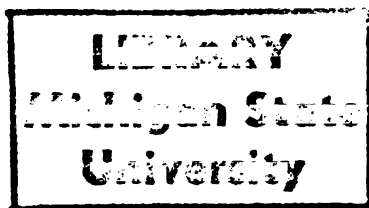This is to certify that the

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AN INVESTIGATION OF THE EFFECT OF EGO-THREATENING

INSTRUCTIONS ON SUBSEQUENT TASK PERFORMANCE

FOLLOWING FAILURE

by

Jiun-Yih Huang

AN ABSTRACT OF A THESIS

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ABSTRACT

AN INVESTIGATION OF THE EFFECT OF EGO-THREATENIN
INSTRUCTIONS ON SUBSEQUENT TASK PERFORMANCE
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Research have shown that people often perform poorly on
tasks following a failure experience with unsolvable
problems. Snyder and Frankel explain this phenomenon by
reasoning that the failure experience threatens the
subject's self-esteem; so, to protect their self-esteem,
subjects do not try hard on the second task for fear of
failing again. Results of Snyder and Frankel's studies
(1978, 1981) were consistent with this self-esteem
protection explanation. The present study attempted to
investigate this ego-threat-based explanation more directly.
Instructions were manipulated to induce in subjects the
belief that the tasks were either ego-threatening or
non-ego-threatening. Thus, the mediating influence of
ego-threat on persons' performances on an anagram task after
experiencing unsolvable (or solvable) problems could be
examined. The results indicated that contrary to prediction,
ego-threat did not affect performance. However, findings did
replicate those of earlier work, since after initial
failure, subjects did better on the second task when they

thought it was going to be highly difficult than when they thought it was going to be only moderately difficult. These results are consistent with the self-protection-based perspective of Snyder and Frankel, but the failure of the more direct manipulation of ego-threat to affect performance suggests that alternative explanations of this phenomenon might ultimately prove to have greater validity.

## ACKNOWLEDGEMENTS

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# Introduction

Many researchers have found that working on unsolvable problems leads to poor performance on a subsequent task (e.g., Hiroto and Seligman, 1975; Krantz, Glass, & Snyder, 1974; Wortman & Brehm, 1975). Two explanations are commonly offered for this phenomenon: learned helplessness theory and the self-esteem protection (or egotism). In the learned helplessness explanation, it is assumed that subjects learn from their experience with the unsolvable task that outcomes are independent of responses, and that this belief generalizes to the new task (Abramson et al., 1978). Because subjects believe that effort will be futile, they do not try hard. In contrast to the learned helplessness explanation, the egotism interpretation holds that if subjects believe that they should be able to solve the problems, but, in fact, do not, the result is a sense of failure and a threat to self-esteem. When given a new task to do, these persons may be concerned about failing again. A way to moderate the negative consequence of expected failure is to provide themselves with an "excuse", e.g., to avoid trying hard. In that way failure is attributable to lack of effort, rather than to lack of ability, and the threat posed to self-esteem by the new task is reduced (Snyder et al, 1981).

In a study by Frankel and Snyder (1978), which

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contrasted the learned helplessness and egotism
explanation, subjects were given either solvable or
unsolvable discrimination problems, followed by a series of
anagrams that were alleged to be either highly or moderately
difficult. Frankel and Snyder hypothesized that if egotism
is the more valid explanation, subjects would perform the
second task better when the anagrams were described as
highly rather than moderately difficult, since a highly
difficult anagram provides a "built-in" defense against the
threat to self-esteem that the expectation of failure would
normally generate. If learned helplessness explanation is
more correct, however, subjects should perform better when
the anagrams are described as moderately rather than highly
difficult, since describing the anagrams as highly difficult
should serve to strengthen the expectation that outcomes are
independent of response. Thus, this information should
further debilitate performance. The results of Snyder and
Frankel (1978) supported the egotism explanation.

A second study (Snyder et al., 1981) accomplished a
conceptual replication of Frankel and Snyder (1978). The
main difference between these two studies is Snyder et al.
introduced two different potential excuses for poor
performance. Instead of the manipulation of task difficulty,
some subjects were presented with allegedly distracting
music. According to the egotism explanation, this treatment
should allow subjects to attribute failure to the
distraction rather than to themselves. The results revealed

that when the music was alleged to be distracting, subjects'

performance improved. Snyder et al. explained these results

in terms of the distraction, i.e., the music allowed

subjects to try hard without fear of an attribution of low

ability.

