THE EFFECT OF CLASSROOM ACTIVITIES ON LOCUS-OF-CONTROL ORIENTATION

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This study examined whether the locus-of-control orientation of high school and junior high school students could be modified through the incorporation of prescribed activities within the routine of the regular classroom. The prescribed activities were designed to either foster an awareness of the contingencies that exist between behaviors and obtained responsibilities and rewards, or to give students a say in classroom activities. Locus-of-control scores were obtained from 245 students in 11 classes during the first and last week of a nine-week phase period. It was predicted that classes where the teacher incorporated one or more of the prescribed activities would show a significantly greater internal orientation, as compared to classes where these activities did not take place. The results of this study suggested that it is possible to promote an internal locus-of-control orientation by incorporating prescribed activities into the regular classroom.

The concept of locus-of-control, which originated from Rotter's (1954) social learning theory, refers to the degree to which individuals attribute the outcome of events to their own actions. The locus-of-control dimension may be viewed as a continuum that runs from the highly internal end to the highly external end. The internal end of the locus-of-control continuum would be represented by individuals who believe that situational outcomes are a result of their own actions, skills, and efforts. Individuals at the external end of the continuum tend to believe that the outcome of events is due to factors beyond their control, such as fate, luck, or powerful others.

A great deal of the locus-of-control research has concerned itself with the relationship between academic achievement and locus-of-control. An impressive number of studies have found that a relationship exists, and reviews of these studies have been conducted by Bar-Tal and Bar-Zohar (1977), and Phares (1976). In general, these studies have found that an internal control is positively related to academic effort and achievement. For instance, among the 36 studies reviewed by Bar-Tal and Bar-Zohar, 31 displayed a positive relationship between internal perception of locus-of-control and academic achievement, while only one study revealed a negative relationship. In addition, Coleman, Campbell, Hobson, McPartland, Mood, Weinfeld, and York (1966) reported that among teachers, school, familial, and attitudinal variables, a sense of control over the environment was the best predictor of academic achievement for minority students. Also, other evidence has shown that internals, relative to externals, are more likely to recall information, seek additional information, and utilize relevant information (Crandall, 1970; Crandall and Lacey, 1972; Davis and Phares, 1967; DuCette and Wolk, 1972; Phares, 1969). Taken together, these research findings imply that an internal locus of control may be adaptive in academic situations.

Based upon the concept of locus-of-control, it is possible to hypothesize motivational differences between internal and external learners. Since external students view situational outcomes as being determined by luck, fate, and powerful others, it would be consistent to assume that they would have limited incentive to commit their time and effort toward studies and classroom activities. Similarly, they would probably be less likely to persist in their attempts to achieve solutions, overcome barriers, or modify their behavior to increase the likelihood of success. In contrast, it would be expected that internal students would be likely to display active goal achieving behavior, since they believe outcomes are a result of their own behavior. Research findings have supported these expectations. For example, Lefcourt and Steffy (1970) indicated that internal female student nurses are more likely to display persistence when faced with challenges than externals. Similarly, internal grade school boys were found to show greater persistence than externals at learning digit spans (Gagne and Parshall, 1975). In addition, Wolk and DuCette (1973) reported that internals show preference for tasks that are skill related and of intermediate risk, a characteristic which also typifies achievement motivated individuals. Wolfgang and Potvin (1973) found that internal fifth- to eighth-grade females were more likely to be frequent classroom participators and earn higher grades than externals.

These findings on locus-of-control and motivation, in combination with the positive relationship between internality and academic achievement, suggest that externals may benefit from attempts to move them toward

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an internal orientation. The positive effects of motivation on classroom behavior and learning are well-established (Hamachek, 1968). It seems logical that teachers would find it useful both to promote and to capitalize upon an internal orientation of students in the classroom.

Assuming that it would be advantageous from an educational viewpoint to shift the locus-of-control of "external" students toward a perceived internal locus of control, the question arises regarding the modifiability of this dimension. Thus far there have been only a few proposals for modifying the locus-of-control of "external" students, as well as a small number of actual studies aimed at changing locus of control in an educational or educationally related setting. For example, Chandler (1975) has proposed a peer tutoring situation in which a low-achieving "external" student would serve as a tutor. Chandler's assumption is that allowing the "external" student to experience and perceive personal control over another child may facilitate a more internal perspective. Among the studies which have actually affected locus-of-control is one by Nowicki and Barnes (1971) which found that a one-week structured camp experience led to a change toward internality for five out of eight groups of inner-city teenagers. The structured camp experience involved the use of contingent reinforcement for good performance during the week's activities. However, this study used a pretest-posttest design which lacked any control groups and, therefore, must be taken as being merely suggestive of having had an effect. In another study, Hunt and Hardt (1969) reported that high school students from low-income families, who attended an eight-week intensive education program on a college campus during the summer (Upward Bound Program), displayed an increase in internality and improved academic achievement. Similar to the Nowicki and Barnes study, there was no control group, nor was there an analysis to uncover which components of this general program may have contributed to the change.

