In presenting this thesis in partial fulfilment of the requirements for an advanced
degree at the University of British Columbia, I agree that the Library shall make it
freely available for reference and study. I further agree that permission for extensive
copying of this thesis for scholarly purposes may be granted by the head of my
department or by his or her representatives. It is understood that copying or
publication of this thesis for financial gain shall not be allowed without my written
permission.

(Signature)

Department of Psychology
The University of British Columbia
Vancouver, Canada

Date Dec 17, 1993
Abstract

Previous research has indicated that high self-esteem persons persist more than low self-esteem persons after failure. A study was conducted to test the hypothesis that this finding would be reversed when people have the opportunity to pursue alternate goals in the face of failure. After receiving failure feedback, 120 subjects high and low in chronic self-esteem worked under conditions in which they a) could persist in the failed goal domain only, b) had the option of persisting or pursuing a new goal, or c) had the option of persisting or trying an alternate route to the failed goal. The main dependent measure was the minutes subjects continued to work on the original (failed) task. Contrary to predictions, high and low self-esteem subjects persisted equally in the failed goal domain, regardless of condition. However, high self-esteem subjects did persist more than low self-esteem subjects on the new task option, whether it represented a new goal or an alternative route toward the initial goal. Discussion centers on the interpretation of this pattern of effects, as well as how the present results point to the need for a more complex analysis of the self-esteem/persistence relationship.
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstract</td>
<td>ii</td>
</tr>
<tr>
<td>Table of Contents</td>
<td>iii</td>
</tr>
<tr>
<td>List of Tables</td>
<td>v</td>
</tr>
<tr>
<td>List of Figures</td>
<td>vi</td>
</tr>
<tr>
<td>Acknowledgment</td>
<td>vii</td>
</tr>
<tr>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>Supporting Evidence</td>
<td>11</td>
</tr>
<tr>
<td>The Present Study: Overview and Predictions</td>
<td>22</td>
</tr>
<tr>
<td>Method</td>
<td>24</td>
</tr>
<tr>
<td>Subjects and Design</td>
<td>24</td>
</tr>
<tr>
<td>Procedure</td>
<td>25</td>
</tr>
<tr>
<td>Results</td>
<td>30</td>
</tr>
<tr>
<td>Test of Predictions</td>
<td>31</td>
</tr>
<tr>
<td>Switching Behavior</td>
<td>34</td>
</tr>
<tr>
<td>Persistence on the Word Fragments</td>
<td>35</td>
</tr>
<tr>
<td>Total Persistence</td>
<td>37</td>
</tr>
<tr>
<td>Discussion</td>
<td>38</td>
</tr>
<tr>
<td>Performance Differences</td>
<td>41</td>
</tr>
<tr>
<td>What Did The Switching Mean?</td>
<td>43</td>
</tr>
<tr>
<td>Persistence Differences on the Word Fragments</td>
<td>44</td>
</tr>
<tr>
<td>Other directions for future research</td>
<td>46</td>
</tr>
<tr>
<td>What is the Relationship Between</td>
<td></td>
</tr>
<tr>
<td>Self-esteem and Persistence</td>
<td>48</td>
</tr>
<tr>
<td>Notes</td>
<td>49</td>
</tr>
</tbody>
</table>
Tables................................................... 51
Figures.................................................. 52
References.............................................. 56
Appendix A............................................. 62
Appendix B.............................................. 63
LIST OF TABLES

1. Zero order correlation coefficients
   for all measures

   ........................................ 51
LIST OF FIGURES

1. Persistence on the RAT......................... 52
2. Predictors of persistence on the RAT......... 53
3. Percentage of subjects not
   switching tasks............................. 54
4. Predicted means for self-esteem by
   condition interaction......................55
Acknowledgement

This thesis would not have been possible without the dedication and support of my advisor, Becky Collins. Her continual confidence in my ability to do this work helped me evade the many snags of self-doubt that crept up along the way.

Also, I would like to extend thanks to my other committee members. Jennifer Campbell's thoughtful comments and encouragement were an inspiration. Del Paulhus was always willing to discuss various aspects of the project with me. His interest in the ideas strengthened my belief in the importance of the research.

Of course, this work could not have been done without the constant support of my father, Ray Di Paula. He has been behind me at every step. His faith in me has brought me to this point and will undoubtedly help me to continue.

Finally, I would like extend thanks to the subjects who participated in this research, some of whom persisted much more than they had to.
Introduction

People are goal-directed organisms. According to Lewin (1935), people are motivated to achieve certain desired end-states. This motivation causes people to adopt goals that represent these desired end-states and pursue them. When a goal is achieved, pursuit ceases. Thus, at any point during the period of goal pursuit, the individual necessarily falls short of his or her desired end-state. This discrepancy between standards and actual status is thus a prerequisite for continued goal pursuit. Ironically, this discrepancy is also the basis for decisions to withdraw from a goal.

The process by which people decide to pursue or withdraw from a particular goal was first outlined by Lewin in his field theory (Lewin, 1935). The central concept in Lewin's theory was the tension system; a system that arises out of the psychological needs of the individual. This tension system remains in operation until the needs of the individual are satisfied either by reaching some desired end-state in relation to the need or "leaving the field" of the original need and pursuing the satisfaction of a substitute need. According to Lewin, the individual decides to pursue or withdraw from a goal on the basis of the situation (i.e. those options that the individual has before him or her to satisfy his or her needs). If the situation allows, the individual can pursue the attainment of his or her goal. If the situation blocks attainment, then the individual must pursue a substitute goal.
Another recent theory builds on Lewin's work, but conceptualizes goal-directed behavior somewhat differently. According to Carver & Scheier's (1990) theory of self-regulation, all human behavior can be conceptualized as in the service of some goal or standard. Individuals evaluate their standing on a particular dimension by comparing their present state with a desired goal or standard. This comparison yields an assessment of the discrepancy that exists between the present state and the goal. If there is no discrepancy, then the individual has achieved the goal and pursuit can cease. If there is a negative discrepancy (i.e. if the individual is falling short of the goal), then he or she determines the subjective probability of achieving the goal. This probability assessment is the critical factor that will determine whether the individual will continue to try to reach the goal or withdraw.

The present research is also concerned with factors influencing the decision to persist or withdraw from a goal domain, in particular, chronic self-esteem. Although others have proposed that chronic levels of self-esteem influence persistence behavior, it will be argued that it functions in a manner quite different from that suggested by previous theories. While others have argued that persons high in self-esteem are more likely to persist in the face of failure than persons with low self-esteem (e.g. McFarlin, Baumeister, & Blascovich, 1984), it will be proposed that in many instances,
persons with low self-esteem show higher levels of persistence.

A number of different literatures will be reviewed supporting this proposition. This review will show that the proposed pattern is most likely to emerge when, in the face of failure, people are given the opportunity to switch to ability domains where they have not yet experienced failure. Specifically, it is proposed that, when given other options to pursue, high self-esteem persons will respond to failure by discontinuing goal pursuit earlier than high self-esteem persons given no other options to pursue and earlier than low self-esteem persons. When not given other options, high self-esteem persons should persist more in the face of failure than low self-esteem persons. Following this review, previous studies of persistence will be examined with particular emphasis placed on how previous experimental methods may have obscured the relationship between self-esteem and persistence. Indeed, there is already some suggestion of the proposed pattern in the data concerning self-regulatory differences among persons high and low in self-esteem. This research, based on the work of Higgins (1987), implies that identifying with goals whose attainment is unlikely is chronic among persons with low self-esteem. Higgins (1987) has extensively examined how people's perceived standings on dimensions (actual self-views) are related to their ideal standings on those dimensions (ideal self-views). He suggests that these self-ideals serve a self-regulatory function; that they are,
in fact, goals (Higgins, 1990). Higgins' research shows that most people perceive some discrepancy between their actual self-views and their ideal self-views. However, these discrepancies are particularly large among persons with low self-esteem (Moretti & Higgins, 1990; Pelham & Swann, 1989). This indicates a pattern among persons low in self-esteem, such that they chronically fall short of their goals to a greater extent than those with high self-esteem. Moreover, persons with low self-esteem are likely to see the attainment of their goals as less probable than high self-esteem persons (Taylor & Brown, 1988). Thus, low self-esteem persons are, in a sense, chronically pursuing goals in the face of negative feedback.

