington: Hemisphere.

- Seligman, M. E. P., Abramson, L. Y., Semmel, A. & von Beyer, C. (1979). Depressive attributional style. *Journal of Abnormal Psychology*, **88**, 242-247.
- Schwarzer, R. & Jerusalem, M. (1982). Self-serving attributions after performance feedback. *Zeitschrift für Entwicklungspsychologie und Pädagogische Psychologie*, **14**, 47-57.
- Shrauger, J. S. (1975). Responses to evaluation as a function of initial self-perceptions. *Psychological Bulletin*, **82**, 581-596.
- Shrauger, J. S. (1982). Selection and processing of self-evaluative information: experimental evidence and clinical implications. In G. Weary & H. L. Mirels (Eds), *Integrations of Clinical and Social Psychology*. New York: Oxford University Press.
- Snyder, M. L., Smoller, B., Strenta, A. & Frankel, A. (1981). A comparison of egotism, negativity, and learned helplessness as explanations for poor performance after unsolvable problems. *Journal of Personality and Social Psychology*, **40**, 24-30.
- Speilberger, C. D., Gorsuch, R. L., Lushene, R., Vagg, P. R. & Jacobs, G. A. (1983). *Manual for the State-Trait Anxiety Inventory*. Palo Alto: Consulting Psychologists Press.
- Tang, T. L., Lui, H. & Vermillion, W. H. (1987). Effects of self-esteem and task labels (difficult vs. easy) on intrinsic motivation, goal setting and task performance. *Journal of General Psychology*, **114**, 249-262.
- Tice, D. M. & Baumeister, R. F. (1990). Self-esteem, self-handicapping and self-presentation: the strategy of inadequate practice. *Journal of Personality*, **58**, 443-464.
- Thompson, T. (1993). Remote associate problem sets in performance feedback paradigms. *Personality and Individual Differences*, **14**, 11-15.
- Van Overwalle, F. & de Metsenaere, M. (1990). The effects of attribution-based intervention and study strategy training on academic achievement in college freshmen. *British Journal of Educational Psychology*, **60**, 299-311.
- Van Overwalle, F., Segebarth, K. & Goldchstein, M. (1989). Improving performance of freshmen through attributional testimonies from fellow students. *British Journal of Educational Psychology*, **59**, 75-85.
- Watson, D. & Friend, R. (1969). Measurement of social-evaluative anxiety. *Journal of Consulting and Clinical Psychology*, **33**, 448-457.
- Weiner, B. (1972). *Theories of Motivation: From Mechanism to Cognition*. Chicago: Rand McNally.
- Weiner, B. (Ed.) (1974). *Achievement Motivation and Attribution Theory*. Morristown, NJ: General Learning Press.
- Weiner, B. (1979). A theory of motivation for some classroom experiences. *Journal of Educational Psychology*, **71**, 3-25.
- Wilson, T. D. & Linville, P. W. (1982). Improving the academic performance of college freshmen: attribution therapy revisited. *Journal of Personality and Social Psychology*, **42**, 367-376.
- Wilson, T. D. & Linville, P. W. (1985). Improving the performance of college freshmen with attributional techniques. *Journal of Personality and Social Psychology*, **49**, 287-293.
- Winer, B. J. (1971). *Statistical Principles in Experimental Design*. New York: McGraw-Hill.

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### Self-worth Protection: Review and Implications for the Classroom.

All too familiar to educators associated with students from elementary grade through to graduate level is the student who consistently underachieves despite an apparent ability to cope with the demands of his or her studies. Such behaviour may cloak a pattern of self-worth protection in student achievement motivation. The self-worth theory of achievement motivation (Beery, 1975; Covington, 1984a, 1984b; Covington & Beery, 1976) states that in certain situations, students stand to gain by not trying: by deliberately withdrawing effort. Where failure occurs despite expending effort, the individual's defence against inferences that he or she lacks ability are weak. Attributions to inability give rise to shame and diminished self-evaluations (Covington, Spratt & Omelich, 1980), factors which are known to make substantial variations in subsequent achievement performance (Covington & Omelich, 1981).

Withdrawal of effort thus offers a strategic defence against attributions to lack of ability and serves as a means of protecting self-esteem (Frankel & Snyder, 1978). However, the stock of self-protective strategies adopted by self-worth protective individuals extend beyond mere withdrawal of effort. A variety of self-handicapping strategies have been described as symptoms of self-worth protection (Beery, 1975; Covington, 1984b; Covington & Beery, 1976; Thompson, 1993b). These include procrastination, last-minute study, selecting low, easily achieved goals (thereby minimising damage to self-esteem through low risk-taking), or selecting goals which are extremely difficult to attain. The latter strategy provides a ready-made defence to the difficulty of the goal in the event of failure. Thereby, attributions to inability are turned aside. A further strategy involves opting out: withdrawing from courses and units of study when risk of failure is apparent. Within the self-handicapping literature, unattainable goal choice (Greenberg, 1985) and withdrawal of effort (Ferrari, 1991; Harris & Snyder, 1986; Pyszczynski & Greenberg, 1983; Tice & Baumeister, 1990) have been investigated as forms of self-handicapping behaviour.

Students motivated to protect self-worth in achievement situations do so as a consequence of fear of failure (Beery, 1975; Birney, Burdick & Teevan, 1969; Covington & Beery, 1976). However, the performance of students who are particularly afraid of failing is improved when a task is described as very difficult (Feather, 1961, 1963; Karabenick & Youssef, 1968). With a ready-made attribution to task difficulty rather than to the person, the threat to self-esteem is removed.

The above established predictions governing the design of studies by Thompson (Thompson, 1993a; Thompson & Barber, 1993). These studies investigated individual difference variables associated with self-worth protection, together with performance effects under situations of high and low evaluative threat. Situations of low evaluative threat were created by exposing students to failure which allowed a face-saving opportunity, while situations of high evaluative threat were created by exposing students to failure where no such face-saving opportunity was available.

From these studies, self-worth protective students were found to have high fear of failure, low estimates of their academic ability and to be uncertain of their level of global self-evaluations. Relative to their low academic self-esteem counterparts who were certain of their global self-evaluations, self-worth protective students showed differential performance effects under situations of high and low evaluative threat. Following failure which allowed opportunity to externalise responsibility with the provision of a face-saving excuse, self-worth protective students showed considerably enhanced performance, but markedly deteriorated performance following failure where no such face-saving opportunity was available (Thompson & Barber, 1993). Important pre-conditions for this deteriorated performance by self-worth students were that the failure was both attributable to the self and constituted a threat to self-esteem.

