AD-A069 921 PURDUE UNIV LAFAYETTE IND DEPT OF PSYCHOLOGICAL SCIENCES F/G 5/10
SELF ESTEEM, INFORMATION SEARCH AND PROBLEM SOLVING EFFICIENCY.(U)
MAY 79 H M WEISS, P A KNIGHT N00014-78-C-0609
UNCLASSIFIED TR-2 NL

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SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE

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1. REPORT NUMBER: (14) TR-2
2. GOVT ACCESSION NO.
3. RECIPIENT'S CATALOG NUMBER

4. TITLE (and Subtitle): (6) Self esteem, information search, and problem solving efficiency.
5. TYPE OF REPORT & PERIOD COVERED: (9) Interim rept.
6. PERFORMING ORG. REPORT NUMBER

7. AUTHOR(s): (10) HOWARD M. WEISS & PATRICK A. KNIGHT
8. CONTRACT OR GRANT NUMBER(s): (15) N00014-78-C-0609

9. PERFORMING ORGANIZATION NAME AND ADDRESS
Department of Psychological Sciences
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West Lafayette, IN 47907
408 332
10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS: NR 170-876

11. CONTROLLING OFFICE NAME AND ADDRESS
Organizational Effectiveness Research Programs
Office of Naval Research Arlington VA 22217
12. REPORT DATE: (11) May 1979
13. NUMBER OF PAGES

14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)
15. SECURITY CLASS. (of this report): Unclassified
15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

LEVEL II

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17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)
(12) 24 p.

DDC REPRODUCED JUN 15 1979 C

18. SUPPLEMENTARY NOTES

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Self esteem, problem solving, information search, information acquisition, performance.

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

Weiss (1977, 1978) has shown that low self esteem workers are more likely to model the role behaviors and work values of superiors than are high self esteem workers. He has argued that new employees are "problem solvers" attempting to determine the most appropriate role behaviors for their new work situation. He has also argued that high self esteem individuals search for less information on problem solving tasks and are therefore less likely to seek and use models

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408 332

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AD A069921

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to help them define their roles.

This study examined whether self esteem is, in fact, negatively related to information search. It also examined whether the greater information search among low esteem individuals would result in more effective performance on a problem solving task where search is functional. Results showed that, as expected, low self esteem subjects searched for more information, search was functional and low self esteem subjects were significantly better performers on the task. The results are contrasted with previous studies of self esteem and performance and discussed in terms of person x situation interactions and the functional and dysfunctional aspects of high self esteem in relation to various types of organizational problems.

Self Esteem, Information Search and Problem Solving Efficiency

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Prepared for

Organizational Effectiveness Research Program

Office of Naval Research

Contract N00014-78-C0609

NR 170-876

Abstract

Weiss (1977, 1978) has shown that low self esteem workers are more likely to model the role behaviors and work values of superiors than are high self esteem workers. He has argued that new employees are "problem solvers" attempting to determine the most appropriate role behaviors for their new work situation. He has also argued that high self esteem individuals search for less information on problem solving tasks and are therefore less likely to seek and use models to help them define their roles.

This study examined whether self esteem is, in fact, negatively related to information search. It also examined whether the greater information search among low esteem individuals would result in more effective performance on a problem solving task where search is functional. Results showed that, as expected, low self esteem subjects searched for more information, search was functional and low self esteem subjects were significantly better performers on the task. The results are contrasted with previous studies of self esteem and performance and discussed in terms of person x situation interactions and the functional and dysfunctional aspects of high self esteem in relation to various types of organizational problems.

Weiss (1977, 1978) has shown that subordinates with low self esteem are more likely to imitate the role behavior of their supervisors than are those with high self esteem. He has argued that new employees are "problem solvers" who are attempting to determine which behaviors are appropriate for their new roles and are actively searching for role defining information. As part of their search, they try to observe the behavior of key role models to help them guide their own activities. Weiss has suggested that differences in self esteem will, however, influence the extent of information search. High self esteem individuals generally have more confidence in their initial approaches to problems and will therefore seek less information before offering solutions and making decisions. Thus, new employees with high self esteem will search for less external role defining information and, as a result, make less use of role models.

Although a number of researchers have shown that uncertainty increases information search (Berlyne, 1960; Crawford 1974; Lanzetta and Driscoll, 1968) and there is limited evidence to suggest that manipulated expectations of task success influence search activities (Lanzetta, 1963; Rotton, 1973), no research exists to support the negative relationship between self esteem and information acquisition suggested by Weiss. Since this relationship is critical to the explanation of self esteem influences on worker imitation, the first purpose of this study was to see if this relationship does, in

fact, exist. Specifically, it was expected that when engaged in a problem solving task individuals with low self esteem would search for more information than would those with high self esteem before offering problem solutions.