There may be a number of reasons why persons with low self-esteem would continue to persist toward goals when high self-esteem persons would discontinue pursuit. First, withdrawal from a goal implies that one is a failure in that domain. Recent work suggests that it may actually be easier for high self-esteem persons to accept this kind of isolated failure. For example, Taylor and Brown (1988) have suggested that high self-esteem persons protect their self-esteem by acknowledging incompetence in a domain where success is unlikely and shifting their attention to another domain. Since low self-esteem persons are likely to see their incompetence in more global terms, they may not be able to "cordon off" their failure so easily. Evidence of this trend comes from Showers' (1992) work on self-compartmentalization.
She found that people with high self-esteem tend to structure their beliefs about themselves in such a way that negative information about the self (e.g. low ability in a domain) is sectioned off from more positive information about the self. Therefore, high self-esteem individuals should find it easier to withdraw from unattainable goals because the acknowledged failure will not have implications for broader self-worth. This approach also suggests that the availability of other goals to pursue may be important in obtaining different levels of persistence among persons with high and low self-esteem.

Furthermore, the avoidance of failure may not be of primary concern to individuals with high self-esteem. Instead, they are more likely to focus on how success might be achieved. A recent study by Tice (1991) on the relationship between self-handicapping and self-esteem illustrates this difference in outcome motivation. Tice showed that while high self-esteem subjects used self-handicapping strategies to enhance success (by not making full use of the time they were given to practice a task diagnostic of success), low self-esteem subjects used self-handicapping strategies to protect themselves against failure (by engaging in this same insufficient practice strategy before doing a task diagnostic of failure). When only degrees of success could be distinguished, high self-esteem subjects regulated their behavior so that success would likely be attributed internally (as due to exceptional ability). They were not primarily concerned with the potentially damning implication if they did
not succeed: that they would have looked particularly foolish for not practicing when they had the chance. Not being confident that they could achieve success in the first place, low self-esteem subjects did not attempt to "enhance" it. However, when only degrees of failure could be distinguished, low self-esteem subjects regulated so that a lack of failure would likely be attributed internally. Therefore, high self-esteem subjects were primarily concerned with making their performance look particularly impressive; lows with keeping their performance at a passable level.

If high self-esteem persons are not primarily concerned with failure, an admission of defeat and withdrawal from a goal should be easier for them than for low self-esteem persons (who do fear failure). Moreover, high self-esteem persons appear strongly motivated to achieve success. In cases where withdrawal from one goal allows the redirection of energy toward another, high self-esteem persons can afford themselves new opportunities for success by admitting failure. Indeed, since high self-esteem persons are confident that they can achieve positive outcomes (Taylor & Brown, 1988), they are likely to view this switching as a profitable endeavor.

While the prospect of switching goals matches the motives of high self-esteem persons (by offering a new possibility for success), it is inconsistent with failure-avoidance motives of low self-esteem persons. Given this motive to avoid failure, low self-esteem persons may find it particularly hard to switch away from a domain. By definition, they do not see
themselves as having many talents, thus they are more likely than high self-esteem persons to feel a need to remedy deficiencies rather than try something new. Furthermore, withdrawal from the failed goal domain would mean having to risk failure in a new domain, a prospect that may seem probable to persons with low self-esteem.

Other research also supports the contention that, in the face of failure, high self-esteem persons will be more motivated to switch domains than low self-esteem persons. Baumeister and Tice (1985) suggest that high self-esteem persons will stop persisting in goal domains in which they have failed, and will pursue alternatives as a way of compensating for the failure (Baumeister, 1982; Baumeister & Jones, 1978). According to Baumeister and Tice, sticking to the original failed goal would not match the primary concern of the high self-esteem person-- to achieve success. At best, performance in the domain could only be brought up only to a passable level-- a level that does not appeal to persons with high self-esteem.

Low self-esteem persons, in contrast, should continue to work in the failed goal domain. Given that they view themselves as relatively inadequate in most domains, they will feel more of a need than high self-esteem persons to remedy personal deficiencies in the failed domain. Importantly, Baumeister and Tice emphasize that the above patterns will emerge only when failure is attributed internally; when failure suggests personal deficiencies in the domain. This
suggests a second condition limiting the observation of persistence differences based on self-esteem.

In an experiment designed to test the role of attributions in the self-esteem/persistence relationship, Baumeister and Tice administered three kinds of feedback after performance on a task: success, humiliating failure (encouraging internal attributions for failure), and face-saving failure (encouraging external attributions for failure). After the feedback, subjects were simply told to await the experimenter's return. The time subjects continued to work on the failed task (which had been left behind by the experimenter) was recorded. Results indicated that high self-esteem subjects persisted longer on the task after they had succeeded than after a humiliating failure (i.e. failure suggesting a personal deficiency). Low self-esteem subjects persisted more on the task after a humiliating failure than after success or a face-saving failure (i.e. failure resulting from an external cause). Also, a marginally significant effect was obtained between the self-esteem groups; after a humiliating failure, low self-esteem subjects worked longer than high self-esteem subjects. The above findings are consistent with the present hypotheses: in the face of personal failure, high self-esteem persons will persist less than low self-esteem persons.

The literature reviewed thus far suggests that the availability of alternative goals and the locus of attributions for failure are both important in predicting
persistence. An approach that combines these factors, learned helplessness theory, also suggests that self-esteem is related to task persistence and goal switching. In this theory, Abramson, Seligman, and Teasdale (1978) have suggested that depression is associated with an attributional style that is characterized by the making of internal, stable, and global attributions for negative outcomes, and this has been empirically supported (Sweeney, Anderson, & Baily, 1986). Although low self-esteem and depression are different constructs, they overlap considerably (Watson & Tellegen, 1985). Therefore, it is likely that low self-esteem persons would employ this same attributional style in the face of negative outcomes. In fact, it has been demonstrated that the more critical variable in determining attributions after negative outcomes is self-esteem, not depression (Tennen & Herzberger, 1987). Specifically, in these studies, lower self-esteem was associated with more internal attributions for failure; high self-esteem with more external attributions for failure. Depression did not account for any additional variance in attributions. This tendency to make global, stable, and internal attributions for failure would lead low self-esteem persons to expect only repeated failure in other goal domains. As a consequence, they are unlikely to give up on current goals and pursue others.

There is other related evidence suggesting that low self-esteem persons will be dissuaded from pursuing alternatives after failure. Recent work by Kernis and his colleagues
(Kernis, Brockner, & Frankel, 1989) has demonstrated low self-esteem people's proneness to "overgeneralization" after failure (i.e. the tendency to think of many other aspects of the self that are negative). Importantly, these other aspects need not be related to the initial failure. Overgeneralization directly mediates low self-esteem persons' more severe reactions to failure by increasing negative affect, decreasing their belief that effort will influence performance, and reducing their motivation to succeed on subsequent tasks. The implication is clear. If low self-esteem persons see many other domains as also likely to lead to failure, their motivation to actually pursue those domains will be greatly reduced.

In sum, three major reasons have been given for why low and high self-esteem individuals should differ in their persistence in failed goal domains: that high self-esteem persons may actually find it easier to admit failure given their strategies for "cordoning it off" (Showers, 1992; Taylor & Brown, 1988), that the different achievement motives of high and low self-esteem persons would affect the desirability of admitting failure at one goal or pursuing success at an alternate goal, and that the attributional style and overgeneralization of failure among low self-esteem individuals may cause them to see new goal domains as only holding the prospect of renewed failure. These arguments imply that, in the face of continuing negative feedback, low self-esteem individuals will be more likely to stick to goals
and high self-esteem individuals will be more likely to switch to other domains.

**Supporting Evidence**

There is also some empirical evidence that more directly suggests this is the case. In an early study, Feather (1961) selected two groups for participation. One group was chosen because they were high in the motive to achieve success (as measured by the TAT method, McClelland, Atkinson, Clark, & Lowell, 1953) and low in their motive to avoid failure (as measured by Mandler and Sarason's test anxiety questionnaire, 1952). The other group was selected because they displayed the opposite characteristics; they were low in the motive to succeed (Ms) and high in the motive to avoid failure (Maf).