A paradox was presented in findings concerned with the attributional behaviour of self-worth students. While self-worth students failed to blame lack of ability as a cause of their failure, they nonetheless externalised the cause of their success, refusing to assume authorship for the successes they had brought about through their own endeavour. The failure of self-worth students to fully internalise their success was consistent with their low academic self-esteem. On the other hand, the fact that they were undifferentiated from other student comparison groups on the basis of their attributions following failure was not. That self-worth protective students do not attribute their failure to inability is nevertheless consistent with the understanding of motivational dynamics associated with self-worth protection mentioned earlier. This involves strategic withdrawal of effort in situations which forebode failure and thereby, damage to self-esteem (Frankel & Snyder, 1978). Both the attributional behaviour and performance effects associated with self-worth protection were explained in terms of findings concerned with self-esteem certainty (e.g. see Harris & Snyder, 1986; Rhodewalt, Morf, Hazlett & Fairfield, 1991).

The Thompson (1993a) and Thompson & Barber (1993) studies are unique in two senses. First, they offer evidence concerning individual difference variables associated with self-worth protective students. These findings are relative to an operational definition which has been shown to have ecological validity in terms of the known symptoms, strategies and lore of self-worth protection (Thompson, 1993a). Secondly, they confirm markedly different patterns of performance for self-worth protective students in situations of high and low evaluative threat (c.f. Covington & Omelich, 1985, 1991). Collectively, these findings allow authoritative comment in relation to strategies by which the achievement behaviour of self-worth protective students might be enhanced and advice in relation to proactive intervention.

The original contribution of the present article is thus to make recommendations in these respects, and to offer an account of the etiology of self-worth protection from which classroom implications might be drawn. In the discussion which follows, recommendations are based on the above findings concerning individual difference variables associated with self-worth protection, as well as on an understanding of situational factors which give rise to self-worth protection.

#### Etiology of Self-worth Protection

An understanding of the development of self-worth protection is helped by comments by Berglas concerning the genesis of self-handicapping behaviours (Berglas & Jones, 1978; Berglas, 1985, 1988). A consistent theme running through Berglas' comments is the role of exposure to noncontingent success: to a performance history which cannot be readily deciphered in terms of the ingredients which have made for success. Berglas & Jones (1978) suggest that the strategic orientation of self-handicappers stems from a "capricious, chaotic reinforcement history" ... [claiming] "it is not that their histories are pocked with repeated failure; they have been amply rewarded, but in ways and on occasions that leave them deeply uncertain about what the reward was for" (p. 407).

Two types of noncontingent success are identified. One is where success is attributed to stable dispositional qualities in the person which have nothing to do with the development of a sense of self-efficacy. Such a case would be where success is attributed to physical attractiveness or personality, so that in Berglas' (1990) terms, the person is left wondering "was I successful for what I did, or for what I am?" (p. 174). The other type of noncontingent success arises where rewards are excessive, far exceeding expectations as to what is judged appropriate in the

circumstances. Such rewards obligate individuals to act in accordance with the excessive reward, and by their future actions, 'deserve' that reward.

The assumption by Berglas (1986, 1990) is that the performance pressures implicit in such feedback assume causal status in relation to the genesis of self-handicapping behaviour. In the case of students generally, it is unlikely that exposure to noncontingent feedback alone can account for the origin of the self-handicapping symptoms associated with self-worth protection. Doubtless, not all students exposed to noncontingent feedback manifest self-worth protective behaviours in achievement situations. Exposure to noncontingent success (or failure) feedback may, nonetheless, be a significant factor which, in conjunction with the personological variables associated with self-worth protective students mentioned earlier, establish a set of conditions conducive to the development of self-worth protection. Several considerations support this suggestion.

First, low self-esteem individuals base future expectations for their success on the basis of their past failures. A selective perceptual process operates whereby past successes are ignored in favour of past failures, so that future performance outcomes are predicted on this basis (Shrauger, 1975, 1982). Given the low academic self-esteem of self-worth protective students, noncontingent feedback in relation to success outcomes would presumably exacerbate their rejection of success.

Second, the tenuous self-esteem of self-worth protective students reflected in their high level of uncertainty in global self-evaluations would appear to render them more vulnerable to noncontingent success and failure feedback (Jones & Berglas, 1978; Covington, 1984b; Kernis, Grannemann & Barclay, 1992; Rhodewalt & Davison, 1986; Self, 1990). Rhodewalt & Davison (1986) for example, found that males exposed to noncontingent failure feedback (and to a lesser extent noncontingent success feedback) self-handicapped by choosing to listen to music said to impair performance while taking an ability test.

A caveat must be noted in the case of failure feedback however. Rhodewalt & Davison (1986) maintain that for self-handicapping to occur there must be uncertainty about whether (and perhaps how) a further failure can be avoided as well as uncertainty about the cause of the failure. Defence of the first point is reasonably obvious. If there is no uncertainty about the cause of the failure - if, for example, failure can be confidently attributed to lack of ability - then there is no esteem need to defend, and hence, no self-handicapping behaviour. On the other hand, if there are known ways to avoid future failure, then again, the chances of self-handicapping will be minimised. On the strength of the above, a tenuous self-

esteem, while a necessary condition for self-handicapping, would evidently not qualify as a sufficient condition.

Within the present discussion of classroom implications associated with self-worth protection, none of the fore-going evidence which links noncontingent success or failure feedback with the self-handicapping behaviour of self-worth protective students is likely to be of particular consequence without evidence of noncontingent feedback in classrooms, and evidence also of its effects. Evidence in both respects is given by Brophy (1981), in a review of teachers' use of verbal praise. Brophy (1981) found that teachers' use of praise is both infrequent and fails to function effectively as reinforcement in that it lacks specificity, sincerity, variety and credibility. Blickle (1991) indicates that under certain conditions (e.g. where teachers respond differentially to students for identical performances), students perceive praise as a negative evaluation of their abilities, presuming it to be a condescension based on a low estimate of student ability. Similar evidence centred on students' negative interpretations of teacher praise has been gained by Meyer and colleagues (Meyer, 1982; Meyer, Bachmann, Biermann, Hempelmann, Ploger & Spiller, 1979; Meyer, Mittag & Endler, 1986).

Even more disturbing are findings which indicate that praise is not given contingently upon successful performance. A tendency to praise incorrect answers has been noted by several researchers (Anderson, Evertson, & Brophy, 1979; Bellack, Kliebard, Hyman & Smith, 1966). There is evidence also that undeserving praise (albeit well-intended), is given to low achievers (Brookover, Schweitzer, Schneider, Beady, Flood & Wisenbaker, 1978; Weinstein, 1976). Teachers with low expectations of students' learning have likewise been found to deliver praise noncontingently (Brookover et al., 1978).