Although research on differences in imitation led to this investigation of self esteem and information acquisition, it is clear that any relationship between these two variables has broader organizational implications. Adequate information search is obviously an important component of effective problem solving and decision making in organizational and non-organizational settings (Ebert and Mitchell, 1975; Janis and Mann, 1977). Janis and Mann, for example, stress the value of "vigilant information processing" characterized by extensive information search activities when making decisions. Mitchell (1978) has noted that individuals in organizations too often make decisions using limited information. Thus, factors which tend to diminish search can lead to ineffective performance on the part of problem solvers and decision makers in organizations.

The utility of information search coupled with a negative relationship between search and self esteem leads to the somewhat surprising suggestion that on certain problem solving tasks low self esteem individuals may be more effective performers. This prediction is surprising since most discussions of the relationship between self esteem and performance have emphasized the dysfunctional aspects of low self esteem. Korman (1970), for example, has argued that people are motivated to perform in a manner consistent with their self images. As a result, he predicts generally better performance from high self esteem individuals. Lawler (1971) has suggested that workers with low self esteem have lower effort - performance expectancies which

result in lower effort and poorer performance. In support, a substantial number of studies have demonstrated a positive relationship between self esteem and task performance. (See reviews by Dipboye, 1977 and Korman, 1970; 1976.)

The superior performance of high self esteem workers is generally thought to result from their greater effort. However, since effort is not always the critical factor in determining performance (Lifter, Bass and Nussbaum, 1971) a positive relationship between self esteem and worker effectiveness might not be expected for all tasks. Task demands and characteristics should influence the effects of self esteem.

In this study, the effect of self esteem was examined for a problem solving task where information search is functional. If, as hypothesized, individuals with high self esteem engage in more limited search behavior they should not perform as well on the task as individuals with low self esteem. As a result, rather than the more traditional positive correlation between self esteem and task performance, a negative correlation should be found. Testing this proposition was the second purpose of this study.

Method

Procedure

Subjects were recruited to participate in a problem solving task. Upon arrival, each subject was ushered into a small room where, in the absence of the experimenter, he completed a self esteem inventory. The experimenter then returned to the room and administered the problem solving task. After completing the task the subject was debriefed and dismissed.

Subjects

Subjects were 41 male undergraduates enrolled in the introductory psychology course at Purdue University. Their participation was in partial fulfillment of class requirements.

Task

The problem solving task was originally used by Wason (1960). Each subject was given the numbers 2, 4, 6 and was told that these three numbers comformed to a particular relational rule known by the experimenter. The subject's problem was to determine the correct rule. Each subject was to search for information to help him solve the problem by generating sets of three numbers which the experimenter would classify as conforming or not conforming to the rule. The subject could ask the experimenter about as many sets of numbers as he wished. Only when he was confident that he had discovered the rule was he to present the rule to the experimenter who would tell him whether or not it was correct. If he gave the correct rule, the task was over. If he did not he was to continue searching for information by generating more sets of numbers until he was again confident he knew the rule. This process continued until he either solved the problem or felt he was unable to answer correctly and asked to stop. As in Wason's experiments, each subject was allowed to keep a written record of his numbers and his rules and he was told to present a solution only when he was confident it was correct. The rule was that the numbers are in increasing order of magnitude.

Two indices of information search were calculated; the amount of information sought (sets of numbers) before the first problem solution was offered and, since the first solutions offered by all subjects were incorrect, the amount of information sought per problem solution offered.

Self Esteem

Self esteem was measured using the Rosenberg Self Esteem Inventory (Rosenberg, 1960). The scale asks respondents to indicate the extent to which they agree or disagree, using a four point Likert type format, with ten statements about their own perceived worth and competence. For this sample, the mean self esteem score was 32.33 with a standard deviation of 3.61. Both values are extremely similar to those found by Weiss (1977, 1978) using the same scale on a managerial sample. In this study, the coefficient alpha internal consistency reliability was .76.

Results

The average amount of information requested by all subjects before offering their first problem solutions was 1.6 (s.d.=1.4). Three people felt confident enough to offer their initial solution without requesting any information, while one person inquired about seven sets of numbers before venturing his first hypothesis. For each solution offered subjects requested an average of 2.1 pieces of information (s.d.=1.3). The average amount of information requested per solution ranged from .67 (one subject offered three solutions for every two pieces of information

he requested) to 6.14.

It seems clear that these subjects comprise a fairly confident group of problem solvers. A relatively small amount of information was requested prior to offering solutions to the problem. Yet it is also clear that there was a substantial amount of variance in the subjects' information search behavior. The initial expectation of this study was that these differences in the amount of information requested would be significantly correlated with self esteem, with low self esteem subjects requesting more information.

As can be seen in Table 1, this expectation was strongly supported. The correlation between subjects' self esteem and the amount of information sought before offering the initial problem solution was $r = -.31$ ($p < .05$). The correlation between self esteem and the average amount of information requested per solution presented was $r = -.42$ ($p < .01$). These correlations indicate that, on this task, low self esteem subjects requested more information before they were willing to offer solutions to the problem.