These subjects were presented with a series of problems and were given the norms of how many people typically solved these problems. For the first problem, subjects were either told that 70% of the people who tried this problem got the solution or that only 5% of the people who tried the problem got the solution. (It should be noted that this problem, an anagram, was actually insoluble). The primary dependent measure was the number of times that the subject tried to solve the problem.

Feather found that, for subjects whose Ms was greater than their Maf, persistence was greater when the probability of success was high. For subjects whose Maf was greater than their Ms, just the opposite effect was obtained-- they persisted longer when the probability of success was low.
As noted above, people with high self-esteem appear primarily motivated to achieve success and low self-esteem people seem motivated to avoid failure (Tice, 1991). Feather's results may thus indicate a relationship between chronic self-esteem and persistence. People with high self-esteem may respond as Feather's high Ms/low Maf group did, persisting when the probability of the payoff is high. In contrast, people with low self-esteem may respond as Feather's high Maf/low Ms group did, persisting when the probability of the payoff is low. This supports the present hypothesis.

A study by Janoff-Bulman and Brickman (1976) also provides support for the proposed model. Examining a situation analogous to that considered here--one in which goals may be switched or substituted--Janoff-Bulman and Brickman suggested that persons with high expectations (persons who most likely have high self-esteem) will be better able to discriminate between courses of action that should be pursued and ones that should be abandoned. According to these authors, the above will be true because people with high expectations should be more able to "accept the fact that some tasks are impossible to accomplish and not worth persisting on" (Janoff-Bulman & Brickman, 1982, p. 212). This should lead to decreased persistence in the face of failure.

An experiment was conducted by Janoff-Bulman and Brickman (1976) to test these ideas. Initially, subjects worked on a pretest consisting of ten soluble anagrams. Half of the subjects were told that they did well on the pretest and could
expect to do well on the upcoming task (high expectancy). The other half of the subjects were told that they did poorly on the pretest and could expect to do poorly on the upcoming task (low expectancy). Also, half of the subjects were told that not all of the anagrams on the upcoming task would be soluble ("immunized" condition). This condition served to make the subjects explicitly "aware that some tasks are impossible and not worth persisting on". The other half of subjects were merely told that the anagrams on the upcoming task would vary in difficulty ("non-immunized" condition). The task actually contained six soluble and four insoluble anagrams. The main dependent measure was the number of anagrams that were attempted.

The results revealed an interaction between expectation and immunization. Subjects in the high expectancy, immunized condition persisted less than the other three groups in the experiment. They attempted more anagrams, indicating that they had abandoned the insoluble anagrams faster than the other three groups. The authors concluded that immunized subjects who were led to have high expectations were better able to abandon unprofitable tasks. In the immunized condition, when the high expectancy subjects encountered a difficult problem, they found it easier than low expectancy subjects to attribute their difficulty to insolubility of the problem and, subsequently, abandon it. After all, they were told that they should excel on the soluble items on the task. However, when the low expectancy subjects confronted a
"difficult" problem in the immunized condition, they experienced attributional ambiguity. Their low expectations prevented them from seeing the difficult problems as the insoluble ones. Because they were told that they could expect to do poorly on the task, they were inclined to make internal attributions for difficulty with the task items. This led to continued persistence.

These results suggest some support for the present hypothesis, since persons high and low in chronic self-esteem vary in their performance expectations, like Janoff-Bulman and Brickman's subjects. Nonetheless, they do not specifically test chronic self-esteem differences. Fortunately, McFarlin (1985) conducted a study that did. The methods were basically the same as those used in the Janoff-Bulman and Brickman study. After receiving failure feedback regarding their performance on a series of difficult but soluble problems, high and low self-esteem subjects were given a second task on which 3 of the problems were insoluble. Subjects were either told that some of the problems would not have solutions (noncontingency group), that it was possible to solve all the problems (contingency group), or they were given no problem information (control group). The primary dependent measure was the average time spent on the insoluble problems.

The results revealed an interaction between self-esteem and type of problem information. High self-esteem subjects persisted less than low self-esteem subjects when they had been forewarned that some items were insoluble. However, they
persisted more than low self-esteem subjects when specifically told they could all be solved. There was no difference in persistence in the no-information condition. The above results are consistent with Janoff-Bulman and Brickman's findings and also extend them. First they demonstrate that the expectancy effect generalizes to differences in self-esteem. Second, they document that high self-esteem persons persist longer than low self-esteem persons when they are deceived about the solubility of test items, but not when they are correctly informed that some items are insoluble.

Although these results are encouraging, they do not speak directly to the current hypothesis. Presently it is suggested that the ways in which high self-esteem persons deal with failure will lead them to switch tasks or goals sooner than low self-esteem persons. Specifically, the kinds of attributions that high self-esteem persons make for failure (e.g. unstable, specific) and their proposed tendency to compartmentalize failure experiences should encourage them to switch to other endeavors when they sense failure in one domain is likely. However, Janoff-Bulman & Brickman's "immunized" high self-esteem subjects and McFarlin's "noncontingency" high self-esteem subjects probably discontinued goal pursuit because they believed the problems could not be done (by anyone), not because they thought they were incapable of solving them (i.e. that they had actually failed).
Perhaps ironically, Janoff-Bulman and Brickman (1982) emphasized the importance of being able to accept failure in discontinuing a particular course of action. In the studies by McFarlin (1985) and Janoff-Bulman and Brickman, however, the high self-esteem subjects never have to admit personal failure. They have an experimenter-provided external attribution—some of the items cannot be done. This information is not likely to be explicitly provided in the natural ecology where discontinued goal pursuit would, more realistically, suggest failure. Given that the subjects were granted immunity in both the McFarlin study (1985) and the Janoff-Bulman and Brickman study (1976), they do not provide a test of self-esteem differences in goal pursuit under such conditions.

Also, the conditions under which the "non-immunized" and the "contingent" subjects worked do not reflect conditions experienced in the natural ecology. Normally, people expect (and receive) problems that have solutions. Why else would they be asked to solve them? Subjects in the above conditions, however, were led to believe that insoluble problems actually had solutions. This led high self-esteem subjects and high-expectancy subjects (who both believe they have high ability) to persist longer on these problems.

Other Previous Research

Although there are limitations to each of the persistence studies reviewed so far, results of the "immunized" conditions support the argument that persons high in self-esteem are
better able than low self-esteem individuals to discontinue pursuit of unrealistic goals. However, others who have explored self-esteem differences in persistence (e.g. McFarlin, Baumeister, & Blascovich, 1984; Perez, 1973; see Baumeister & Scher, 1988 for a review) have found the opposite -- that high self-esteem persons persist more than low self-esteem persons. I believe that the two factors raised above, the presence of alternatives and the use of deception, can account for the difference between my predictions and previous findings. I will review these factors in more detail below.

In one study, McFarlin and his colleagues (McFarlin, et al., 1984, Expt. 1) employed a 3 (self-esteem; high, moderate, low) by 3 (performance feedback; success, failure, no feedback) factorial design. Initially, subjects worked on a task and then received feedback regarding their performance. Subjects were either told that they scored way above average (success condition), way below average (failure condition), or were given no information about their performance (no feedback condition). After receiving the feedback, subjects were presented with a second task and told that they could work on the items as long as they wished. Persistence was measured as the total amount of time (20 minutes being the cutoff point) that a subject worked on the task. It should be noted that the items on the task varied in difficulty and that they were all soluble. The results were straightforward. While high, moderate, and low self-esteem subjects did not differ in their persistence behavior in the success and no feedback conditions
(in which persistence would be the clear course of action), high self-esteem subjects persisted longer than moderate and low self-esteem subjects following failure.

The above results are illustrative of a number of studies (Sandelands, Brockner, & Glynn, 1988; Shrauger & Sorman, 1977), and seemingly contradict the present hypothesis. However, as noted earlier, the tendency of low self-esteem individuals to persist may be particular to cases in which an alternative goal can be pursued, should they fail to persist. In the McFarlin et al. study, there was opportunity to work on only one task. Thus, stopping meant quitting entirely, and admitting failure also meant giving up any chance for success. Therefore, high self-esteem persons had nothing to gain by quitting in this situation. Low self-esteem persons, on the other hand, could protect themselves from the failure they probably expected by trying less hard, similar to the self-handicapping effect Tice (1991) found. Thus, while persons with high self-esteem may have persisted more than low self-esteem individuals in this study, it may still be the case that they will persist less when given an alternative goal to pursue. To my knowledge, no previous studies have explored persistence behavior and self-esteem under such conditions.