Two other studies which did accomplish a change in locus of control were conducted within a pretest-posttest control group design (Bradley and Gaa, 1977; Smith and Troth, 1975). Both of these studies involved high school students in special sessions outside of the regular classroom. Bradley and Gaa had students take part in five weekly individual goal-setting conferences. The goal-setting students displayed a significantly greater internal locus-of-control, within the domain of academic situations, than the non-goal setting conference group. In the other study, Smith and Troth randomly assigned 12th graders to either an experimental achievement motivation training program or a control group. The experimental program met once a week for 1½ hours over a five-month period. The control group merely attended their regular classes. An analysis of covariance using pre- and post-treatment locus-of-control scores found the experimental group to be significantly more internal than the control group.

The results of these few studies imply that locus-of-control orientation may be at least partially modifiable through special programs or activities. The purpose of the present study was to examine whether the locus-of-control orientation of high school and junior high school students could be modified through the incorporation of prescribed activities within the routine of the regular classroom schedule. An effective attempt at modifying the perceived locus-of-control of students would appear to require two basic components. First, students need to be made aware of the contingencies that exist between their behaviors and the privileges, responsibilities, and rewards that are delegated to them. Second, if students are to develop an internal locus of control, they need to experience situations in which they are given responsibilities and are permitted to have a say in classroom activities. The prescribed classroom activities in this study attempted to foster these two basic components.

Locus-of-control scores were obtained from students in 11 classes during the first and last week of a nine-week phase period. It was predicted that classes where the teacher incorporated one or more of the prescribed activities within the regular classroom routine would show a significantly greater internal orientation, as compared to classes where these prescribed activities did not take place.

METHOD

Subjects

The subjects were 245 students, 105 boys and 140 girls. These pupils comprised 11 intact classrooms, nine junior high school classes and two high school classes. All classes were part of a large urban school system in Virginia. Of the 245 students, 47% were white and 53% were black. The course taught in two of the junior high school classes was English; the course for the other nine classes was social studies. Each course was taught for a nine-week phase period. There were five female instructors each teaching two classes, and one male instructor who taught only one class. Teachers who participated were recommended by their principals.

Materials

A shortened form of the Nowicki-Strickland Locus of Control scale for children (Nowicki and Strickland, 1973), which consists of the 21 items from the longer 40 item form that discriminate best for junior high school and high school students, was administered at the start and the end of the nine-week phase. For each of the 11 classes, all correlations between the first and the second administration of the locus-of-control measure were highly significant (*rs* ranged from .60 to .90, $p < .01$).

TABLE 1

Classroom Activities, Their Description and Rationale

Activity	Description	Rationale
student - generated quiz questions	Students write quiz items as either an in-class or homework assignment. Teachers prepare quizzes by sampling from the students' items and integrating with their own items.	This gives students a more responsible role in the classroom, allowing them to have some input and control over their own evaluation. By allowing students to contribute to their own evaluation they may be more likely to see a causal relationship between effort and performance.
involving students in the establishment of classroom rules	Teacher discusses with the class potential misconduct and what actions should be taken on the part of the teacher and the class when such behavior occurs. The goal of the discussion is a class consensus on discipline rules and a commitment to follow them.	This gives students more of a say in the management of the classroom. By taking part in the formation of the rules the student is likely to feel a greater commitment to obeying the rules and their consequences. Additionally, the student may be less likely to view punishment or reward as resulting from an outside force, but, instead, as a consequence of ones own behavior.
student self-evaluation of quizzes	After a quiz the teacher goes over the answers with the class and allows students to grade their own quizzes.	This gives students a more responsible role in the classroom. By allowing students to evaluate their own work, and thus providing them with immediate feedback, they may be more likely to attribute their performance to effort, rather than teacher control.
student-maintained personal progress sheet	At the beginning of the nine week phase, students are presented with the specific grading system the teacher will be using (e.g., number and point value of quizzes, exams, homework assignments and papers). Based upon this information, students construct a personal progress record sheet that they keep in their notebooks. Whenever a student receives a grade, the student records it in the appropriate space on the record sheet.	By allowing students to keep track of their own progress, it may increase the likelihood that they will become aware of the relationship that exists between their own effort and their performance.
Mini-contracts	Short range work assignments which permit small step gains and allow for a high probability of success are contracted between the teacher and an individual, a group, or an entire class.	This permits even the weaker academic student to achieve success. The short range nature of the task may increase the likelihood that success will be attributed to one's own efforts.