There is thus considerable evidence of the use of noncontingent praise in classrooms. The above discussion thus clearly establishes that self-worth protection may arise as a result of evaluative feedback offered by teachers within classrooms. The potency of noncontingent feedback in terms of its effects is exaggerated for self-worth protective students by reason of their low ability estimations and uncertain assessments of their global self-evaluations. Further evidence for the role of noncontingent success in relation to the development of failure-avoiding tactics in achievement situations is given in self-worth protective students' characteristic rejection of success. These insights have particular importance in terms of the modification of self-worth protection and proactive intervention, discussed below.

### Reducing the Bases of Evaluative Threat

The self-handicapping behaviours of self-worth protective students arise as a result of perceived threat to self-esteem. This occurs when projected poor performance can be expected to reflect inability and thereby diminish perceptions of self-worth. Situations of intellectual evaluative threat can be created by a diverse array of factors. These include new or somewhat unfamiliar learning tasks or environments, rising or ambiguous demands on the part of teachers and achievement requirements which are assessed to be beyond the individual's capacity to realise.

Evaluative threat is nowhere more readily apparent than in the assessment of student learning through examinations, tests, assignments and the like. For self-worth protective students, perceptions of self-worth can appear to be maintained or crumple on the basis of performance feedback, assignment by assignment (Thompson, 1993b). As noted, such concerns are manifest in terms of high levels of test anxiety. Mehrens & Lehmann (1973) offer valuable insights by way of reducing the adverse effects of test anxiety. Two recommendations are offered. First, they recommend that assessment processes are better diffused over several test occasions rather than few, thereby reducing evaluative stress. On the same basis, opportunities for students to redeem themselves are advised where students either perform poorly or believe themselves to have performed poorly.

As evaluative threat is exaggerated under conditions of uncertainty, a further concern involves minimising uncertainty as it arises in achievement situations. Recommendations in this regard are made in the section which follows.

### Minimising Uncertainty in Achievement Contexts

A further factor which is known to govern self-handicapping behaviour in the forms manifested by self-worth protective students is the creation of uncertainty. Studies examining self-handicapping behaviour have important insights to contribute in this regard. Uncertainty can be created in two forms. One is that created by exposure to noncontingent success. Exposure to noncontingent success creates uncertain self-images (e.g. Berglas & Jones, 1978; Higgins & Harris, 1988; Kolditz & Arkin, 1982; Mayerson & Rhodewalt, 1988; Rhodewalt & Davison, 1986; Tucker, Vuchinich & Sobell, 1981). These are situations in which attributional uncertainty is engendered. In such situations it is unlikely that students identify luck or chance as causes of their success or failure, but that they simply remain unaware of the causes of their achievement outcomes. Butler & Orion (1990) found such a sense of "unknown control" associated with poor achievement in primary school children. Such perceptions can be altered where teachers offer explicit



advice concerning achievement demands and in assessment processes, clearly identifying the criteria against which successful or failing performance has been judged.

Uncertainty in the form of future performance outcomes may also give rise to self-worth protective behaviour. A number of studies may be cited in support of this claim (Shepperd & Arkin, 1991; Smith, Snyder & Handelsman, 1982; Smith, Snyder & Perkins, 1983). The two forms of uncertainty - that arising from exposure to noncontingent success, and that which results from uncertain predictions of future performance outcomes - are nevertheless linked and interdependent. On the one hand, the creation of uncertainty concerning future performance outcomes challenges the certainty of self-perceptions, often in the form of perceived competence to achieve a particular outcome. On the other hand, persons with uncertain self-images doubt their ability to perform efficaciously. The creation of uncertainty in either sense is associated with the adoption of self-protective strategies which result in underachievement.

Uncertainty may be created by change factors such as school transition, grade promotion or a change in teachers. More typically however, uncertainty arises from ambiguously stated expectations and demands on the part of teachers, as well as unclear assessment and evaluative feedback. For self-worth protective students, with low ability estimations and uncertain appraisals of their self-worth, the potentially unsettling effects of such factors are likely to be particularly marked.

The implications which follow from these conclusions are best translated in terms of principles governing the planning and sequencing of instructional processes. These include advice accompanying assessments, tests, assignments, projects and the like. It is also important that teachers be aware that students with low and uncertain self-evaluations are most disadvantaged by the creation of uncertainty in the above-mentioned respects. There are advantages too if teachers are able to recognise that symptoms of failure-avoidance manifest in prevarication, withdrawal of effort and low goal-setting occur in the service of self-protection where academic requirements create uncertainty and evaluative threat.

#### De-emphasis of Ability as a Criterion of Self-worth

For self-worth protective students, there is generally an unremitting and exaggerated concern over the adequacy of one's personal performance (Thompson, 1993b). The assumption is that such concerns are premised on the perceived salience of achievement as a criterion of personal worth (Beery, 1975; Covington & Omelich, 1979a, 1979b; Harari & Covington, 1981; Nicholls, 1975, 1976; Sigall & Gould, 1977; Sohn, 1977). These emphases are held to derive from a tendency in

society to equate an ability to achieve competitively with human value (Gardner, 1961). Normative grading practices exacerbate the performance pressures which derive from the perceived equation between personal worth and ability, allowing few to achieve the highest grades. As high grades can be earned by only a minority of students, high grades become valued for their scarcity and stand as ready indicators of high ability.

This given, self-worth hinges importantly and tenuously on proof given through successful performance. Often there is a single domain of performance which becomes the touchstone for such estimations (Thompson, 1993b). Rarely is one basis of achievement moderated against others. Linville (1985, 1987) draws attention to the risks which arise from a self-view which sees self-worth attached to few, as opposed to many, self-aspects. Proneness to depression and anxiety following an experience of defeat or less than adequate performance are associates of a such a simplified self-view.

These emphases on ability as an index of personal worth are evident as cultural values and reflected in aspects of institutional ethos: in prizes, accolades and awards for academic or sporting excellence and in consequent perceptions of the value and importance of winning. They are evident too in teacher expectations and messages concerning the bases of student valuation. As such, these emphases may be difficult to change.

A realizable goal may nevertheless be to encourage alternative and multiple bases of personal valuation, so that students come to realise that academic endeavour is not the *sine qua non* of personal worth. Advantages in this regard are argued by Linville in the research mentioned above. Where a sense of self-worth hinges on several as opposed to a few (or even one) domain of performance or endeavour, the individual has a buffer against negative life events. Such changes need to become incorporated as aspects of institutional ethos, and recommended to students by formal and informal networks of advice and encouragement.