Another common attribute of previous studies of persistence and self-esteem is the use of insoluble tasks to induce failure (McFarlin, et al., 1984, Expt. 2; Sandelands, Brockner, & Glynn, 1988; Shrauger & Sorman, 1977). Experimenters studying the relationship between self-esteem
and persistence have not been honest with their subjects. Subjects are told that the problems measure some ability (e.g., nonverbal intelligence) and that they should try to solve them. Thus, subjects are working in a context where they have every reason to assume that the problems can be solved. Why else would the experimenter use them to test ability?

For example, Shrauger and Sorman (1977) had high self-esteem and low self-esteem subjects work at an anagram task. Subjects were either given mostly hard items to work on (failure condition), mostly easy items to work on (success condition), or were given an equal number of easy and hard items (minimal feedback condition). After completing this task, subjects were asked to work on another series of six anagrams: the first one was easy, the second and fifth were of moderate difficulty (solved by 50% of normative subjects), and the other three were insoluble. Subjects believed, however, that all anagrams were soluble. The authors found that, after failure, high self-esteem subjects spent more time on the anagrams than low self-esteem subjects.

However, these results are not at all surprising in light of the methods used in this study. The high self-esteem subjects spent a great deal of time on the most difficult items on the test because they believed that, if there was indeed a solution to these items, they should be able to find it. These individuals believe, after all, that they are among the most skilled (Campbell, 1986). Such a belief is not
consistent with the only attribution they could make for their failure-- that they were not smart enough to get the solutions. As I have suggested, this would be highly unlikely unless the subjects were given an opportunity to "compartmentalize" the failure and try succeeding at something else. However, as in other studies, subjects were given no opportunity to switch tasks. Low self-esteem individuals, in contrast, did not spend an inordinate amount of time on the most difficult items because they believed that there was a solution to these items, but that they were probably not smart enough to find it. Their lack of confidence in their own ability drove them to quit early.

That this kind of deception does, in fact, obscure the normative relation between self-esteem and persistence is evidenced by the interaction effect obtained by McFarlin (1985) and noted earlier. Recall that when subjects in this study were correctly informed that some items were insoluble, the relation between self-esteem and persistence reversed. Under these conditions, persons with low self-esteem persisted longer than high self-esteem persons.

Other evidence concerning this issue is provided by McFarlin, Baumeister, and Blascovich (1984, Expt. 2). Subjects in this study were selected for participation on the basis of their level of self-esteem, high or low. They were given eight puzzles to work on, two of which were insoluble. The critical manipulation in this experiment was the kind of "advice" that the experimenter gave the subject. Half of the
subjects were given persist advice -- they were told that the best strategy was to stick with one figure until they got the solution then move on. The other half of the subjects were given quit advice -- they were told that the most fruitful strategy was to give up on a problem if they found themselves spending too much time on it. The primary dependent measure in the study was the amount of time that the subjects spent working on the two insoluble problems.

The results indicated that there was an interaction between level of self-esteem (high vs. low) and type of advice (persist vs. quit). This interaction revealed that while high self-esteem subjects persisted significantly longer than low self-esteem subjects when both were given quit advice, high and low self-esteem subjects persisted the same amount of time (on the insoluble items) when given persist advice. "Persist" advice apparently set up low self-esteem individuals to see difficulty on the task as normal; as attributable to the task and not an indication of a lack of ability. Essentially, it put low self-esteem individuals in the same position that high self-esteem individuals find themselves in when confronted with insoluble items. This result highlights the difficulty of interpreting studies using insoluble items and employing deception. Such methods constrain or reverse the attributional patterns of high and low self-esteem individuals. As McFarlin et al. show, when attributions for feedback are controlled, individuals who are low and high in self-esteem do not differ in their persistence.
In summary, it has been suggested that chronic self-esteem is a critical factor in determining persistence toward and withdrawal from goals. Specifically, it has been hypothesized that persons high in self-esteem will respond to continued failure by discontinuing goal pursuit and pursuing substitute goals. Low self-esteem individuals should respond to failure with persistence at the failed task. Although these hypotheses seem to contradict some of the previous work on self-esteem and persistence, it has been suggested that methods of past studies (e.g. preventing subjects from switching tasks, deceiving subjects as to the solubility of problems) make this contradiction more apparent than real. Therefore a study was conducted to demonstrate that these methods, in particular the failure to provide subjects with an alternative goal, have obscured the normative negative relation between self-esteem and persistence.

The Present Study: Overview and Predictions

After completing two self-esteem inventories, subjects received failure feedback on a test measuring a novel ability (the Remote Associates Test, or RAT) and were then given a second set of RAT items to work on. A goal manipulation was then introduced. In one condition subjects were given no further information. This served as a replication of McFarlin et al's (1984) expt. 1. In a second condition, subjects were given the option to switch goals; to work on a test measuring a different ability. The aim of this condition was to demonstrate the hypothesized effect of multiple goal options
on persistence. In a third condition, subjects were given the option to pursue the goal via an alternate route; to work on another test measuring the same ability. This condition was included in order to provide a purer test of the hypothesized motives for switching discussed earlier. By varying what ability the word fragment test was tapping, it would be possible discern if subjects were indeed switching (or failing to switch) out of concerns for the ability being measured or for some other motive (e.g., to try a novel test). Subjects in Condition 2 and Condition 3 were required to begin work on the second set of RAT items (i.e. they could not work on the word fragments until they switched from the RAT). Unbeknownst to subjects, a 30 minute cutoff point for total persistence time was instituted. The main dependent measure was the number of minutes subjects worked on the second RAT test.

There were two main predictions in the present study. In the first condition, it was predicted that high self-esteem subjects would persist longer on the second RAT task than subjects low in self-esteem (replicating the findings of McFarlin, et al., 1984). In the second condition, it was predicted that high self-esteem subjects would persist less than low self-esteem subjects (on the failed task) and less than high self-esteem subjects in the first condition. This translates into a predicted self-esteem by condition interaction.

There were also several more tentative predictions. In the third condition, high and low self-esteem subjects were
not expected to differ in their persistence on the second task since the pursuit of the alternative route to the same goal should be equally appealing to both self-esteem groups. However, low self-esteem subjects in Condition 3 were expected to persist less than low self-esteem subjects in Condition 2, the latter wanting to avoid further failure on the alternative goal.

After switching from the RAT, high self-esteem subjects in Condition 3 should persist more than low self-esteem subjects on the alternative (word fragment) task, since, as in Condition 1, subjects are left with just one option to pursue in a failed goal domain. This should also be the case in Condition 2, where the same circumstances apply. However, in Condition 2, the alternate task was introduced as a separate goal. It is not clear whether failure on the previous goal would affect persistence on a new goal. If the new goal was viewed as wholly separate from the previous goal, then persistence between the two groups should be equal, since high and low self-esteem individuals differ only in the face of failure. Thus, there should be a main effect for self-esteem (with high self-esteem subjects persisting more than lows) which may or may not be qualified by a self-esteem by condition interaction.

Method

Subjects and Design

Subjects were 120 (60 male, 60 female) undergraduates enrolled in introductory psychology courses in the Summer and
Fall sessions at the University of British Columbia. In the Summer session, 44 subjects expressing interest in participating in psychology experiments for extra credit (via sign up sheets distributed in their classes) were recruited. Four subjects were subsequently dropped: one for suspicion regarding the experimental procedures, one for failure to fill out the materials properly, and two due to procedural errors by the experimenter. Overall, 77% of students in the classes used for recruitment expressed interest in participating.

The remaining 80 subjects were recruited in the Fall session via sign up sheets in the Psychology Department. All of these subjects received course credit for their participation, as well. All participants were screened for English ability (self-report) since test materials were highly related to language.

The design for the experiment was a 2 by 3 fully crossed factorial. The factors were chronic self-esteem (high, low) and goal structure (one goal-one route, two goals-two routes, one goal-two routes). Subjects were categorized as high or low in self-esteem on the basis of a median split (Median=42) on the Rosenberg Self-Esteem Inventory (Rosenberg, 1965). The mean for high self-esteem subjects was 46.29. The mean for low self-esteem subjects was 34.84.

