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ABSTRACT

The first phase of the study was a 2 x 2 factorial design, with locus of control and instructional method (lecture and demonstration) as independent variables and honor point average (HPA) as the dependent variable. The second phase used correlational techniques to test the extent to which reading performance and traditional predictors of achievement would predict college HPA. Subjects were marginal admission students at Wayne State University who were economically disadvantaged and 91 percent of whom were black. Forty-three subjects were used in the experimental phase, and 184 were used in the correlational phase. The experimental subjects participated in a reading and study skills course which used either the lecture method or the demonstration method of instruction, and the subjects were divided into groups of internal or external locus of control. The Rotter Internal-External Locus of Control Scale and the Triggs' Diagnostic Reading Test were administered at the end of the reading course to all marginal admits. After 2 full years of study, HPA's were collected from university records. No significant effects of locus of control, instructional method, or instructor on HPA were found. However, a larger proportion of external locus of control students chose to leave the university than the internal locus of control students. Tables and references are included. (AW)

RELATIONSHIPS AMONG READING PERFORMANCE, LOCUS OF CONTROL AND ACHIEVEMENT FOR MARGINAL ADMISSION STUDENTS

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INTRODUCTION

At the 1970 North Central Reading Association conference, these writers presented a paper (Pepper and Drexler, 1970) which described some social psychological variables related to the achievement of marginal admission students. One phase of that paper discussed an experimental study designed to test the effects of a subject variable, locus of control, and a program variable, instructional method, on the reading performance of marginal admission students. This paper is an extension of that paper in that it tests the same relationship using achievement measures as a dependent variable and the relationships between reading performance and these achievement measures.

A short review of the 1970 paper is in order. Locus of control is a variable which defines the extent to which an individual perceives a causal relationship between his behavior and the consequences of his behavior (Rotter, 1966; Lefcourt, 1966). When an individual feels that his behavior is directly related to the outcomes of his behavior, he is said to have an internal locus of control. When an individual feels that there is no relationship between his behavior and its outcomes, he is said to have an external locus of control. It was felt that for students an attitude of "the more I study, the better my grades will be" is superior to an attitude of "my grades cannot be affected by the amount of effort I put into studying.

The other variable used was instructional method. This variable was divided into lecture method and demonstration method. These writers felt that what reading and study skills programs attempt to do is influence the habits and attitudes of students. Past research (Cohen, 1964; Rosnow and Robinson, 1967) has demonstrated that the most effective means of influencing behavior and attitudes is to have the subject participate in the influencing process.

It was hypothesized that students in a demonstration-discussion type reading program would do better than students in a lecture type program.

The Triggs' Diagnostic Reading Test, Survey Section, was used as a dependent measure. Neither hypothesis was supported. Instead, statistically significant interactions were found between locus of control and instructional method. Tests of the simple effects indicated that students who felt an internal locus of control did better on reading comprehension when a demonstration instructional method was used and students who felt an external locus of control functioned better when a lecture method was used.

The present study tests the extent to which the findings of the earlier study persist through college achievement. Specifically, it tests (1) the effects of locus of control and instructional method on college honor point average and (2) the relationships among locus of control, reading performance and achievement through the use of partial correlations and multiple regressions.

METHOD

Design. The design for the first phase of the study was a 2 X 2 factorial design. The independent variables were locus of control (internal and external) and instructional method (lecture and demonstration). The dependent variable was honor point average.

The second phase of the study utilized correlational techniques, partial correlation and multiple regression, to test the extent to which reading performance and traditional predictors of achievement could predict the criterion, college honor point average.

Subjects. The subjects consisted of marginal admission students at Wayne State University. They had high school honor point averages ranging from 2.4 to 2.74 and federal guidelines defined them as being economically disadvantaged.

Most of the students (91%) were black. Forty-three of these students were used in the experimental phase of the study and one hundred and eighty-four of them were used in the correlational phase.

Procedure. The students in the experimental phase of the study participated in sections of the reading and study skills course which either used a traditional lecture method of instruction or a student participation (demonstration) method of instruction. They were divided into internal or external locus of control groups by means of a median split on the distribution of locus of control scores.

The Rotter (1966) Internal-External Locus of Control (I-E) Scale and the Triggs' (1963) Diagnostic Reading Test, Survey Section, Upper Level, were administered at the end of the reading course to all marginal admission students. After one full year of study, achievement measures (honor point average) were collected on the students from existing university records.

PHASE I
RESULTS AND DISCUSSION

Table 1 shows that there were no significant effects of locus of control, instructional method, or instructor on honor point average after one full year of study. The mean honor point average for the sample was 1.983 with a standard deviation of .453. These data did not support the hypothesis that internals would have higher honor point averages than externals.

Table 1. Analysis of variance of the effects of locus of control, instructional method and instructor on honor point average.

Source	df	MS	F
A (locus of control)	1	369982.976	1.7888
B (instructional method)	1	38455.604	0.1859
C (instructor)	1	301283.752	1.4567
A*B	1	101378.533	0.4902
A*C	1	121823.687	0.5890
B*C	1	29370.605	0.1420
A*B*C	1	55234.689	0.2671
Within	30	206829.014	

Data was also collected to determine whether locus of control or instructional method was related to a student's remaining in the program for the full year. Students in the marginal admission project were guaranteed that they would not be excluded from the university for academic reasons for [illegible] one full school year. This means that any student who left, chose to do so. A contingency table was set up and chi squares were run to test this. The overall chi square was significant (chi square = 51.364; $p < .001$). The other significant relationship was locus of control by persistence. A larger proportion of externals chose to leave the university than internals (Table 2).

