DOCUMENT RESUME

ED 085 075 PS 006 833

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TITLE The Role of Generalized and Specific Expectancies in Determining Academic Achievement.
INSTITUTION Emory Univ., Atlanta, Ga.
PUB DATE 73
NOTE 6p.
AVAILABLE FROM Stephen Nowicki, Jr., Department of Psychology, Emory University, Atlanta, Georgia 30322
JOURNAL CIT Journal of Genetic Psychology, 1973 (in press)

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS *Academic Achievement; Aspiration; *Elementary School Students; *Expectation; Grade 5; Grade 6; *Locus of Control; *Self Concept
IDENTIFIERS Nowicki Strickland Personal Reaction Survey; Rotter Level of Aspiration Board

ABSTRACT

The purpose of the present study was to examine the relation of generalized and specific expectancies to actual academic performance. Thirty-five female and twenty-eight male fifth and sixth graders completed the Nowicki-Strickland locus of control scales and Rotter Level of Aspiration Board procedures. Results indicated that those, who perceived themselves to be internally controlled (and who used immediate experience on the Rotter Board to form accurate expectancies of future performance), achieved more than their counterparts. These results were taken as supportive of conceptualizing achievement in expectancy terms. (Author/DP)

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J. Genetic [redacted] Psychology, in press.

ED 05975

# THE ROLE OF GENERALIZED AND SPECIFIC EXPECTANCIES IN DETERMINING ACADEMIC ACHIEVEMENT

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## 1. Introduction

A number of authors have reported the significant role of expectancies in determining a wide variety of behavior (Lefcourt, 1966; 1971; Rotter, Chance, & Phares, 1972; Strickland, 1971). In the present study the importance of generalized and specific expectancies in determining level of academic achievement was explored.

The situation, according to social learning theory, provides a complex set of cues for the elicitation of expectancies. A major outgrowth of social learning theory involved measurement of generalized expectancies such as locus of control. Rotter (1966) defines this expectancy as:

> When a reinforcement is perceived by the subject as following some action of his own but not being entirely contingent upon his action, then, in our culture, it is typically perceived as the result of luck, chance, fate, as under the control of powerful others, or as unpredictable because of the great complexity of the forces surrounding him. When the event is interpreted in this way by an individual, we have labeled this a belief in external control. If the person perceives that the event is contingent upon his own behavior or his own relatively permanent characteristics, we have termed this a belief in internal control. (p. 1)

If this conceptualization of locus of control of reinforcement is accurate, it can be assumed that having an internal as opposed to an external orientation should lead one to engage in the type of behaviors which enhance the possibility of achieving commensurate with one's ability. Empirically this assumption has been supported by the results of a number of studies which indicated a positive relation between internal locus of control and academic achievement (Cellura, 1963; Crandall, Katkovsky, & Crandall, 1965; Crandall, Katkovsky, & Preston, 1962; Nowicki & Roundtree, 1971; Nowicki,& Strickland, 1973).

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Social learning theory also encompasses specific expectancies, i.e., expectancies based on specific experiences in a specific situation. To measure how individuals form specific expectancies, Rotter devised what he called the level of aspiration board. On this device individuals express verbal expectancies of future performance based on their past performance. It seems logical that subjects whose verbal expectancies of future performance were realistically based on their past performance would be more efficient in dealing with other tasks and problems. In terms of achievement this translates into the hypothesis that subjects who show realistic specific expectancies on the level of aspiration tasks would show higher academic achievement. Surprisingly, this relation has

yet to be reported in the literature.

Though not of major focus, race and sex of subject were also examined in the present study. A review of the pertinent research showed that, in terms of achievement test scores, females of the age used in the present study achieved more than males, and white children of this age achieved more than black children (Eppes, 1971; McCandless, 1970).

To summarize, the authors sought to examine the relation of specific expectancies and locus of control of reinforcement orientation (generalized expectancy) to actual achievement performance. It was predicted that those subjects who make realistic appraisals of future successes based on specific experience will achieve more than those who do not. It was further predicted that internal, white, female subjects would achieve more than external, black, male subjects respectively. Since a review of the literature suggested no firm basis to predict an interaction between race or sex and subject expectancy estimates and achievement, no interaction hypotheses were made.

## 2. Method

### Subjects

The subjects for this experiment were 35 female (20 black and 15 white) and 28 male (14 black and 14 white) students from the fifth and sixth grades of an urban elementary school located in a county bordering a large southern metropolitan area. The students were from the neighborhood surrounding the school and were predominately lower middle class as measured by occupational status (Hollingshead, 1957). The testing was done during the fall.

### Measures

The Nowicki-Strickland Personal Reaction Survey for children (CNS-IE) is a pencil and paper measure of locus of control consisting of 40 questions which are answered yes or no. Reliability estimates are satisfactory for all grade levels tested. Specifically for this age level the internal consistency is .63 and the test-retest correlation is .71 (Nowicki & Strickland, 1973). An example of an CNS-IE item is "Is it better to be lucky than to be smart?"

The Rotter Level of Aspiration Board (1942) was used to measure level of aspiration. This board is designed with a groove leading to a series of numbers. The subject hits a steel ball along the groove and attempts to obtain as high a score as he can. After several practice hits, the subject completes 20 trials of five hits each. Before each trial the subject estimates the score he expects to make on the total five hits. The level of aspiration measure (D score) is computed by obtaining the difference between the last performance and the following estimate. An algebraic sum is obtained and divided by 19 (the number of differences for 20 trials). Thus the D score equals the mean of the difference between each estimate and the preceding performance score. The number of shifts (NS) measure consists of the number of times the subject changes his expected score from the preceding trial. The maximum number of shifts possible is 19. Finally, the number of unusual shifts (NUS) is indicated by an unusual change in predicted score, such as up after failures or down after success.