Procedure

Part 1: First test and failure feedback.

The experiment was presented to subjects as a study of the relationship between cognitive ability and personality.
characteristics. After signing an informed consent form, subjects were administered a brief demographic questionnaire and two self-esteem inventories. The two self-esteem inventories, the Rosenberg Self Esteem Inventory (RSEI) (Rosenberg, 1965) and the Texas Social Behavior Inventory (TSBI) (Helmreich & Stapp, 1974) are both well validated measures of self-esteem. The RSEI focuses on feelings of personal worth (e.g. "I feel I have a number of good qualities"). The mean on this scale for this sample was 40.73 with a range from 17 to 50. The TSBI was included for reasons not directly related to the present hypotheses and will not be discussed further.

Practice phase. Subjects were then informed that they would be doing the Remote Associates Test (or RAT) -- a test ostensibly designed to measure flexibility in thinking. The importance of the ability was stressed by noting its strong association with creative problem solving. To familiarize them with the basic structure of the test (which consists of 3 words, e.g. soap - shoe - tissue to which the subject has to supply a related word, "box"), subjects were given two (very difficult) examples before the test began. The experimenter provided the solutions to these examples. Subjects were then told that they also might be working on a word fragment test later on in the study. The word fragments were introduced as representing highly familiar English words with several of the letters blocked out. The subject's task was to fill in the missing letters to find the one English word that correctly
fit the fragment (e.g. _i_ _amo_ = cinnamon). Again, subjects were given two difficult sample items and their solutions. 

The first RAT. Subjects were presented with a test booklet containing 10 soluble RAT items. To ensure the plausibility of the failure feedback to be administered, seven hard and three easy items were used. The selection of easy and hard items was done on the basis of pilot work by the experimenter and previous work with the RAT (McFarlin & Blascovich, 1981).³ This work has shown the RAT to reliably affect perceptions of performance both in the positive and negative direction depending on the proportion of easy and difficult items contained in the test. After being told that they would receive feedback regarding their performance, subjects were then left alone and given one minute to solve each of the ten items. To ensure that subjects would spend just 60 seconds on each item, the experimenter kept track of the time from an adjacent room, ringing a bell to indicate it was time to move to the next item. This was done to maintain consistency with McFarlin's procedures, which were also timed. 

The Feedback. After leaving the room to "score" the subject's test, the experimenter returned and delivered the failure feedback by saying: "I have your score here. You scored a 30%. Actually this is quite bad". This feedback mirrored subjects' actual performances quite closely. The mean performance on the test was 3.0, with a range from 0 to 6 correct. As a check on the failure induction, subjects were then asked to indicate what their perceptions of their
performance were by responding to a 9 point likert scale ranging from 1 'Very Poor' to 9 'Excellent'.

Part 2: Manipulation of goal structure

Depending on what condition they had been randomly assigned to, subjects were given the following instructions:

Condition 1 (One goal-one route). Subjects were told that they would be working on a second set of 10 RAT items, but that they could work on these items for as long (or as short) as they wished and in any order that they liked. In an attempt to present a test matching the difficulty of the first, the same proportion of difficult and easy items were used. This marks a divergence from procedures of previous persistence studies that employed an objectively easier second RAT test (e.g. McFarlin, Baumeister, & Blascovich, 1984). However, it was felt that a less difficult second RAT test might obscure the effect of failure on persistence. More specifically, persistence might be due to failure or to the sudden increase in performance on the easier test. Thus, a test matched on difficulty with the first RAT was employed to control for this possibility.

Condition 2 (Two goals-two routes). Subjects were told that they would have the option of working on two tests--a second set of RAT items as well as a word fragment test (Erickson, Gaffney, & Heath, 1987). They were informed that these tests measured very different abilities: the RAT focusing on flexibility in thinking, the word fragment test emphasizing pattern visualization. In addition to being given
the Condition 1 instructions, subjects were told that they would start out by working on the second set of RAT items but that they should feel free to switch over to the word fragments at any time. However, it was made clear that if they did switch to the word fragment test, they would not be allowed to switch back to the RAT. The aim of this instruction was to ensure that switching could be interpreted as giving up on the task (i.e. an admission of failure). Also, subjects were told that if they did switch tasks, they would receive two scores regarding their performance-- one for the RAT reflecting flexibility in thinking, one for the word fragments reflecting their ability to visualize patterns. This was done to both emphasize that the tests measured different abilities and that there were significant consequences (in terms of feedback) to making a switch. However, they were informed that switching tests would not directly hurt their performance in any way (since subjects might assume that spending less time on any one task would lower their score on it).

Condition 3 (One goal-two routes). Instructions for subjects in Condition 3 were the same as those for Condition 2 except that subjects were told that the RAT and the word fragment test measured the same ability. Accordingly, subjects were told that they would receive just one score regarding their performance, regardless of whether they switched tasks or not.
Before beginning work on the second RAT test, all subjects were told that the experimenter would discuss their performance with them when they had stopped working. The experimenter then left the room and observed the subject through a one-way mirror, noting (when necessary) the time at which the subject switched tasks. After subjects indicated that they had stopped working (by ringing a bell), or after the 30 minute cutoff point was reached, the experimenter reentered the room and asked them to provide a record of their performance perceptions on the second RAT (and if appropriate, the word fragment test) to be used in exploratory analyses. Again, these scales ranged from 1 'Very Poor' to 9 'Excellent'. Finally, all subjects were debriefed as to the real nature of the study, probed for suspicion, and thanked for their participation.

Results

As a check on whether random assignment yielded equal levels of self-esteem across the 3 experimental conditions, a one-way analysis of variance (ANOVA) was conducted on subject's RSEI scores. The analysis confirmed that random assignment was successful; self-esteem did not differ by condition, F<1.

An analysis also revealed that the induction of failure with the initial 10 RAT items was successful. Subjects perceived that they did indeed perform poorly on the test (M=2.58 on a 1 to 9 scale). Furthermore, a 2 (Self-estem: high, low) by 3 (Condition: One task-One goal, Two tasks-two
goals, Two tasks-one goal) ANOVA revealed that perceptions did not differ significantly by self-esteem or condition, \( F(1, 108) = 2.23, \ p > .10 \). The level of perceived performance after failure induction closely matches that found in previous persistence studies (e.g. McFarlin, 1985).

**Test of Predictions**

**Persistence on the second RAT.** It was reasoned that high self-esteem subjects would persist less than low self-esteem subjects on the second RAT when they were given the option to switch to another test. When not given that option, it was predicted that high self-esteem subjects would persist more than low self-esteem subjects, replicating previous work (McFarlin, Baumeister, & Blascovich, 1984). A 2 (Self-esteem: high, low) by 3 (Condition: 1 goal-one route, 2 goals-2 routes, 1 goal-two routes) ANOVA on the minutes subjects spent on the second RAT did not yield support for the above predictions, all \( F \)'s < 1.4 However, the pattern of means was partially suggestive of the predicted relationship (see Figure 1). In Condition 1 high self-esteem subjects tended to persist more than low self-esteem subjects. In Condition 3, this difference was reduced. However, the expected pattern of low self-esteem subjects persisting more than high self-esteem subjects in Condition 2 did not obtain.

Given the obtained pattern of means, a more powerful as well as more complex model of persistence on the second RAT was tested. The increase in power came from the use of regression analyses, which treat self-esteem as a continuous
rather than a dichotomous variable. The increase in complexity was due to the inclusion of additional variables based on some unexpected findings obtained in ancillary analyses. Before presenting this model, these analyses will be briefly reviewed.

For example, in a check on whether perceptions of performance were consistent across the first and second RAT (as intended), a 2 (Self-esteem) by 3 (Condition) by 2 (RAT test; first, second) ANOVA with repeated measures on the third factor revealed a significant effect for test. As a whole, subjects perceived their performance as better on the second RAT (Mean rating=3.25) than on the first (Mean rating=2.58), \( F(1, 108) = 16.86, p<.0001 \).