Table 2. The relationship between locus of control and persistence: chi square and frequencies.

	Locus of Control	
	Internal	External
Stay	21	17
Leave	1	4

Chi square = 34.187; $p < .001$

The findings on measures of achievement must be interpreted in light of the findings on the persistence measure. Perhaps the lack of a relationship between locus of control and college HPA can be explained by the fact that more externals chose to leave than internals. There was, in effect, only a select subsample of externals remaining when the achievement measures were taken. It is possible that only those with high honor point averages remained. There is no way to determine the variance in these measures for which persistence would have accounted. Because of this, the finding of no relationship between locus of control and measures of achievement is inconclusive.

PHASE II
RESULTS AND DISCUSSION

No relationship was found between locus of control and honor point average for the larger group of students ($r = .039$). However, it was found that a larger proportion of externals left the university than internals. Table 3 points this out. Again, it was felt that this latter finding renders the result of no relationship between I-E and honor point average inconclusive.

Table 3. The relationship between locus of control and persistence to stay in school: frequencies and chi square.

	Locus of Control		
	I	E	Total
Stay	77	63	140
Leave	15	29	44
Total	92	92	184

Chi square = 5.857 with 1 df. $p < .05$

Considering the fact that more externals than internals chose to leave the university, the correlation between locus of control and college honor point average (HPA) after one full year of study was insignificant. Even when the effects of traditional predictors, high school grades and Scholastic Aptitude Test scores (SAT) were controlled, the partial correlation between locus of control and HPA was only .069.

Although many of the correlations were significant, subscales of the Triggs' reading test accounted for very little of the variance in HPA (Table 4). Again, partialling out the effects of traditional predictors did little to increase the correlation (Table 5). The differences in sample size can be attributed to incomplete data on all subjects. In general, the partial correlations were not very different from the correlations.

Table 4. Correlations between pre and post test reading performance and college HPA.

	Pre test	Post test
Reading Rate	.249***	.239***
Story Comprehension	.175**	.106
Vocabulary	.342***	.300***
Paragraph Comprehension	.229***	.191**
Total Comprehension	.149*	.153*

Pre test N = 194
Post test N = 192
* $p < .05$
** $p < .01$
*** $p < .001$

Table 5. Partial correlations between pre and post test reading performance and college HPA controlling for high school honor point average and SAT scores.

	Pre test	Post test
Reading Rate	.240***	.230***
Story Comprehension	.186**	.117
Vocabulary	.337***	.283***
Paragraph Comprehension	.225**	.196**
Total Comprehension	.137	.144*

N = 190
* $p < .05$
** $p < .01$
*** $p < .001$

A stepwise multiple regression was used to determine whether locus of control and reading performance would add to the prediction of college success for these students. First it was necessary to determine how well traditional predictors (high school honor point average and Scholastic Aptitude Test predict success for this group. It must be remembered that the present study treats a group with a narrow range of abilities. Thus, one could not expect these relationships to be as great as relationships among the measures were an entire student body being considered.

Table 6 shows the stepwise regression using high school HPA and SAT scores as predictors of college HPA for this group. These variables accounted for very little of the variance for this group and in no case were the regressions significant. Although one would expect that these coefficients would be smaller than those for a total student body, it is surprising that they were not higher than found. The addition of locus of control did nothing to augment predictability. In no case was the multiple regression significantly different from zero.

Table 6. Multiple regression using high school HPA, SAT scores and locus of control as predictors of college HPA of marginal admission students.

Variable	Multiple r	df	F
High school HPA	0.136	1/159	2.998
SAT	0.178	2/158	2.593
Locus of control	0.191	3/157	1.973

The addition of the subscales of the Triggs' reading test increased the predictability of success for marginal admission students over traditional predictors. Tables 7 and 8 present this for pre and post test scores respectively. The variables are listed in the order of their successive addition to the overall stepwise regression equation. The multiple r for pre test scores is larger than the multiple r for post test scores.

Table 7. Multiple regression using locus of control, pre test reading performance, high school HPA and SAT as predictors of college grades.

Variable	Multiple r	df	F
Vocabulary	0.336	1/159	20.250*
High School HPA	0.401	2/158	15.135*
Reading Rate	0.415	3/157	10.898*
Total Comprehension	0.423	4/156	8.498*
Paragraph Comprehension	0.463	5/155	8.461*
SAT	0.484	6/154	7.856*
Locus of Control	0.490	7/153	6.868*

* $p < .01$

Table 8. Multiple regression using locus of control, post test reading performance, high school HPA and SAT as predictors of college grades.

Variable	Multiple r	df	F
Vocabulary	0.280	1/159	13.575*
High School HPA	0.353	2/158	11.222*
Reading Rate	0.400	3/157	9.943*
Story Comprehension	0.406	4/156	7.708*
Total Comprehension	0.418	5/155	6.583*
Locus of Control	0.423	6/154	5.586*
SAT	0.428	7/153	4.895*

* p .01

An important finding is the greater predictability of these students' college grades by adding reading test scores to a multiple regression. It is not intended that these data be used in the selection of students. They do, however, help in the general understanding of the variability in HPA for marginal admission students. Programs, for example, could be restructured in light of these findings which, although not large, do account for 24% of this variability. This is a larger proportion of variation than could have been accounted for previously. Hopefully, the addition of attitudinal and motivational factors will further increase the multiple regression and further reduce the amount of unexplained variability.

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