In other respects, learning approaches which de-emphasise individualistic, competitive orientations in favour of cooperative learning can be expected to ameliorate the concern over ability proven through competitive effort as a criterion of self-worth. Evidence for such advantages is presented in a later section.

#### Enhancing Academic Self-esteem

The interventional implications which arise from the low academic self-esteem of self-worth students derive from known strategies to enhance self-esteem. These have been discussed in detail elsewhere (e.g. Felker, Stanwyck & Kay, 1973; Gurney, 1987). Students need to be put in touch with the requirements of their

academic programs in order to assume responsibility for their self-produced success and thereby, to understand the bases on which judgements and evaluations are made concerning their academic work. Two imperatives stem from the tendency on the part of self-worth students to reject their own agency as cause of their success. One is that assessment feedback offered by teachers needs to make explicit students' own actions as the causal factor in their achievement success. The other point, reinforced by the findings of Butler & Nisan (1986), is that those responsible for assessment feedback clearly identify the criteria or bases of assessment against which successful performance has been judged. A factor of relevance here is that it is likely in new learning environments where students are unfamiliar with the requirements and expectations of their academic programs that they least understand the determinants of their success. In such situations, it is unlikely that students identify luck or chance as causes of their success or failure, but that they simply remain unaware of why they have met with success or otherwise.

#### Attributional Retraining

While self-worth students fail to attribute their failure to inability, they nonetheless externalise the causes of their success, refusing to assume authorship for the successes they have brought about through their own endeavour. These findings in relation to the attributional behaviour of self-worth protective students add a new and arresting dimension to the popularly assumed attributional bases of underachievement. While attributional retraining programs have generally addressed achievement-limiting attributions to inability following failure (e.g. Craske, 1985, 1988; Wilson & Linville, 1982, 1985; Van Overwalle & de Metsenaere, 1990), the advice from the Thompson (1993a) and Thompson & Barber (1993) studies is that student achievement is also limited by a tendency on the part of self-worth protective students to see their successes as determined by factors outside their control, and as isolated and unrepeatable. Neither from the results of the Thompson (1993a) study nor from the results gained by Craske (1988), is there evidence that inability attributions following failure underlie self-worth protection. For these students, it is not their explanations of failure outcomes which are the problem, but the manner in which they explain their success. This finding has implications in terms of the modification of self-worth protection through attributional retraining programs.

As self-worth students fail to internalise failure in the manner consistent with low self-esteem students, then attributional retraining programs (at least insofar as they are addressed to failure outcomes) will be "water off a duck's back": they will fail to respond. This being so, attributional retraining strategies might more

profitably focus on encouraging self-worth students to accept reasonable credit for their successes rather than concentrating on training students to substitute inability attributions following failure for lack of effort.

In this regard, several studies aimed at restructuring attributions following failure argue the effectiveness of attributional testimonies from fellow students presented on videotape (Van Overwalle, Segebarth & Goldchstein, 1989; Van Overwalle & de Metsenaere, 1990). What is heartening is that relatively simple, easily executed, short-run interventions can produce quite dramatic effects (e.g. Wilson & Linville, 1982, 1985). It is advisable that such strategies incorporate instruction in relation to effective study skills (Covington & Omelich, 1991).

Apart from such programs which target groups of students, the potential which resides with the individual teacher to influence the manner in which their students attribute their successes and failures cannot be underestimated. The section which follows nevertheless indicates that this potential is overlooked, with particular penalty for self-worth protective students.

#### Attributional Messages from Teachers

While it may be assumed that teachers are in a prime position to actively shape their students' perceptions of the causes of their successes and failures, there is evidence that this potential is either largely unexploited or (more seriously) distorted in its application. Evidence in the latter respect is given by Dweck and her colleagues (Dweck, Davidson, Nelson & Enna, 1978; Dweck & Goetz, 1978). Dweck & Goetz (1978) found gender differences in the content of teachers' use of praise. These differences were associated with a tendency on the part of female students to attribute their failures to internal and stable factors such as lack of ability and their successes to external factors such as receiving appropriate guidance from the teacher, or as an outcome of conforming with the teacher's demands. Male students on the other hand, tended to discount teacher criticism on the basis that it was confined to issues of less consequence (matters of form rather than substance: untidiness, noncompliance with the teachers' requirements of 'correct' procedure and the like). Failures were thus attributed to stable but external factors such as inappropriate teacher attitudes, or to internal but unstable factors such as inappropriate effort. Their successes meanwhile, they attributed to stable, internal ability factors. It is important to note that when these patterns of teacher feedback were subjected to experimental manipulation and reversed, the previously observed gender difference was erased (Dweck, Davidson, Nelson & Enna, 1978).

The important point from these findings in the present context is not so much the finding of gender differences per se, however important these may be. The

significance of these findings in the context of the present discussion is that teachers' evaluative feedback carries unmistakable potential to influence the attributional thinking of their students. The influence can, of course, be either productive or to the detriment of students' academic performance. If teachers are able to actively shape (albeit unconsciously) student attributions as is revealed from the studies by Dweck and her colleagues, then teachers' evaluative feedback holds potential to enhance student achievement which is limited by negative affect and self-defeating cognitions. This is the case for self-worth protective students' rejection of personal agency for their successes.

On this basis, alerting teachers to the types of evaluative feedback messages which are conducive to encouraging productive attributional thinking among students is clearly advised. The need to do so is endorsed by evidence that this potential remains largely untapped. Evidence in this regard has been gathered by Blumenfeld, Hamilton, Bossert, Wessels & Meece (1983). Analysing the content of teacher talk in the classroom, these researchers found that attributional feedback statements occur infrequently (comprising less than 1% of total communications in the classroom) and are reactive, negative and procedural (rather than informational) in nature.

#### Effective Use of Praise and Evaluative Feedback

The above findings indicating infrequent and faulty use of evaluative feedback assume further significance in the following. There is evidence that controlling as opposed to informational rewards are likely to be involved in both the genesis and maintenance of self-worth protective behaviours. Praise which is experienced as controlling effectively chokes the intrinsic motivation of students (e.g. Bates, 1979; Butler & Nisan, 1986; Koestner, Ryan, Bernieri & Holt, 1984; Lepper, 1983; Pittman, Davey, Alafat, Wetherill, & Kramer, 1980) and imposes an external performance pressure. When performance feedback is uncontaminated by messages which are controlling or constraining, a sense of self-efficacy is promoted and intrinsic motivation is maintained. For self-worth protective students with an already low expectation of success and sensitivity to situations of evaluative threat, rewards which are perceived as controlling have clear potential to give rise to failure-avoidant behaviours.

