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This paper has two purposes: (1) to describe the general characteristics of a research project on which this is one part; and (2) to report an experimental attempt at improving academi c performance of low achieving ninth grade students through self concept enhancement (Experiment B). Briefly discussed are the experiments and the research design of the other phases of the project--dealing with parents of low achieving students, and with the effects of counseling on such students. Experiment B sought to determine whether positive evaluations of low achieving students by a so-called "expert" (the experimenter) could significantly change self concept of ability in the students and whether such change would show up later in change in school achievement. Analysis of data shows that there was not significant proportion of changers in either self concept or grade point average. The use of an "expert" does not seem to be an efficient method of increasing either self concept of ability or school performance in this sample. (NH)

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AN EXPERIMENTAL APPROACH--THE ENHANCEMENT OF SELF-CONCEPT OF JUNIOR HIGH SCHOOL STUDENTS THROUGH LARGE GROUP SESSIONS*

by

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The purpose of this paper is twofold: First to describe the general characteristics of the research including pertinent information on the samples and instruments used and second to describe one experimental attempt at improving academic performance through self-concept enhancement.

In the three papers in this symposium three experimental designs were used to evaluate three different methods of self-concept enhancement and the resulting influence on academic achievement. Each experiment was carried out in a separate junior high school so as to avoid contamination of treatment. All the students were in the ninth grade during the 1963-64 academic year in an urban school system.

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*Part of a Symposium on "Improving Academic Achievement Through Students' Self-Concept Enhancement" at the American Educational Research Association meetings in Chicago, February 19-21, 1964. This is the second of five papers delivered at the Symposium. The data reported in this paper and those that follow are part of research performed pursuant to a contract with the United States Office of Education, Department of Health, Education, and Welfare (Project No. 1636, Dr. Wilbur B. Brookover, Project Director).

In the experiment dealing with parents of low-achieving students (to be reported by Dr. LePere), all white students who had been achieving below the mean GPA (computed on the four subjects of math, English, social studies, and science) for the previous two semesters were defined as low-achievers. From this population, three groups were randomly selected. The first was designated the experimental group; the second, the placebo group; and the third, the control group. Initially, these groups represented random samples from the low-achieving population. However, since this particular experiment depended on the cooperation of parents, some changes were made in order to secure enough subjects in the experimental group. Experimental subjects who were unwilling to cooperate were placed in the control group and replaced by willing subjects from the control group. Thus, though it was attempted to maintain each group as a random sample, it was not completely possible in this experiment. The experiment dealing with parents is labeled Experiment A.

In Experiment B, (to be reported later in this paper) a study was made of the effects of formal presentations by a person defined as an "expert" on low-achieving students. Low-achieving students defined in the same manner were randomly assigned to an experimental group, a placebo group and a control group. No changes were made after selection. These groups therefore represent random samples of low-achieving students in this school.

In Experiment C dealing with the effects of counseling on low-achieving students, (to be reported by Dr. Hamachek) further considerations were used in the selection of groups. In addition to achieving below the mean for their class during both semesters of the eighth grade, students had to meet the additional requirements of being below the class average on the self-concept of ability scale, and of having parents whom the students perceived as holding low (below the mean of the class) images of their ability. In addition, these students had to have been in the school system since fourth grade and have complete school records. Of the students who met these requirement, thirty were randomly assigned to an experimental group and thirty were assigned to a control group. No placebo group was used in this study due to the nature of the counseling treatment.

Instruments

Self-Concept of Ability Scale: In a previous investigation of the relationship of self-concept of ability to school achievement, a scale designed to measure the student's self-concept of academic ability was developed.[1] The scale, consisting of eight multiple choice items, originally formed a Guttman scale with coefficients of reproducibility of .95 for males and .96 for females for 1050 seventh-grade students. In the eighth and ninth grades, random samples of thirty-five males and thirty-five females indicated these items retained a scale form with reproducibilities of .96 and .97 for males in the two years and

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[1]Wilbur B. Brookover, Ann Paterson, and Shailer Thomas, Self-Concept of Ability and School Achievement, U. W. Office of Education, Project No. 845, Bureau of Research and Publications, Michigan State University, East Lansing, Michigan, 1962.

.92 and .93 for females in the same two years. In addition, the scale has an average reliability calculated by Hoyt's Analysis of Variance of .88 for males for the three years and .82 for females for the three years. The test-retest reliability of the scale over a twelve-month period is .75 for 446 males and .77 for 508 females.