Interestingly, these perceptions of improvement did not match actual changes in performance. A 2 (Self-esteem) by 3 (Condition) by 2 (RAT test) ANOVA with repeated measures on the third factor revealed that actual performance went down from the first RAT (M=3.0) to the second RAT (M=2.6), \( F(1, 108) = 7.50, p<.01 \). There was also a main effect for self-esteem; high self-esteem subjects did better on both the first and second RAT, \( F(1, 108) = 14.23, p<.001 \). Each of these effects may be qualified by a marginally significant interaction between RAT test and self-esteem. The performance of low self-esteem subjects dropped off more between tests (First RAT=2.79; Second RAT=2.12) than the performance of high self-esteem subjects (First RAT=3.28; Second RAT=3.12), \( F(1, 108) = 2.84, p<.10 \). As noted earlier, changes in
performance may affect persistence. For example, improvement may increase persistence irrespective of the feedback received. Thus, differences in actual performance across self-esteem groups may have influenced their relative levels of perseverance.

Apart from changes in performance, absolute levels of performance and persistence are likely to be positively correlated. That is, working longer on a task often results in performing better on that task. In order to disentangle performance level from persistence, a 2 (Self-esteem) by 3 (Condition) ANOVA on the number of items correct per minutes spent on the second RAT was conducted. The only effect was a main effect for self-esteem. High self-esteem subjects got more items correct per minute (M= .25) than low self-esteem subjects (M= .19), F(1, 108) = 5.10, p< .05. In short, high self-esteem subjects were more efficient than low self-esteem subjects.

Given these unexpected findings and their likely confounding influence on self-esteem and persistence relations (see the zero order correlations in Table 1), it was deemed necessary to include these variables in a more complex model aimed at explaining persistence on the second RAT. A number of different models were formulated that were justifiable on theoretical grounds. These were tested in a series of path analyses. The model that best fit the data is presented in Figure 2. Consistent with previous work, perceptions of performance on the first task acted negatively to determine
persistence—the worse subjects viewed their performance on the first task, the more they persisted on the second. Although actual performance on this second test was positively related to persistence, the causal direction of this relationship is not clear. It is possible that persistence "paid off" on the second RAT; that increased effort was rewarded by more correct responses. It is also possible that getting answers correct "spurred on" subjects to persist on the second RAT. It should be noted that among the other models tested were a number to determine if self-esteem acted as a moderator of the relations between performance perceptions (on both tasks), actual performance, and persistence as both the present model and previous ones would suggest. None of these effects were significant. In addition, analyses testing whether the influence of self-esteem on persistence was mediated by other variables (Baron & Kenny, 1986) proved nonsignificant. The exploratory nature of the above analyses should be noted and caution should be taken in interpreting the results. The model tested was partly based on empirical relations and was fit to the data. It should be viewed as wholly post-hoc.

Switching behavior

For 2 of the 3 experimental conditions, subjects had the opportunity to switch tasks and work on a word fragment test. Most subjects in the present study seized this opportunity. Of the 80 subjects who had the option of switching only 10 did not: five persisted on the RAT up to the 30 minute cutoff
point, five worked less than 30 minutes but chose not to work on the word fragments. A chi-square test was conducted to determine if these 10 subjects were equally distributed across the self-esteem groups and across the two conditions. The test was significant, $X^2(1) = 3.75$, $p = .05$. As can be seen in Figure 3, there were no self-esteem differences in Condition 3; two low self-esteem subjects and 2 high self-esteem subjects did not switch. However, the remaining 6 subjects were all low self-esteem subjects in Condition 2. This finding is in line with the proposed theoretical model. Recall that in condition 2 switching tasks means that subjects will receive additional feedback regarding another ability. Low self-esteem subjects expecting additional failure feedback would be dissuaded from switching in this condition.

**Persistence on the word fragments**

Conceptually, persistence on the word fragments had a different meaning across conditions 2 and 3. In condition 2, persistence on the word fragments meant persisting at an alternate goal unrelated to the RAT. In condition 3, word fragment persistence represented the pursuit of an alternate route to the same goal, given that the RAT and the word fragments ostensibly measured the same ability.

It was uncertain whether this would result in only a main effect of self-esteem across Conditions 2 and 3, such that high self-esteem subjects would persist longer on the word fragments than low self-esteem subjects. If failure at the
RAT did not influence persistence on the supposedly separate word fragment task, however, there might also be an interaction between self-esteem and condition, since there would then be no self-esteem differences in word fragment persistence in Condition 2. A 2 (Self-esteem) by 2 (Condition) ANOVA on the minutes worked on the word fragment test revealed the expected main effect and no interaction. High self-esteem subjects worked longer (M=12.16) than low self-esteem subjects (M=9.07), F(1, 71) = 3.94, p=.05. The condition main effect was also not significant.

As with the RAT, in order to look at the effects of each of these variable on persistence while controlling for the influence of the other variables, multiple regression was used in an exploratory analysis. In the first step, self-esteem, condition (dummy coded as condition 2=1, condition 3=0), perceptions of performance on the second RAT, actual performance on the RAT, perceptions of performance on the word fragments, and actual performance on the word fragments were simultaneously entered into the regression equation. In the second step, the interaction between self-esteem and condition was entered. T-tests of the Beta coefficients were used to assess the contribution of each of these predictors. The criterion variable was minutes worked on the word fragment test.

Together, the variables entered on the first step accounted for a significant portion of the variance in word fragment persistence, (R²=.22), F(6,63) = 3.03, p<.025. The
variable responsible for this effect was actual performance on the word fragments, (B=.42), p<.01. The interaction term, entered on the second step, was also significant, (R² change=.047, B=-1.35) F change(7, 62) = 3.98, p=.05. To aid in the interpretation of this interaction, mean values were generated (see Figure 4).

The present interaction indicates that high and low self-esteem persons persist in equal amounts when the word fragment task represents a different goal; when it is merely an alternate route, high self-esteem persons persist longer than low self-esteem persons. Note that this result differs from the self-esteem main effect that was found using ANOVA and failing to control for other variables. This had shown that high self-esteem persons persisted longer on the word fragment task than low self-esteem persons.

Total Persistence

Up to this point, persistence on the RAT and the word fragment test have been analyzed independent of one another. Also of theoretical interest is the total time subjects persisted in the experiment as a whole. The total minutes subjects persisted (for Condition 2 and Condition 3 subjects this meant time spent on the RAT plus time spent on the word fragments) was analyzed in a 2 (Self-esteem) by 3 (Condition) ANOVA. Results revealed main effects for Condition and self-esteem. Subjects in Condition 2 and Condition 3 persisted longer (Mean for Condition 2=23.60, Mean for Condition 3=24.56) than subjects in Condition 1 (Mean=14.79). This
finding is not surprising given that subjects in Conditions 2 and 3 were given two task options as opposed to one. The main effect for self-esteem indicated that, overall, high self-esteem subjects persisted longer (M=22.26) than low self-esteem subjects (M=19.49).

Discussion

Overall, the results did not conform to the proposed theoretical model. A series of tests revealed that, in some cases, high and low self-esteem subjects showed equal levels of persistence; in other cases, high self-esteem subjects persisted more than low self-esteem subjects. However, low self-esteem subjects never persisted more than high self-esteem subjects, as had been predicted. It is interesting that no differences by condition emerged for persistence on the RAT. Subjects persisted equally on this task regardless of context--i.e. whether or not they could switch to something else. This suggests that there may be something intrinsic to the experimental situation (e.g. experimental demand) or intrinsic to the task that keeps subjects working on this test. Although the situation and materials were highly similar to those used in previous studies, the congeniality of the experimenter and his rapport with subjects may have been particularly strong in the present investigation. This might have induced subjects to work longer on the first task, in order to assist him with his research, and influenced the findings in Conditions 2 and 3.
It is still puzzling, however, that the higher levels of persistence predicted among high self-esteem subjects did not occur in Condition 1. At first glance, this appears to represent a failure to replicate McFarlin et al.'s (1984) experiment 1. In the McFarlin et al. study (1984), it was reported that high self-esteem subjects persisted longer than low self-esteem subjects, particularly after failure feedback. However, a closer look at their results reveals that the interaction between self-esteem and performance feedback was actually nonsignificant. Conclusions drawn regarding self-esteem differences in persistence after failure were based on post-hoc comparisons among means. Thus, the present findings are not entirely inconsistent with their results.