The distinction between informational and controlling rewards in fact derives from Deci's (Deci, 1975; Deci, Cascio, & Krusell, 1975) cognitive evaluation theory, which suggests that rewards have two components - a controlling component that encourages explanations of performance to external factors, thereby undermining the individual's sense of self-determination, and an informational

component, conducive to perpetuating needs for competence and control. Informational praise thus gives performance information and that alone, while controlling praise involves conditional statements or directive comment, for example: "If you play another game like that you'll be selected for the State side".

The distinction between informational versus controlling rewards is also reflected in distinctions drawn by Berglas (1990) between evaluative versus directive components of praise on the one hand, and person-versus task-based praise on the other. The evaluative component of praise is reactive, being given contingently on the basis of past successful performance. Evaluative praise informs an individual how his or her skills or performance compare to those of other people without any implication that the individual may be expected to produce a repeat performance. This is praise without a 'directive' component. Directive praise on the other hand, is forward-looking, and imposes a pressure to repeat past successes. As Berglas (1990) puts it: "whereas the evaluative component of praise informs the individual "you did well", the directive component conveys the message "you should [again] do well" (p. 157).

The significance of this distinction is that for self-worth protective students, evaluative praise carries potential to tip the balance between the antagonistic needs to achieve success and avoid failure. With the performance pressure implicit in person-based praise, intrinsic motivation is sapped and failure-avoidant strategies are aroused. Person-based praise is often directive in nature, imposing stable dispositional qualities on the person being evaluated. To be described as "gifted" or "talented" implies an expectation that these qualities inhere in the person, are stable over time, and that they are likely to be confirmed in future performance. Feedback of the form "You're an 'A' student" or "You're invincible", well intended as they may be as messages of praise and encouragement have, under the present analysis, potential to impose a pressure for repeat performance. The kind of attribution nominated in such feedback is dispositional (Jones & Davis, 1965) or characterological (Janoff-Bulman, 1979). Praise of this nature is thereby directive of future performance.

The roots of failure avoidance and the self-handicapping strategies which characterise the behaviour of self-worth protective students in achievement situations lie in the performance stress arising from such an expectation. Evaluative praise constitutes a form of performance pressure and thereby, a source of evaluative threat for self-worth students. The motivation to defend against the demands of controlling praise which is directive of future performance is thus all the more pronounced for self-worth protective students.

The implications which follow from this discussion concern both teachers and teacher educators. Clearly, evaluative feedback from teachers carries potential to exaggerate if not perpetuate the self-handicapping behaviours of self-worth protective students. Due attention to evaluative feedback whether delivered verbally or in written form (as for example in the case of assignment feedback) is required. Skills training for both pre-service and in-service teachers is recommended. While the benefits may be confidently expected to generalise to all students, they can be predicted to be particularly marked for self-worth students.

#### Non-competitive Learning Structures

A final respect in which self-worth protection may be forestalled is not original to this writer, but is given by Covington & Beery (Beery, 1975; Covington & Beery, 1976; Covington, 1984b). Recommendations from these researchers have not, however, been assessed against knowledge of individual difference variables associated with self-worth protective students.

Covington and Beery recommend cooperative learning structures as a means of taking the competitive sting out of individualistic, norm-referenced achievement situations. Such situations accent ability proven through competitive effort as a criterion of self-worth. Responsibility for achievement thereby devolves largely if not entirely upon the individual. As a consequence, ability proven through competitive effort assumes salience as a criterion of self-worth. Such conditions create the climate for the failure-avoidant behaviours by which self-worth students are characterised.

However, the outcomes associated with non-competitive learning structures are otherwise. The reasoning is that non-competitive learning structures, by increasing the number of rewards open to students, promote the pursuit of success rather than encouraging avoidance of failure. Herein lies the benefit for self-worth students. While norm-referenced conditions emphasize success at the expense of other students, task-oriented learning situations lay stress on change in one's performance over time, so that self-improvement becomes the dominant goal. Cooperative learning, whereby an individual student within a team takes responsibility for some part of an achievement enterprise, is thus recommended for its de-emphasis of competition based on individual effort. This is also the case for contract learning, in which students establish work agreements with teachers and jointly develop plans to overcome obstacles in learning (Covington & Beery, 1976). The outcome, as seen by Covington (1984b) and Covington & Omelich, (1984) is a strengthening of the link between effort and performance, promoting "realistic goal setting ... [allowing] more constructive interpretations of failure experiences" (p. 17).

As is evident in this quote, there is a presumed benefit in terms of attributional restructuring, particularly following failure outcomes. While failure-prone individuals explain their failures in terms of stable, internal factors such as inability and their successes in terms of external factors such as good luck or task ease, for success-oriented individuals the story is reversed. Failures are disowned, while successes are explained on the basis of internal factors such as effort or ability.

While the anticipated advantages of cooperative learning for self-worth students are reasonable, the empirical evidence is incomplete. On the positive side, Slavin (1983) in a review of non-cognitive outcomes of cooperative learning, reports that cooperative learning programs do in fact promote components of cooperative and altruistic behaviours more than competitive or individualistic learning structures. On this basis, there is ground for assuming that cooperative learning structures may facilitate learning conditions of benefit to self-worth students by minimizing the chances of failure-avoidance associated with competitive, individualistic achievement situations, where responsibility for successful performance and the negative implications of failure devolve entirely upon the individual.

With regard to gains in self-esteem, Thompson, (1993a) has established that self-worth students have lower levels of academic self-esteem relative to non self-worth students, but are undifferentiated on the basis of their global self-esteem. While several studies report gains in social and global self-esteem as an outcome of cooperative learning programs (De Vries, Lucasse & Shackman, 1979; Madden & Slavin, 1983, Schaeffer & Bratter, 1990), gains in academic self-esteem have either failed to register or were marginal (Slavin & Karweit, 1985). There is no dependable evidence then, that cooperative learning paradigms have beneficial effects in terms of enhancing students' academic self-esteem. Nor is there any empirical evidence that cooperative learning approaches establish conditions conducive to a reduction in fear of failure. However the assumption is probably reasonable, given that responsibility for failure will be shared among a group of students rather than belonging solely to the individual.

There is also evidence of benefits in relation to locus of control. Several studies (Chambers & Abrami, 1991; Johnson, Johnson & Scott, 1978; Slavin, 1978; Wheeler & Ryan, 1973) report greater internality associated with students' perceptions of the causes of their academic success. The explanation given for these effects is that cooperative learning generally involves clearly delineated tasks and guidelines for their achievement which students are required to complete in order to achieve a particular learning goal. These guidelines, together with the



segmentation of learning tasks and care given to the sequencing of instructional tasks are presumed to multiply experiences of success and thereby increase feelings of internal locus of control.