Procedure

Two meetings were held with each teacher prior to the start of the nine-week phase. During the initial meeting, the concept of locus-of-control was explained to the teacher, along with the rationale for conducting the present study. At the second meeting a list of classroom activities designed to promote an internal orientation on the part of the student was reviewed with the teacher. The list of activities and their rationale for fostering an internal locus-of-control is presented in Table 1. The ways in which the activities might be incorporated into the classroom were explained to the teacher. The teachers selected from the list those activities they were willing to try in one of their classes. With the exception

of the one male teacher who only had one class, each teacher was randomly assigned one experimental class and one control class. The control class was to be taught using only the methods the teachers traditionally used. The experimental class was to be taught by incorporating the new activities selected from the list, within the routine of the regular classroom schedule. Both the control class and the experimental class covered the same subject area, either English or social studies. Also, there was no reason to assume that one class was academically superior to another, since there was no ability tracking of students within the school system. The male teacher's class was assigned to the experimental condition. A few days after the second meeting, a letter was sent to each of the teachers listing the activities they had agreed to incorporate in their class.

A third meeting was held with each of the six teachers during the fifth week of the nine-week phase. The purpose of this meeting was to discuss any problems the teacher had encountered while trying to incorporate the contracted activities. The contracted activities for each of the teachers and the course they taught are presented in Table 2.

The Nowicki-Strickland Locus-of-Control Scale was administered to all 11 classes during both the first and last week of the nine-week phase. An examiner came into the classroom at the start of the class. Students were told that the purpose of the measure was to collect information concerning student attitudes at different grade levels, and that their responses were strictly confidential. The examiner read each of the items aloud twice, asking students to circle a yes or no response on their questionnaire.

Results

The results are based upon those instances in which both pretest and posttest locus-of-control scores were obtained for a student. Of the original 245 students, 222 were present for both administrations of the scale. Means and standard deviations for the pretest, posttest, and gain scores for the locus-of-control scale are shown in Table 3. Positive gain scores indicate an increase in internality over the nine-week phase. An inspection of Table 3 reveals that all of the experimental classes displayed a relatively greater change toward internality than the control classes.

Since students were not randomly assigned to treatments, but, instead, intact classes were randomly assigned to treatments, the class means were used as the

TABLE 2

Teacher's Course and Contracted Activities*

Teacher	Course	Activities
A	7th grade social studies	1. student-generated quiz questions 2. student self-evaluation of quizzes
B	8th grade social studies	1. student-generated quiz questions 2. student-maintained personal progress sheet 3. involving students in the establishment of classroom rules
C	8th grade social studies	1. student-generated quiz questions 2. student self-evaluation of quizzes 3. student-maintained personal progress sheet
D	12th grade social studies	1. student-generated quiz questions 2. student self-evaluation of quizzes
E	7th grade English	1. student-maintained personal progress sheet 2. involving students in the establishment of classroom rules
F**	8th grade social studies	1. student self-evaluation of quizzes 2. student-maintained personal progress sheet 3. involving students in the establishment of classroom rules

*Teachers A, C, & E had agreed to use mini-contracts, but at the third meeting all three indicated that they had failed to do so.

**Teacher F was the male teacher with only one class.

TABLE 3

Means and Standard Deviations for the Pre-, Post-, and Gain-Locus-of-Control Scores for Each Class

		Pretest[1]		Posttest[1]		Gain[2]	
Class	N	M	SD	M	SD	M	SD
Teacher A							
Experimental	21	8.05	2.82	6.24	3.11	1.81	2.54
Control	23	9.13	3.28	9.47	3.44	-.35	2.82
Teacher B							
Experimental	18	7.39	2.55	6.00	2.81	1.39	2.15
Control	19	6.58	3.63	6.53	4.05	.05	2.70
Teacher C							
Experimental	15	8.33	4.77	5.47	4.01	2.86	2.61
Control	21	8.33	3.28	8.14	3.12	.19	2.48
Teacher D							
Experimental	21	7.43	2.91	5.95	3.18	1.48	3.62
Control	19	6.89	3.87	6.47	3.15	.42	2.29
Teacher E							
Experimental	22	10.04	3.09	9.00	3.29	1.05	3.49
Control	21	9.00	3.23	8.52	3.40	.48	2.94
Teacher F							
Experimental	22	8.00	3.25	6.73	3.25	1.27	1.69

[1]The higher the mean, the more external the score.