Metropolitan Achievement test scores were obtained from the school records. The mean of the nine subtest scores on the Metropolitan Achievement test was used as the measure of achievement.

Procedure

The research was conducted by a white female experimenter (college senior). The children completed CNS-IE in their class. Another white female, not the experimenter, read each question aloud. Before taking the test the subjects were told that the test administrator was gathering attitudes and opinions of different aged students to see how they varied. Some time after taking the written test (the time varied from one to four weeks) the subjects were seen individually for from 20 to 30 minutes during which time the Rotter Level of Aspiration Board procedure was administered. The subjects were told, "This is a test of motor control. The idea is always to aim for the 10. Your score will depend on how close to the 10 you come. You will be given a series of trials in which you should try to get as high a total score as possible. Before you start each trial--a trial consists of your total score for five hits--you will have to tell me the score you expect to get and you will not be credited with anything over that score. If your score is lower than you bid, then the score you will be credited with will be two points off your bid for every point you fall below in your actual score. For example, if you say you will score 15 and score 20, for the five hits, you will get credit for 15; if you say 15 and score 10, then you will get credit for five. You can see that once your bid is made it is always to your advantage to score as high as possible." After each subject finished the task, the examiner talked with the child to obtain his or her impressions of the task and to answer any questions the child may have had.

## 3. Results

To construct appropriate groups for analysis of variance procedures, median splits for locus of control, D, NS, and NUS scores were made. Thus four 2 X 2 X 2 analyses of variance for unequal cell frequencies were computed (Winer, 1962) with achievement as the dependent variable. In each analysis the first two factors were the same (race and sex) while the third factor differed for each analysis.

The first analysis with locus of control as the third factor indicated significant main effects for race ($F = 6.96$, $df = 1, 51$; $p < .05$) sex ($F = 4.56$, $df = 1, 51$; $p < .05$) and locus of control ($F = 4.01$, $df = 1, 51$; $p < .05$). Subjects who were white, female, and internal achieved more than their counterparts. These results are consistent with the hypothesis.

The next 2 X 2 X 2 analysis with D scores as the third factor indicated a significant main effect for race ($F = 7.11$, $df = 1, 51$; $p < .01$) with blacks achieving less than whites and a significant three way interaction ($F = 4.33$; $df = 1, 51$; $p < .05$). Newman-Keuls procedures showed that black males with high D scores had lower achievement scores than any other group associated with the significant interaction.

A similar analysis with number of shifts as the third factor indicated a race main effect for achievement ($F = 7.01$, $df = 1, 51$, $p < .01$). Blacks had lower achievement scores than whites.

The last 2 X 2 X 2 analysis with NUS scores as the third factor indicated significant main effects for race ($F = 7.19$, $df = 1, 51$, $p < .01$) and NUS ($F = 4.54$ $df = 1, 51$, $p < .05$). These main effects indicated that white subjects (as opposed to black subjects) and low NUS subjects (as opposed to high NUS subjects) had higher achievement scores. In addition, there was a significant race by NUS interaction ($F = 4.09$, $df = 1, 51$, $p < .05$). Newman-Keuls procedures revealed that blacks who had a high NUS achieved significantly less than any of the other groups, and that white subjects with a low NUS achieved more than any of the three other groups.

## 4. Discussion

These results strongly suggest that generalized expectancy of reinforcement and specific expectancies based on immediate experience are significantly related to academic achievement. While the results of the present study are not definitive, they do suggest expectancies, something learned and thus manipulable, significantly affects achievement.

In terms of the generalized expectancy, it was found that those who were internally controlled achieved more than those who were externally controlled. This relation was found in spite of the fact that only four of the 40 items comprising the locus of control measure pertained in any way to academic achievement. Although the relations between locus of control and achievement has been found before, its occurrence again in the present study further emphasized the importance of a generalized expectancy of reinforcement in determining achievement behavior.

Specific expectancies, based on immediate experience, were also found to be related to achievement. Those who learned from their immediate experience to form accurate expectancies about their future behavior had higher achievement scores than those who, for whatever reason, did not. It seems that achievement may also depend on the ability to form accurate specific expectancies.

The inter-relationship among generalized expectancy of reinforcement, specific expectancies, and achievement suggests very strongly that a valid way to approach achievement behavior is to conceptualize it as a problem of expectancies of both a general and specific nature. A few studies have been directed at changing the generalized locus of control orientation (Reimanis, 1971, 1972; Nowicki & Barnes, 1973). Only one (Edwards, 1973) however, has related changes in locus of control orientation to changes in behavior. In this study, a behavior modification program with third graders, it was reported (over a six-month period) that a significant change in locus of control orientation toward the internal end of the continuum was accompanied by a significant gain in achievement-test scores as compared to a control group. This result suggests that approaching the achievement problem from an expectancy perspective has some promise.

## 6. Summary

The purpose of the present study was to examine the relation of generalized and specific expectancies to actual academic performance. Thirty-five female

and 28 male fifth and sixth graders completed Nowicki-Strickland locus of control scales and Rotter level of aspiration board procedures. Results indicated that those who perceived themselves to be internally controlled and who used immediate experience on the Rotter board to form accurate expectancies of future performance on this board, achieved more than their counterparts. These results were taken as supportive of conceptualizing achievement in expectancy terms.

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## Footnotes

1. Requests for reprints should be sent to Stephen Nowicki, Jr., Department of Psychology, Emory University, Atlanta, Georgia 30322.

2. Thanks to the students and administration of the Gwinnett County School System.