In summary, the anticipated learning benefits associated with noncompetitive learning structures for self-worth students stand largely justified in the above. These include promoting internal perceptions of control and reducing fear of failure through de-emphasising competitive behaviours and individualistic orientations.

#### Summary of Implications and Conclusions

The review presented in the preceding sections has established the importance of minimising uncertainty and situations of evaluative threat for self-worth protective individuals. Attribution retraining programs which encourage students to assume due credit for their successes have been recommended as a means of addressing a known tendency on the part of self-worth students to reject their own agency as cause of their successes. This tendency on the part of self-worth protective students to misattribute the causes of their success can be further redressed by effective use of praise and evaluative feedback by teachers in the assessment and evaluation of student learning.

The advantages of cooperative learning structures which de-emphasise individualistic, competitive orientations have been shown to be largely vindicated in terms of their potential to reduce sources of evaluative threat and fear of failure. Care given to the sequencing of instructional tasks is presumed to minimise both uncertainty in learning processes and multiply experiences of success, thereby enhancing feelings of personal control.

The discussion above which has been diagnostic of both the genesis and maintenance of self-worth protection has underscored the importance of the nature of the evaluative feedback students receive from teachers. The tendency on the part of self-worth protective students to see their successes as determined by factors outside their control, and as isolated and unrepeatable has been linked to exposure to noncontingent feedback. Exposure to rewards which are controlling rather than purely informational both diminish intrinsic motivation and constitute a performance pressure, conditions conducive to the adoption of failure-avoidant strategies. In the penultimate section, an assessment was made that teachers' feedback is able to influence the attributional thinking of students, a finding carrying implications for teachers in countering students' self-defeating cognitions following success and failure outcomes.

The suggestion has also been made that for self-worth students, attributional retraining programs might more profitably focus on modifying attributions following success outcomes than attributions following failure. While not retracting from this assertion, it would seem advisable to design attributional retraining programs where unproductive attributions following both success and failure outcomes are addressed. This advice is given on the basis that while failure-avoiding students will benefit from programs which encourage internalisation of success, failure-accepting students will benefit from an approach which focuses on substituting inability attributions following failure in favour of attributions to lack of effort. Students manifesting either pattern of underachievement are doubtless to be found in most classrooms at whatever educational level.

## References

- Anderson, L., Evertson, C., & Brophy, J. (1979). An experimental study of effective teaching in first-grade reading groups. Elementary School Journal, 79, 193-223.
- Bates, J. A. (1979). Extrinsic reward and intrinsic motivation: A review with implications for the classroom. Review of Educational Research, 49, 557-576.
- Beery, R. (1975). Fear of failure in the student experience. Personnel and Guidance Journal, 54, 191-203.
- Bellack, A., Kliebard, H., Hyman, R., & Smith, F. (1966). The language of the classroom. New York: Teachers College Press.
- Berglas, S. (1990). Self-handicapping: Etiological and diagnostic considerations. In R. L. Higgins, C. R. Snyder & S. Berglas (Eds.), Self-handicapping: The paradox that isn't. (pp. 152-182). Plenum Press: New York.
- Berglas, S. (1985). Self-handicapping and self-handicappers: A cognitive/attributional model of interpersonal and self-protective behaviour. In R. Hogan (Ed.), Perspectives in Personality (Vol. 1, pp. 235-270). Greenwich, CT: JAI.
- Berglas, S. (1988). The three faces of self-handicapping: Protective self-presentation, a strategy for self-esteem enhancement, and a character disorder. In S. L. Zelen (Ed.), Self-representation: Clinical and theoretical applications of attributions (pp. 133-169). New York: Springer-Verlag.
- Berglas, S. (1987). Self-handicapping model. In H. T. Blane & K. E. Leonard (Eds.), Psychological theories of drinking and alcoholism pp. 305-341). New York: Guilford Press.
- Berglas, S. (1986). The success syndrome: Hitting the bottom when you reach the top. New York: Plenum.
- Berglas, S., & Jones, E. E. (1978). Drug choice as a self-handicapping strategy in response to noncontingent success. Journal of Personality and Social Psychology, 36, 405-417.
- Birney, R. C., Burdick, H., & Teevan, R. C. (1969). Fear of failure. New York: Van Nostrand.
- Blumenfeld, P. C., Hamilton, V. L., Bossert, S. T., Wessels, K., & Meece, J. (1983). Teacher talk and student thought: Socialisation into the student role. In J. M. Levine & M. C. Wang (Eds.), Teacher and student perceptions: Implications for student learning. Lawrence Erlbaum: Hillsdale, NJ.
- Brickle, G. (1991). Anregungsbedingungen für scheinbar paradox(al)e Wirkungen von Lob und Tadel. (Stimulatory conditions of apparently paradoxical effects of praise and blame). Zeitschrift für Pädagogische Psychologie, 5, 21-32.

- Brookover, W., Schweitzer, J., Schneider, J., Beady, C., Flood, P., & Wisenbaker, J. (1978). Elementary school climate and school achievement. American Educational Research Journal, 15, 301-318.
- Brophy, J. (1981). Teacher praise: A functional analysis. Review of Educational Research, 51, 5-32.
- Butler, R., & Nisan, M. (1986). Effects of no feedback, task-related comments, and grades on intrinsic motivation and performance. Journal of Educational Psychology, 78, 210-216.
- Butler, R., & Orion, Z. (1990). When pupils do not understand the determinants of their success and failure in school: Relations between internal, teacher and unknown perceptions of control and school achievement. British Journal of Educational Psychology, 60, 63-75.
- Chambers, B., & Abrami, P. C. (1991). The relationship between student team learning outcomes and achievement, causal attributions and affect. Journal of Educational Psychology, 83, 140-146.
- Covington, M. V. (1984a). The motive for self-worth. In R. Ames & C. Ames (Eds.), Research on motivation in education. New York: Academic Press.
- Covington, M. V. (1984b). The self-worth theory of achievement motivation: Findings and implications. Elementary School Journal, 85, 5-20.
- Covington, M. V., & Beery, R. (1976). Self-worth and school learning. New York: Holt, Rinehart & Winston.
- Covington, M. V., & Omelich, C. E. (1985). Ability and effort valuation among failure-avoiding and failure-accepting students. Journal of Educational Psychology, 77, 446-459.
- Covington, M. V., & Omelich, C. E. (1979a). Effort: The double edged sword in school achievement. Journal of Educational Psychology, 71, 169-182.
- Covington, M. V., & Omelich, C. E. (1979b). It's best to be able and virtuous too: Student and teacher evaluative responses to successful effort. Journal of Educational Psychology, 71, 688-700.
- Covington, M. V., & Omelich, C. E. (1981). As failures mount: Affective and cognitive consequences of ability demotion in the classroom. Journal of Educational Psychology, 73, 796-808.
- Covington, M. V., & Omelich, C. E. (1991). Need achievement revisited: Verification of Atkinson's original 2 x 2 model. In C. D. Spielberger, I. G. Sarason, Z. Kulcsár & G. L. Heck (Eds.), Stress and Emotion: Anxiety, Anger, Curiosity. (Vol. 14, pp. 85-105). New York: Hemisphere.