Insert Table 1 about here

The second expectation of this study was that self esteem would be negatively related to problem solving efficiency. Relevant results are also presented in Table 1. As expected, subjects with low self esteem were significantly more efficient at solving the problem than were subjects with high self esteem. The correlation between self esteem and the number of incorrect solutions that were offered by the subjects before they gave

the correct solution or gave up was $r = .41$ ($p < .01$). Approximately one quarter of all subjects never obtained the correct solution and the point biserial correlation between obtaining the correct solution and self esteem was $r = -.31$ ($p < .05$). In sum, as expected, low self esteem subjects are significantly more efficient performers on this task. They offered fewer incorrect solutions and were more likely to correctly solve the problem.

Finally, the negative correlation between self esteem and task performance was based upon the functional value of information search. To assess the relationship between search behavior and problem solving efficiency, the average amount of information sought before offering correct answers was compared with the average amount of information sought before offering incorrect answers. Before offering their correct solutions, subjects inquired about an average of 3.03 sets of numbers. This was significantly higher ($t = 3.19$, d.f. = 30, $p < .01$) than the 1.86 sets of numbers presented before offering incorrect solutions[1] and indicates that subjects searched for more information before presenting correct solutions than they did before presenting incorrect solutions. In addition, both the amount of information sought before offering the first rule and the average amount sought before each rule was offered were significantly and negatively correlated with the number of incorrect solutions ($r = -.43$ and $r = -.41$, respectively, both significant at $p < .01$).

In summary, low self esteem subjects searched for more information,

information search was related to problem solving efficiency and, as expected, low self esteem subjects were more successful at the task.

Discussion

In this study, a negative relationship was found between self esteem and both information search and problem solving efficiency. Low self esteem subjects acquired more information and performed significantly better than did subjects with high self esteem. These findings are particularly suprising and interesting given the fairly substantial number of studies in the organizational psychology literature in which low self esteem has been shown to have dysfunctional consequences (Dipboye, 1977; Korman 1970; 1976).

It is clear that the information search requirements of the specific task of this study greatly influenced the differences between these results and previous self esteem findings and this fact demonstrates once again the need to take situations into account when trying to understand the effects of personality on behavior (Magnusson and Endler, 1977). Any relationship between self esteem and task performance, rather than being uniformly positive as implied by most previous research, will depend upon the particular characteristics and demands of the task and situation.

For example, it has already been suggested that the effort requirements of a task will affect the relationship between self esteem and performance. Where effort is not a significant determinant of task success, effort differences between high and low self esteem workers will not lead to differences in their effectiveness.

The results of this study also indicate the importance of the information search requirements of a task on self esteem-task performance relationships. Since low self esteem individuals generally search for more information on problem solving tasks, they should be more effective performers on those problems where search is functional. Certainly, in a number of situations where careful deliberation is required the individual with a tendency to "shoot from the hip" will be at a severe disasvantage. The findings of this study show this to be true.

The negative relationship between self esteem and performance found here should not be expected for all problem solving tasks. Even for problems where some information search is functional, extensive search is not necessarily so (Janis and Mann, 1977). Under conditions where the correct solution is obvious, the greater search of low self esteem individuals will not result in a performance advantage. Similarly, on some tasks performance results more from effective implementation of any of a number of workable problem solutions than from finding the one best solution. Here the high self esteem individual who has more confidence in his solution may implement it more effectively.

Search entails costs of both time and resources. Task efficiency often must be judged by weighing the benefits of arriving at the best solution against the costs of reaching and implementing it. For any particular task, one might conceptualize a search utility curve with a point where the costs of information acquisition overcome the benefits. The exact shape of the curve and the point where search becomes dysfunctional will vary across tasks and so too will the relative effectiveness of individuals with high or low self esteem. On one task where the benefits

of information search are not soon outweighed by the costs (e.g. the correct solution is not obvious, the risks of a wrong solution more substantial) the more extensive information search of individuals with low self esteem may give them a performance advantage. On other tasks, where the costs of search soon outweigh the benefits, high self esteem performers may be more effective.

The implications of the present study are not limited to issues of self esteem and performance. It has become fashionable to discount the importance of personality variables for explaining behavior in organizations and elsewhere. Certainly, the results presented here, taken in conjunction with previous self esteem results, again illustrate the futility of expecting across the board relationships between individual difference variables and various criteria. However, they also illustrate that personality variables like self esteem can be useful predictors of these same criteria if careful attention is paid to behavioral expectations and task and situational requirements.

Footnotes

This research was supported by the Organizational Effectiveness Research Program, Office of Naval Research, contract N00014-78-C-0609 to the senior author.

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[1]This t-test for non independent samples was conducted comparing information search before correct and incorrect solutions only for those 31 subjects who eventually obtained the correct answer. Inclusion of data from subjects who never obtained the correct answer did not change the results.

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TABLE 1

Correlations between Self Esteem and Information Search

	Self Esteem
Information requested before offering 1st solution	-.31*
Information requested per solution offered	-.42**

Correlations between Self Esteem and Task Performance

Number of incorrect solutions	.41**
Obtaining correct solution	-.31*

** $p < .01$
* $p < .05$

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