To my knowledge, there is only one study (Shrauger & Sorman, 1977) similar to the McFarlin (1984) study (in terms of instructions to the subjects) that obtained the self-esteem by performance interaction, showing that high self-esteem subjects persist more than low self-esteem subjects but only after failure. The results of this study are not directly comparable to McFarlin's, however, given that Shrauger and Sorman used insoluble problems in the persistence phase of the experiment. Thus it can be concluded that the predicted effect for Condition 1 has not received unqualified empirical support in past work.

The failure to obtain the predicted interaction may also be due to subjects' improved perceptions of performance on the second RAT test relative to the first. Although subjects
perceived their performance as quite low in an absolute sense (M=3.23 on a 9 point scale), the perception of change from the first RAT test may be important in accounting for the present results. Specifically, it may have motivated subjects to continue working on the second RAT test. There is some evidence to suggest that it did. The discrepancy between subjects perceived performances on the first and second RAT test was significantly correlated with persistence on the second RAT, r(120) = .30, p<.01. This positive correlation indicates that the bigger the improvement subjects perceived in their performance, the more they persisted on the second RAT. Even though this second test was designed to foster the perception of continued failure, it was not completely successful in this respect. This could account for the failure to find the predicted interaction effect since self-esteem differences in persistence arise in the face of failure.

What is the source of this perceived improvement? One possibility is that the increased time that subjects spent on the second RAT test left them more time to generate guesses to the items. On average, subjects spent 13.64 minutes on the second RAT. Recall that they were only given 60 seconds for each of the ten items on the first RAT. Subjects may have generated more guesses on the second RAT, thinking any answer was better than no answer. To the extent that subjects believed their guesses were correct, this may have led to an increased perception of performance.
This finding points to a potential liability of using the RAT in studies that rely on constant perceptions of failure. Although persistence does not typically pay off with the RAT, subjects may think it does. Given the time, they may generate a fourth word that they see as relating to the other three. In future persistence studies, tests should be used where perceptions of performance can be controlled more precisely.

One way to control for the potential problems is to use a test other than the RAT. Another possibility (as in Baumeister & Tice, 1985) is to give subjects the test they had just failed, again (as opposed to a new set of items). Significant increases in perceived performance would be less likely to occur. In fact, this method may provide a purer test of the proposed relationship between self-esteem and persistence after failure since the failure induction should be more strongly related to the task. The primary reason for not employing this method in the present study was the desire to make the results directly comparable to previous work (i.e. McFarlin, et al, 1984).

**Performance differences**

Although self-esteem was not related to persistence on the RAT, it was strongly related to actual performance. Low self-esteem subjects performed worse than high self-esteem subjects on the second RAT. In a sense, this effect suggests that low self-esteem subjects behaved in a way consistent with the present theoretical model. If low self-esteem subjects were doing worse than high self-esteem subjects, then they
were objectively farther from their goal than high self-esteem subjects. Yet, they persisted just as long as high self-esteem subjects. This interpretation should be taken with caution, however, given that there were no self-esteem differences in perceptions of performance.

In the McFarlin et al. study (1984) discussed earlier, low self-esteem subjects performed better than high self-esteem subjects. This performance difference tended to be more pronounced (but not significantly so) after failure. While this is inconsistent with the present findings, the results obtained in the present study are more typical. Several persistence studies, (e.g. Perez, 1973; Schalon, 1968; Shrauger & Sorman, 1977), did find that, after failure, low self-esteem subjects performed worse than high self-esteem subjects. It is also consistent with other studies examining the relationship between self-esteem and performance after failure (Brockner, 1979; Campbell & Fairey, 1985).

High self-esteem subjects also performed better than low self-esteem subjects on the first RAT test, before any feedback was administered. The reason for this finding is not entirely clear. Previous work suggests that performance differences in self-esteem should emerge after failure, but not under conditions where no feedback is administered (Campbell & Fairey, 1985). However, the nature of the procedures in the present study may explain the pre-feedback performance difference. It is a consistent finding that low self-esteem persons generally have lower performance
expectations than high self-esteem persons (Brockner, 1979; Coopersmith, 1967). These expectations may have been brought "on line" before the first RAT test was administered. Subjects completed the RSEI at this time and were led to expect that they would be taking a very difficult test measuring an important ability, and that this test would be rigidly timed. These circumstances may have impeded the performance of low self-esteem subjects, much as a failure manipulation does.

**What did the switching mean?**

The only data obtained in support of the proposed model was that concerning task switching. Recall that, of the subjects who did not switch tasks, 60% were low self-esteem subjects in Condition 2 for whom the alternate task represented a different goal. The remaining subjects were in Condition 3 and were equally distributed across self-esteem groups. However, overall, only 6% of subjects made a decision not to switch to the second task. This high degree of switching may be due to several factors.

First, it is possible that low self-esteem subjects are as motivated as high self-esteem subjects to pursue new goals. In the present study, they did not appear to be daunted by the prospect of a new goal (and, therefore, the prospect for new failure). Second, it is also possible that the goal manipulation did not create the desired conditions. In Condition 2 the aim was to present the word fragment test as measuring a different ability, representing a different goal.
In Condition 3 the aim was to present the word fragment test as merely an alternate route to the same goal. Instead, all subjects may have pursuing the superordinate goal of doing well in the study, as a whole. If so, it is not surprising that all subjects tried all possible methods to meet this goal. Finally, subjects may have felt compelled to try the second task in order to assist the experimenter. The experimenter told subjects that they were not obliged to switch tasks, since he did not need everyone to work on the word fragments. However, subjects may have thought that they would be "better" subjects (by offering more data) if they worked on both tasks.

**Persistence differences on the word fragments**

As predicted, high self-esteem subjects persisted more than low self-esteem subjects on the word fragments. The source of the persistence difference is not entirely clear. Perhaps high self-esteem subjects persisted more because the task was an alternate route to a superordinate goal (e.g. doing well). Or perhaps the task represented a separate goal entirely. Whatever the specifics, the effect is most likely due to the similar options afforded by both Condition 2 and Condition 3 after the switch. After switching, subjects had the option of either continuing to work or quitting the experiment entirely. As was suggested earlier (and as has been shown empirically), these conditions are likely to elicit higher levels of persistence from high self-esteem persons. Furthermore, a follow-up ANOVA revealed a significant change
in perceived performance between the RAT and the word fragment test, p<.01. Subjects perceived their performance as lower on the word fragments (M=2.43) than on the second RAT (M=3.12). This perceived drop off in performance may have intensified feelings of failure, a condition likely to keep high self-esteem subjects persisting more than low self-esteem subjects.

It is important to keep in mind that controlling for other variables revealed a qualification of the self-esteem effect for persistence on the word fragments. The post-hoc regression model revealed that, while high and low self-esteem subjects persisted equally when the task represented a new goal (Cond. 2), high self-esteem subjects persisted more than low self-esteem subjects when the task represented a second chance to pursue the same goal (Cond 3). This is consistent with other research (McFarlin, Baumeister, & Blascovich, 1984) and can be interpreted within the present theoretical model.

Under conditions in which the word fragments measured the same ability as the RAT, the failure carried over to a greater degree than under conditions where the word fragments were introduced as a separate goal. It is unclear whether this finding or the result obtained by the ANOVA is the more veridical account of persistence on the word fragments. According to the ANOVA, the specific meaning of the task did not matter; high self-esteem subjects persisted more than low self-esteem subjects under both conditions. According to the regression high self-esteem subjects only persisted more when they were persisting in the same goal domain. Future research
may be able to define more precisely the relationship between failure and persistence at alternate goals versus alternate tasks.

Other directions for future research

The fact that self-esteem differences were found on the word fragments demonstrates the importance of "expanding the persistence window" to look at goal-directed behavior after initial goals have been abandoned. Even though differences did not emerge on the initial persistence task, self-esteem differences occurred after tasks had been switched (i.e. after the point when previous studies on the relationship between self-esteem and persistence have ended). Perhaps ironically, the classic literature on persistence (e.g. Lewin, 1935) emphasized the importance of studying persistence in the context of multiple alternatives. The present results reaffirm the importance of providing alternatives when studying self-esteem and persistence.