- Covington, M. V., & Omelich, C. E. (1984). Task-oriented versus competitive learning structures: Motivational and performance consequences. Journal of Educational Psychology, 76, 1038-1050.
- Covington, M. V., Spratt, M. F., & Omelich, C. E. (1980). Is effort enough or does diligence count too? Student and teacher reactions to effort stability in failure. Journal of Educational Psychology, 72, 717-729.
- Craske, M. L. (1985). Improving persistence through observational learning and attribution retraining. British Journal of Educational Psychology, 55, 138-147.
- Craske, M. L. (1988). Learned helplessness, self-worth protection and attribution retraining for primary school children. British Journal of Educational Psychology, 58, 152-164.
- Deci, E. L. (1975). Intrinsic motivation. New York: Plenum Press.
- Deci, E. L., Cascio, W. F., & Krusell, J. (1975). Cognitive evaluation theory and some comments on the Calder & Staw critique. Journal of Personality and Social Psychology, 31, 81-85.
- De Vries, D., Lucasse, P., & Shackman, S. (1979). Small group versus individualized instruction: A field test of their relative effectiveness. Paper presented at the annual convention of the American Psychological Association, New York.
- Dweck, C., Davidson, W., Nelson, S., & Enna, B. (1978). Sex differences in learned helplessness: II. The contingencies of evaluative feedback in the classroom and III. An experimental analysis. Developmental Psychology, 14, 268-276.
- Dweck, C., & Goetz, T. E. (1978). Attribution and learned helplessness. In J. H. Harvey, W. Ickes, & R. F. Kidd (Eds.), New directions in attributional research (Vol. 2, pp. 157-179). Hillsdale, NJ: Lawrence-Erlbaum.
- Feather, N. T. (1961). The relationship of persistence at a task to expectations of success and achievement-related motives. Journal of Abnormal and Social Psychology, 63, 552-561.
- Feather, N. T. (1963). Persistence at a difficult task with an alternative task of intermediate level of difficulty. Abnormal and Social Psychology, 63, 604-609.
- Felker, D. W., Stanwyck, D. J., & Kay, R. S. (1973). The effects of a teacher program in self-concept enhancement on pupils' self-concept, anxiety, and intellectual achievement responsibility. The Journal of Educational Research, 66, 443-445.
- Ferrari, J. R. (1991). A second look at behavioural self-handicapping among women. Journal of Social Behaviour and Personality, 6, 195-206.

- Frankel, A., & Snyder, M. L. (1978). Poor performance following unsolvable anagrams: Learned helplessness or egotism? Journal of Personality and Social Psychology, *36*, 1415-1423.
- Gardner, J. (1961). Excellence: Can we be equal and excellent too? New York: Harper & Row.
- Greenberg, J. (1985). Unattainable goal choice as a self-handicapping strategy. Journal of Applied Social Psychology, *15*, 140-152.
- Gurney, P. (1987). Self-esteem enhancement in children: A review of research findings. Educational Research, *29*, 130-136.
- Harari, O., & Covington, M. V. (1981). Reactions to achievement behaviour from a teacher and student perspective: A developmental analysis. American Educational Research Journal, *18*, 15-28.
- Harris, R. N., & Snyder, C. R. (1986). The role of uncertain self-esteem in self-handicapping. Journal of Personality and Social Psychology, *51*, 451-458.
- Higgins, R. L., & Harris, R. N. (1988). Strategic "alcohol" use: Drinking to self-handicap. Journal of Social and Clinical Psychology, *6*, 191-202.
- Janoff-Bulman, R. (1979). Characterological versus behavioural self-blame: Inquiries into depression and rape. Journal of Personality and Social Psychology, *37*, 1798-1809.
- Johnson, D. W., Johnson, R. T., & Scott, L. (1978). The effects of cooperative and individualized instruction on student attitudes and achievement. Journal of Social Psychology, *104*, 207-216.
- Jones, E. E., & Berglas, S. (1978). Control of attributions about the self through self-handicapping strategies: The appeal of alcohol and the role of underachievement. Personality and Social Psychology Bulletin, *4*, 200-206.
- Jones, E. E., & Davis, K. E. (1965). From acts to dispositions: The attribution process in person perception. In L. Berkowitz (ed.), Advances in experimental social psychology (Vol 2, pp. 219-266). New York: Academic Press.
- Karabenick, S. A., & Youssef, Z. I. (1968). Performance as a function of achievement motive level and perceived difficulty. Journal of Personality and Social Psychology, *10*, 414-419.
- Kernis, M. H., Grannemann, B. D., & Barclay, L. C. (1992). Stability of self-esteem: Assessment, correlates, and excuse making. Journal of Personality, *60*, 621-644.
- Koestner, R., Ryan, R. M., Bernieri, F., & Holt, K. (1984). Setting limits on children's behaviour: The differential effects of controlling vs. informational styles on intrinsic motivation and creativity. Journal of Personality, *52*, 233-248.