The two studies summarized above indicate that the

egotism explanation is more valid than learned helplessness

as an explanation for the performance deficits observed in

subjects who previously attempted to solve unsolvable

problems. In the present study, the egotism explanation was

further investigated. To do so, a third variable was added

to problem solvability and alleged anagram difficulty --

ego-threat or non-ego-threat. It was hypothesized that if

egotism explanation is correct then subjects' performance on

the subsequent task in the unsolvable problems condition

should be best when an ego-threat accompanys information

that the anagrams are highly difficult; because the direct

ego-threatening (via instruction) should enhance the effect

of the unsolvable problems in challenging the subjects'

self-esteem.

Method
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Overview
--------

This study employed a 2 X 2 X 2 design. Subjects were randomly assigned to either an ego-threatening instruction condition or a non-ego-threatening instruction condition. They were given two tasks. One was a set of discrimination problems, the other was an anagram task. The discrimination problems (the first task) were either solvable or unsolvable. The anagrams used in the second task were described as either moderately or highly difficult. The primary dependent measures were the average time needed to solve the anagrams and the number that was solved.

Subjects
--------

Eighty subjects, M.S.U. students enrolled in Psychology 160 or 170, participated in this study. Each received extra credits toward his or her course grade for taking part.

Procedure
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Subjects were told that there were two tasks in the study, one was a set of discrimination problems, the other was a set of anagram task. Then, they were given either ego-threatening instruction or non-ego-threatening instruction.

For the ego-threatening instruction condition subjects were told that there were two tasks that required intelligence to perform successfully. "Previous studies have shown that high intelligent persons usually performed very well on them". After these instructions, subjects were given four discrimination problems, after first receiving a sample discrimination problem.

Discrimination problems. The discrimination problems were used to manipulate problem solvability. Each discrimination problem consisted of 10 trials. On each trial, two pairs of stimulus patterns were displayed for 5 sec. Each pattern consested of one of two values from each of five variables. A pattern had (a) either one or two letters, (b) xs or ys, (c) in either upper or lower case, (d) accompanied by either one or two dashes, (e) either to the left or right of the letter(s). The pattern on the left always complemented the one on the right; that is, for a particular pair of patterns, the values on the left did not appear on the right (e.g., the pattern XX- would, of necessity, be paired with --y).

Since each of the five variables had two values, there were 10 values, altogether. The subjects' assignment was to discover which of the 10 values was selected as the correct one (e.g., "lower cases" or "dashes to the right"). On each of the 10 trials, they were to indicate whether the pattern containing the correct value was on the left or right. After the 10th trial they were asked to indicate what they thought

the correct value was.

In the solvable problems condition, the subjects were given contingent feedback regarding their choice of patterns on each trial. In the unsolvable problems condition, the subjects received noncontingent feedback regarding their choice of patterns. On half of the 10 trials, they were informed that their choice of patterns was correct and on the other half that it was incorrect, using the following schedule: (a) C-I-I-C-C-I-I-C-C-I for the first problem, (b) I-C-I-C-C-I-C-I-C-I for the second, (c) I-C-I-C-I-C-C-I-C-I for the third and, (d) C-C-I-C-I-I-C-C-I-I for the last problem. After the 10th trial of each problem, the subjects were also informed that their guess as to the correct value was wrong. Subjects were randomly assigned to solvable or unsolvable problem condition.

Anagram task. The set of anagrams used in this study was obtained from Snyder. An anagram is a scrambled set of letters that can be rearranged to make a word; e.g., "tpioa" can be unscrambed to make the word "patio". Subjects were informed that they would receive 20 such anagrams, one at a time, and that they would be allowed 100 sec. to solve each one. Each anagram was presented on a 4 X 6 inch index card; and, it was displayed until the subject had successfully unscrambed it or until 100 sec had elapsed. Use of paper and pencil to solve the anagrams was not permitted.