The present results also suggest the need for a more complex analysis of persistence behavior. In the present post-hoc model of persistence on the RAT it was found that actual performance was strongly related to persistence. This influence of actual performance represents a potential confound that should be controlled for in future studies examining self-esteem and persistence. Recall that high self-esteem subjects typically perform better than low self-esteem subjects after failure. If the aim is to examine persistence under conditions of continued failure, then these performance
differences should be controlled for. In addition, the present post-hoc findings demonstrate the importance of examining the relationship between performance perceptions and persistence. Perceived performance was a consistent predictor of persistence. Although no self-esteem differences were found in the present study, numerous studies have shown that high self-esteem subjects have higher performance perceptions than low self-esteem subjects. Therefore, future studies examining the self-esteem/persistence relationship should control for perceptions of performance as well.

There are also a number of other factors that might be examined by studies of persistence. First, it is not clear how important subjects view the goals that they are asked to pursue in persistence experiments. The present model was partly based on work (e.g. Higgins, 1987) in which subjects pursue real-world goals that are important to them. Since persistence is fundamentally goal-directed behavior, it may be essential to employ methods that ensure subjects are pursuing important goals. Examining subjects' persistence on their personal goals (instead of on laboratory tasks) may yield a more precise picture of the self-esteem/persistence relationship.

Also, it may be important to look at different types of persistence behavior. Historically, it has been suggested that behavioral persistence should be distinguished from persistence of thoughts (MacKinnon, 1944). More recently, this has been emphasized by Emmons (1992) in his discussion of
concrete and abstract goals. People may have concrete goals (e.g. putting on tight shoes), where the lines of behavioral pursuit are clear. With abstract goals (e.g. wanting peace of mind) the lines of pursuit are less clear. These latter goals may not necessarily lead to persistence at the behavioral level, but may lead to persistence in thought (i.e. rumination). Future studies may benefit from examining how self-esteem relates to these different kinds of persistence. What is the relationship between self-esteem and persistence?

In the present study the main prediction was that, when given other options to pursue, high self-esteem subjects would persist less in a failed goal domain than low self-esteem subjects. This prediction was not confirmed. However, it is possible that the predicted relationship exists but conditions created by the present study were not optimal for detecting it. The present investigation has pointed out several ways in which these optimal conditions might be achieved in future work. By appreciating the more complex sources of persistence noted herein, by controlling for the variables that potentially confound the self-esteem/persistence relationship, and by employing the methodological improvements suggested, future studies should lead to a more precise understanding of the relationship between self-esteem and persistence.
Notes

1. Since a depressive attributional style leads to helplessness, it might be argued that people who employ this style (depressed people and people with low self-esteem) should have a greater tendency to give up in the face of failure. However, the present predictions focus more on the determinants of pursuing alternatives, rather than on the determinants of giving up. Even if, in general, low self-esteem persons eventually become more helpless than high self-esteem persons, it still could be the case that high self-esteem persons would persist less than low self-esteem persons when they are given an alternative to pursue.

2. Difficult examples were intentionally used in order to enhance the credibility of the failure feedback that would be administered later.

3. RAT items were categorized as easy if solved by 75% or more of a separately tested sample; they were categorized as difficult if only solved by 25% or less of that sample.

4. Only the data from 114 were included in the analyses. The responses of 6 subjects were deleted because they fell exactly on the median of the RSEI. Therefore the mean-square within df=108. This is true for all analyses using self-esteem as a dichotomous variable.

5. Interestingly, even though high self-esteem subjects performed better on the first and second RAT, their perceptions of their performances on these tests were not
significantly different from low self-esteem subjects' perceptions, as indicated by the absence of a self-esteem main effect in the analysis of perceptions reported earlier.

6. 22% (n=26) of all subjects persisted up to the 30 minute cut-off point, in total.

7. The drop in degrees of freedom is due to the fact that 10 subjects in Condition 2 and Condition 3 did not attempt the word fragments. Listwise deletion removed all the data from these subjects for this analysis.
Table 1
Zero-order correlation coefficients for all measures

<table>
<thead>
<tr>
<th>RAT1</th>
<th>RAT2</th>
<th>RAT1PC</th>
<th>RAT2PC</th>
<th>RSE</th>
<th>RT2MIN</th>
<th>WFMN</th>
<th>FRAG</th>
<th>WFPC</th>
<th>TSBI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RAT1</td>
<td>1.00</td>
<td>.33**</td>
<td>.06 (120)</td>
<td>.16 (120)</td>
<td>.11 (120)</td>
<td>.26* (80)</td>
<td>.16 (70)</td>
<td>-.06 (70)</td>
<td>.12 (120)</td>
</tr>
<tr>
<td>RAT2</td>
<td>1.00</td>
<td>.07 (120)</td>
<td>.46** (120)</td>
<td>.28* (120)</td>
<td>.32** (120)</td>
<td>.05 (80)</td>
<td>.27* (70)</td>
<td>.21 (70)</td>
<td>.26** (120)</td>
</tr>
<tr>
<td>RAT1PC</td>
<td>1.00</td>
<td>.55** (120)</td>
<td>.17 (120)</td>
<td>-.26** (120)</td>
<td>.19 (80)</td>
<td>.22 (70)</td>
<td>.61** (70)</td>
<td>.20* (70)</td>
<td></td>
</tr>
<tr>
<td>RAT2PC</td>
<td>1.00</td>
<td>.22* (120)</td>
<td>.05 (120)</td>
<td>-.09 (120)</td>
<td>.10 (80)</td>
<td>.60** (80)</td>
<td>.32** (80)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RSE</td>
<td>1.00</td>
<td>.10 (120)</td>
<td>.09 (120)</td>
<td>.13 (80)</td>
<td>.26* (80)</td>
<td>.69** (80)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RT2MIN</td>
<td>1.00</td>
<td>-.55** (80)</td>
<td>-.21 (80)</td>
<td>-.21 (70)</td>
<td>-.05 (70)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WFMN</td>
<td>1.00</td>
<td>.45** (70)</td>
<td>.26* (70)</td>
<td>.02 (70)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FRAG</td>
<td>1.00</td>
<td>.55** (70)</td>
<td>-.11 (70)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WFPC</td>
<td>1.00</td>
<td>.20 (70)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TSBI</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: *p<.05, **p<.010. Numbers in parentheses indicate number of cases on which correlation is based.
RAT1=actual performance on 1st RAT; RAT2=actual performance on 2nd RAT; RAT1PC=perception of performance on 1st RAT; RAT2PC=perception of performance on 2nd RAT; RSE=Rosenberg self-esteem; RT2MIN=minutes spent on 2nd RAT; WFMN=minutes spent on word fragments; WFPC=perception of performance on word fragments; FRAGMENT=actual performance on word fragments; TSBI=Texas Social Behavior Inventory Score.
Figure 1
Persistence on the RAT

Persistence in minutes

Condition
One-test-One goal  Two tests-Two goals  Two tests-One goal

Legend:
- • HSE
- ■ LSE
Figure 2
Predictors of Persistence on the RAT

Self-Esteem

Perception of Performance on 1st RAT

Perception of Performance on 2nd RAT

Performance on 2nd RAT

Persistence on 2nd RAT

.10 n.s.

.26 **

-.28 **

.43 ***

.32 ***

Note: All coefficients are Beta weights. **p<.005, ***p<.001
Figure 3
Percentage of subjects not switching tasks

% not switching

Two tests-Two goals  Two tests-One goal
Condition

LSE  HSE
Figure 4
Predicted means for self-esteem by condition interaction

Persistence on WF in minutes

Condition

Two-tests-Two goals
Two-tests-One goal

HSE
CLSE
References


Helmreich, R., & Stapp, J. (1974) Short forms of the Texas Social Behavior Inventory (TSBI), and objective measure


APPENDIX A

Demographic information:

Age: ______ Sex: Male Female (circle one)

Your place of birth: Country: ______

Your parents place of birth: Mother: Country: ______
Father: Country: ______

If not born in Canada, date that you moved here: ______

What is your first language? ________________
Perceptions of Performance

What is your perception of your performance on the first RAT test?

1 2 3 4 5 6 7 8 9
Very Okay Very Poor Good

What is your perception of your performance on the second RAT test?

1 2 3 4 5 6 7 8 9
Very Okay Very Poor Good

What is your perception of your performance on the word fragment test?

1 2 3 4 5 6 7 8 9
Very Okay Very Poor Good