- Kolditz, T. A., & Arkin, R. M. (1982). An impression management interpretation of the self-handicapping strategy. Journal of Personality and Social Psychology, 43, 492-502.
- Lepper, M. R. (1983). Extrinsic reward and intrinsic motivation: Implications for the classroom. In J. M. Levine & M. C. Wang (Eds.). Teacher and student perceptions: Implications for student learning. Lawrence Erlbaum: Hillsdale, NJ.
- Linville, P. W. (1985). Self-complexity and affective extremity: Don't put all your eggs in one cognitive basket. Social Cognition, 3, 94-120.
- Linville, P. W. (1987). Self-complexity as a cognitive buffer against stress-related depression and illness. Journal of Personality and Social Psychology, 52, 663-676.
- Madden, N. A. & Slavin, R. E. (1983). Effects of cooperative learning on the social acceptance of mainstreamed academically handicapped students. Journal of Special Education, 17, 171-182.
- Maracek, J., & Mettee, D. R. (1972). Avoidance of continued success as a function of self-esteem, level of esteem certainty, and responsibility for success. Journal of Personality and Social Psychology, 22, 98-107.
- Mayerson, N. H., & Rodewalt, F. (1988). The role of self-protective attributions in the experience of pain. Journal of Social and Clinical Psychology, 6, 203-218.
- Mehrens, W. A., & Lehmann, I. J. (1973). Measurement and Evaluation in Education and Psychology (3rd ed.). New York: Holt, Rinehart & Winston.
- Meyer, W-U., (1982). Indirect communications about perceived ability estimates. Journal of Educational Psychology, 74, 888-897.
- Meyer, W-U., Bachmann, M., Biermann, U., Hempelmann, M., Ploger, F.-O., & Spiller, H. (1979). The informational value of evaluative behaviour: Influences of praise and blame on perceptions of ability. Journal of Educational Psychology, 71, 259-268.
- Meyer, W., Mittag, W., & Engler, U. (1986). Some effects of praise and blame on perceived ability and affect. Social Cognition, 4, 293-308.
- Nicholls, J. (1975). Causal attributions and other achievement-related conditions: Effects of task outcome, attainment value, and sex. Journal of Personality and Social Psychology, 31, 379-389.
- Nisan, M. (1981). Motivational aspects of evaluation in school. In I. A. Lewy & D. Nevo (Eds.), Evaluation roles in education (pp. 133-137). London: Gordon and Breach.

- Pittman, T. S., Davey, M. E., Alafat, K. A., Wetherill, K. V., & Kramer, N. A. (1980). Informational versus controlling verbal rewards. Personality and Social Psychology Bulletin, 6, 228-233.
- Pyszczynski, T., & Greenberg, J. (1983). Determinants of reduction of intended effort as a strategy for coping with anticipated failure. Journal of Research in Personality, 17, 412-422.
- Rhodewalt, F., & Davison, J. (1986). Self-handicapping and subsequent performance: The role of outcome valence and attributional ambiguity. Basic and Applied Social Psychology, 7, 307-322.
- Rhodewalt, F., Morf, C., Hazlett, S., & Fairfield, M. (1991). Self-handicapping: The role of discounting and augmentation in the preservation of self-esteem. Journal of Personality and Social Psychology, 61, 122-131.
- Schaeffer, S. B., & Bratter, B. I. (1990). The uses of Glasser learning team model to evaluate the John Dewey Academy. Journal of Reality Therapy, 10, 46-53.
- Self, E. A. (1990). Situational influences on self-handicapping. In R. L. Higgins, C. R. Snyder & S. Berglas (Eds.), Self-handicapping: The paradox that isn't. (pp. 37-68). Plenum Press: New York.
- Shepperd, J. A., & Arkin, R. M. (1991). Behavioural-other enhancement: Strategically obscuring the link between performance and evaluation. Journal of Personality and Social Psychology, 60, 79-88.
- Shrauger, J. S. (1975). Responses to evaluation as a function of initial self-perceptions. Psychological Bulletin, 82, 581-596.
- Shrauger, J. S. (1982). Selection and processing of self-evaluative information: Experimental evidence and clinical implications. In G. Weary & H. L. Mirels (Eds.), Integrations of clinical and social psychology. New York: Oxford University Press.
- Sigall, H., & Gould, R. (1977). The effects of self-esteem and evaluator demandingness on effort expenditure. Journal of Personality and Social Psychology, 35, 12-20.
- Slavin, R. E. (1983). Non-cognitive outcomes of cooperative learning. In J. M. Levine & M. C. Wang (Eds.), Teacher and student perceptions: Implications for student learning. Lawrence Erlbaum: Hillsdale, NJ.
- Slavin, R. E. (1978). Student teams and comparison among equals: Effects on academic performance and student attitudes. Journal of Educational Psychology, 70, 532-538.



- Slavin, R. E., Karweit, N. L. (1985). Effects of whole class, ability grouped, and individualized instruction on mathematics achievement. American Educational Research Journal, 22, 351-367.
- Smith, T. W., Snyder, C. R., & Handelsmann, M. M. (1982). On the self-serving function of an academic wooden leg: Test anxiety as a self-handicapping strategy. Journal of Personality and Social Psychology, 42, 314-321.
- Smith, T. W., Snyder, C. R., & Perkins, S. C. (1983). The self-serving function of hypochondriacal complaints: Physical symptoms as self-handicapping strategies. Journal of Personality and Social Psychology, 44, 787-797.
- Sohn, D. (1977). Attribution-generating powers of effort and ability self-attributions of academic success and failure. Journal of Educational Psychology, 69, 500-505.
- Tice, D. M., & Baumeister, R. F. (1990). Self-esteem, self-handicapping and self-presentation: The strategy of inadequate practice. Journal of Personality, 58, 443-464.
- Thompson, T. (1993a). Characteristics of self-worth protection in achievement behaviour. British Journal of Educational Psychology 63, 469-488.
- Thompson, T. (1993b). Symptoms and strategies of self-worth protection: Clinical observations, experimental findings and guidelines for therapeutic intervention. Manuscript Submitted for Publication.
- Thompson, T., & Barber, J. G. (1993). Self-worth Protection in Achievement Motivation: Performance Effects and Attributional Behaviour. Manuscript Submitted for Publication.
- Tucker, J. A., Vuchinich, R. E., & Sobell, M. (1981). Alcohol consumption as a self-handicapping strategy. Journal of Abnormal Psychology, 90, 220-230.
- Van Overwalle, F., & de Metsenaere, M. (1990). The effects of attribution-based intervention and study strategy training on academic achievement in college freshmen. British Journal of Educational Psychology, 60, 299-311.
- Van Overwalle, F., Segebarth, K., & Goldchstein, M. (1989). Improving performance of freshmen through attributional testimonies from fellow students. British Journal of Educational Psychology, 59, 75-85.
- Weinstein, R. (1976). Reading group membership in first grade: Teacher expectations and pupil experience over time. Journal of Educational Psychology, 68, 103-116.
- Wheeler, R., & Ryan, F. L. (1973). Effects of cooperative and competitive classroom environments on the attitudes and achievements of elementary school

students engaged in social studies inquiry activities. Journal of Educational Psychology, 65, 402-407.

Wilson, T. D., & Linville, P. W. (1982). Improving the academic performance of college freshmen: attribution therapy revisited. Journal of Personality and Social Psychology, 42, 367-376.

Wilson, T. D., & Linville, P. W. (1985). Improving the performance of college freshmen with attributional techniques. Journal of Personality and Social Psychology, 49, 287-293.