Before presenting the first anagram to the subjects,

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the experimenter commented about the difficulty involved in unscrambling the anagrams. In the moderate-difficulty condition the experimenter told the subjects:

> " Considering the time limit we are imposing
>
> upon you, these anagrams can be considered
>
> moderately difficult. That is, under similar
>
> condition, MSU students like yourself have
>
> done moderately well, with only a small
>
> percentage really doing very poorly. Based
>
> on this evidence you probably should do
>
> fairlly well on the task. "

In the high-difficulty condition the experimenter told the subjects:

> " Considering the time limit we are imposing
>
> upon you, these anagrams can be considered
>
> extremely difficult and, therefore, I don't
>
> really expect you to do very well on them.
>
> MSU students like yourself have not done well
>
> at all on this set. In fact, they have done
>
> rather poorly for the most part, so I am very
>
> much aware of how difficult this task is. "

A stopwatch and clipboard used to record solution times were held below the level of the subject's desk, in order to enable the experimenter to be as unobstrusive as possible in collecting the data.

For non-ego-threatening instruction condition, the procedure was almost the same as ego-threatening instruction

condition except that subjects were told that the two tasks
that they were asked to perform were unrelated to their
ability or intelligence.

## Dependent Measures

Following the anagram task subjects were asked to fill
out a brief questionnaire. To check on the manipulation of
discrimination problems solvability, subjects were asked to
evaluate their performance on these problems on a 7-point
scale that ranged from (1) "thought I performed poorly" to
(7) "thought I performed very well". Subjects were also
asked to indicate (again on a 7-point scale) the degree to
which they felt their success or failure on these problems
was under their control. To check if the manipulation of the
expected anagram difficulty level would influence subjects'
perception of the difficulty level of the discrimination
problems, subjects were asked to rate (again on a 7-point
scale) the difficulty level of the discrimination problems.
The manipulation of ego-threat was also checked. Subjects
were asked to rate how indicative of intelligence they
thought their anagram-solving ability was, from (1) "not at
all indicative" to (7) "very indicative".

Check on The Manipulation
------------------------
of Problem Solvability
------------------------

Subjects in the unsolvable problems condition, compared
to those in the solvable condition, rated their performance
on the discrimination problems lower (1.77 vs. 4.79), $F(1,$
$72)= 15.66$, $p < .001$. Moreover, subjects rated the
discrimination problems as much more difficult in the
unsolvable condition than the solvable condition, (3.02 vs.
5.13), $F(1, 72)= 14.47$, $p < .001$. On neither measure was any
effect of the alleged difficulty of the anagrams
significant. But, when the discrimination problems and the
anagrams were claimed to be related to intelligence or
ability -- i.e., when ego-threat was directly evoked --
subjects tended to rate their performance on the anagrams
higher (3.82 vs. 5.13), $F(1, 72)= 3.40$, $p < .1$.

Check on The Manipulation
------------------------
of Ego Threat
------------------------

To check the manipulation of ego-threat, subjects were
asked to rate how indicative of intelligence they thought
their anagram-solving ability was. Results indicated that

there was a significant difference between ego-threatening and non-ego-threatening instruction conditions, $F(1, 72) = 7.66$, $p < .01$; i.e., when subjects were given ego-threatenin instruction, they thought thier anagram solving ability was much more related to intelligence (3.45 vs. 4.22) than when they had been given the non-ego-threatening instruction.

Difficulty Rating of The
------------------------
Discrimination Problems
------------------------

The manipulation of the alleged difficulty of the anagrams might have affected subjects' perception of the difficulty of the discrimination problems, since these perceptions were assessed after both tasks had been performed. Thus, subjects were asked to rate the difficulty level of the initial discrimination problems. The results, however, indicated that there was no significant influence of the alleged difficulty of the anagrams on subjects' perception of the difficulty of the discrimination problems.

Anagram Performance
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Average Solution Time
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The results of an ANOVA performed on the average solution time subjects needed to solve the anagrams (see Table 1 for all relevant means) were consistent with the egotism explanation; i.e., among subjects to whom the anagrams were described as moderately difficult, those who previously had received unsolvable problems did worse than subjects who previously received solvable discrimination

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problems, $F(1, 72)=12.70$, $p < .001$. Telling subjects in the unsolvable problems condition that the anagrams were high rather than moderate in difficulty significantly improved subjects' performance, $F(1, 72)=7.53$, $p < .01$. The interaction between prior problem solvability and alleged difficulty of anagrams was also significant, $F(1, 72)=4.87$, $p < .05$.