[2]Gain scores were calculated by subtracting each student's posttest score from their pretest score.

unit of analysis (Campbell & Stanley, 1963). An analysis of covariance was performed upon the class means for the five pairs of experimental and control classes, using the post-locus-of-control means as the criterion, and the pre-locus-of-control means as the covariate. The results of the analysis of covariance are presented in Table 4. The analysis of covariance found that the experimental classrooms showed a greater internal orientation than the control classrooms, $F(1, 7) = 19.01$ $p < .003$. The adjusted mean locus-of-control score for the experimental classes was 6.30, and for the control classes it was 7.97.[1] Because the male teacher had only the one experimental class, this data was examined separately as a pre-experimental design. For this class a correlated t test was used to compare the students' pre- and post-locus-of-control scores. The t test found that the post-locus-of-control scores ($M = 6.73$, $SD = 3.25$) were significantly more internal than the pre-locus-of-control scores ($M = 8.00$, $SD = 3.25$), $t(21) = 3.52$, $p < .01$.

Discussion

The results of this research supported the hypothesis that the incorporation of prescribed activities within the routine of the regular classroom schedule can be effective in promoting a more internal locus-of-control orientation. For the five pairs of classes, the analysis of covariance found that the experimental classes showed a greater internal orientation at the end of the nine-week phase as compared to the control classes. Additionally, in the case of the one experimental class, which lacked a paired control class, the students' posttest locus-of-control scores were significantly more internal than

[1]It could be argued that, since all teachers did not contract the same activities and since instructional methods tend to vary among teachers, the data for the classes of each teacher should be analyzed separately. Therefore, a secondary analysis was conducted treating the data from the five pairs of classes as a series of five quasi-experimental nonequivalent control group designs. The results of these analyses were consistent with the findings reported above.

TABLE 4

Analysis of Covariance of the Mean Locus-of-Control Scores for Experimental and Control Classrooms

Source of Variation	SS	df	MS	F	p
Covariate (pretest)	10.49	1	10.49	32.40	.001
Classroom Treatment	6.16	1	6.16	19.01	.003
Error	2.27	7	.32		

their pre-test scores. Although these latter findings must be viewed as suggestive since there was no control group, viewed within the context of the other results they do add support to the original hypothesis. Thus activities designed to foster an awareness of the contingencies that exist between behaviors and obtained responsibilities and rewards, as well as experiences designed to give students a say in classroom activities, may effectively modify locus-of-control orientation.

The present experimental procedures prevent the deduction of the relative effectiveness each of the five prescribed activities had in inducing change. The emphasis of the present study was upon testing the hypothesis in a non-reactive, natural setting. Efforts to obtain the cooperation of teachers and to maintain a natural setting prevented rigid experimental control of procedures. In addition to teachers being allowed to choose which activities they would incorporate in their classes, the actual prescribed activities permitted teachers a leeway in terms of implementation. For instance, some of the ways in which teachers varied activity implementation were as follows: (a) the number of quizzes they allowed students to self-grade, (b) the number of student-generated questions they incorporated in quizzes, and (c) whether student-generated questions were written as homework or in-class assignments. As noted earlier, all three of the teachers who had agreed to use mini-contracts, later reneged on this agreement. This is not surprising when one considers the additional amount of time and effort that is necessary to implement mini-contracts as compared to the other activities.

The overall results of this research are quite impressive when one considers the relatively short period of time of the study and the larger context within which it took place. The treatment condition lasted only nine weeks and only took place in one of the students' several classes. It is quite likely that the other classes in the school provided only minimal opportunity for the student to have a say in classroom activities. This raises the question of whether the change in locus orientation was restricted situationally to the treatment classroom or if it carried over into the more general school environment. It must be remembered that both the pre- and post-administration of the locus-of-control measure took place in the same class. It is highly likely that the immediate context in which the instrument is administered exerts an influence over the individual's responses. It would be worthwhile in future research to re-administer the locus of control scale in a class different from the one in which the treatment took place.

In conclusion, the results of this study seem to indicate that it is possible to promote an internal locus of control orientation by incorporating prescribed activities into the regular classroom. This research complements past studies which have shown that special programs may be used to modify locus-of-control. If it can be agreed upon that the development of an internal control in students is a desirable goal for our educational system, then the present study suggests a few possible activities that may be useful in achieving such a goal. Future research needs to further clarify the relative effectiveness of the different prescribed activities, and the permanency and generality of their effects.

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