Number Solved
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Findings with regard to the number of anagrams solved were similar to those for the solution time measure. In the moderate-difficulty condition, the subjects given unsolvable discrimination problems did worse than the subjects in the solvable problems condition, $F(1, 72)=6.43$, $p < .05$; and telling subjects in the unsolvable problems condition that the anagrams were high rather than moderate in difficulty tended to improve performance, $F(1, 72)=3.66$, $p < .1$. The interaction between problem solvability and alleged anagram difficulty was marginally significant, $F(1, 72)=3.43$, $p < .1$.

Contrary to expectations, however, the invocation of a more direct ego threat did not mediate the effects of prior problem solvability and expected difficulty level on performance on the second (anagram) task. In fact, none of the effects of ego threat generated significant F-values ($Fs=.008 - .994$).

## Discussion
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Egotism and learned helplessness theory offer competing explanations for the finding that experience with unsolvable problems impairs performance on other tasks. The two explanations make opposing predictions about the impact of describing a subsequent task as highly rather than moderatly difficult. Learned helplessness theory predicts worse performance when this task is described as highly difficult, since such a description should strenghten the expectancy that outcomes will be independent of responses. The egotism explanation predicts that performance will improve. Since failure can be attributed to the highly difficult task rather than to the person, one need not withhold effort to avoid an attribution of lack of ability. The results of Frankel and Snyder's earlier studies (1978, 1981) supported the egotism explanation; i.e., they found that describing a task as highly difficult rather than moderately difficult improved the performance of those previously given unsolvable problems.

In addition to problem solvability and alleged difficulty of anagrams, the present study also manipulated a third variable in order to further test the egotism explanation. The results suggested that the unsolvable problems were sufficient to threaten subjects' self-esteem;

i.e., comparing with those told that the anagrams were moderately difficult, subjects told that the anagrams were highly difficult performed significantly better in the unsolvable problem condition. However, the instructional evocation of ego-threat had no effect on subjects' performance on the anagrams. This result suggests that the egotism explanation needs further scruting. This explanation predicts that subjects' performance on anagrams should be improved with ego-threatening instruction, but this did not occur in the present study. One possible reason for this failure is that when subjects confronting the unsolvable problems would feel ego-threatened, no matter what the instruction was. However, it might be the case that the effects of prior failure and expected difficulty level on subsequent performance that the present and past work have shown are not a consequence of ego-defensiveness in the particular way that Snyder and Frankel have proposed.

For example, subjects' reactions might instead be a consequence of attempt on their part to restore some measure of pride in themselves. Performing well on a difficult task would be more gratifing than would be succeeding on a less challenging task. Thus, responses to failure might reflect attempts at ego-enhancement more than they do enducing concerns with explaining expected future failures. Both explanations involve egotism, but their fundamental mechanisms differ substentially. In any event, the apparent failure of direct ego threat to affect subsequent task

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performance does call into question Snyder and Frankel's

explanation. It is clear, then, that additional research

needs to be performed if we are to have confidence in the

validity 0 of any attempt to explain the impact of failure

experiences on task performance.

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Table 1 (Anagram Performance)
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---------------------------------------------------------------------
Ego-threatening instruction

|  | solvable problems | | unsolvable problems | |
|---|---|---|---|---|
| Measure | moderate difficulty | high difficulty | moderate difficulty | high difficulty |
| solution time M | 32.07 | 27.35 | 47.32 | 31.60 |
| no. solved M | 15.10 | 16.40 | 15.80 | 15.90 |

---------------------------------------------------------------------
Non-ego-threatening instruction

|  | solvable problems | | unsolvable problems | |
|---|---|---|---|---|
| Measure | moderate difficulty | high difficulty | moderate difficulty | high difficulty |
| solution time M | 25.58 | 35.03 | 55.28 | 36.41 |
| no. solved M | 16.70 | 15.10 | 13.20 | 15.50 |