The instruments which assess the perceived evaluations made by parents and teachers are five multiple choice questions which closely parallel the general self-concept of ability scale. The Perceived Parental Image test-retest correlation based on a random sample of thirty-five males and thirty-five females is .41 for males and .70 for females. The test-retest reliability for Perceived Teacher Image is .74 for males and .77 for females. The Importance of Grades scale formed an acceptable Guttman scale on a pre-test with a coefficient of reproducibility of .91. This scale has reliabilities for a random sample of males of .86 in both eighth and ninth grades using Hoyt's Analysis of Variance. For a random scample of thirty-five females these reliabilities are .95 and .77 for the two years. The test-retest correlation over a year is .70 for males and .68 for females.

Grade point average was the average of the four academic subjects of math, English, social studies, and science.

Intelligence was measured by the California Test of Mental Maturity administered by the school system.

In summary, samples were randomly drawn and closely adhered to. The general design of all three experiments used a per- post-measurement. In Experiments A and B, a placebo group was utilized in addition to a

control group in order to determine actual treatment effects and assess a possible Hawthorne effect. Thus Experiments A and B used three groups of low-achieving students, while Experiment C used two groups. The groups in Experiment B and C were random samples; the three groups in Experiment A were selected randomly, but some changes were made since the experiment depended on the cooperation of the parents.

In order to determine that there were no initial differences between the groups randomly selected in each experiment, an analysis of variance was run on the groups in Experiments A and B. In Experiment C dealing with the effects of counseling, "t" tests were used. The results indicated that the three groups of forty-nine each in Experiment A (the parental experiment) on the six variables of GPA for two semesters; I.Q.; socio-economic status; self-concept; Perceived Parental Image; Perceived Teacher Image; and Importance of Grades, were significantly different from each other only on self-concept of ability. Note that this comparison was made on the random samples before any contact was made with the parents in any groups.

Data from three groups of thirty-five students in Experiment B were analyzed by analysis of variance. There was no F ratio significant at the .05 level on any of the variables tested.

The two groups of thirty each in Experiment C were compared by "t" tests. There was no "t" significant at the .05 level, on a two-tailed test.

Chi-square was used to test the distribution by sex for each experiment. In all three experiments there was no significant difference from expected frequencies.

It is concluded that except for Experiment A on self-concept of ability, all groups within each experiment were not significantly different from each other at the time of selection. Since the research was not designed to statistically evaluate the different methods used, no comparisons were made between the different experiments.

A re-comparison of all those persons who actually participated in the experiments was done at a later date. The results of this comparison will be reported in the three reports which follow.

The second part of this paper is a report on Experiment B.

EXPERIMENT B

Experiment B was designed to determine whether positive evaluations of low-achieving students' by an individual presented as an "expert" could effect a significant change in self-concept of ability of the student and whether this change in self-concept of ability would subsequently be manifested in changes in school achievement. This treatment was designed as a method of formal presentation. There was not an excessive amount of group discussion nor any purposeful attempt at developing rapport between the "expert" experimenter and the group. A formal and structured talk was used to convey the content of the treatment. Because of the brief nature of the treatment, it is possible that this approach would not be as effective in its immediate results, nor that such effects that do appear will persist. But its brief

nature has important implications in expense and time for the application of the theory should it prove effective.[2]

Three groups of thirty-five students were randomly selected from those students with below average achievement in junior high school not involved in other experiments. As reported above, analysis of variance revealed no significant differences between the groups at this time.

The experimenter was introduced to the experimental group as an "expert" in school and adolescent problems by the Director of Counseling at the junior high school. The content of the communications from the experimenter followed the following general outline:

1. The experimental group was selected for meeting together because it had been found that these students were capable of achieving at a higher level than they were at the current time.

2. Everyone in this experimental group has the potential to do better in school than he has currently been doing.

3. There is a value, often tangible, in staying in school and performing well in school.

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[2]This experiment has a bases in research by Richard Videbeck, "Self-Conception and the Reaction of Others," Sociometry, 22 (December, 1960), pp. 351-359, and replicated by Martin L. Maehr, Josef Mensing, and Samuel Nafzger, "Concept of Self and The Reaction of Others," Sociometry, 25, (December, 1962), pp. 353-357. However, these projects measured only self-evaluation and did not trace the influence of self-concept on performance or long term changes. Their evaluations also were given in one session in a situation where subjects were involved in performance of a task.

4. High performance is expected by teachers, parents, and peers, and is needed by society in general.

5. The limits of ability are not fixed and one is able to perform at a high level.

Talks were given on the relative effectiveness of intelligence tests for predicting achievement; the importance of ninth grade in determining one's educational and occupational placement and future; the rewards of good achievement; the relevance of school subjects to everyday life; the relationship between self-concept and achievement; and most pertinent--the idea that all in the experimental group had the capability of doing well in school.

The experimenter also met with the placebo group. In this group no talks were given on topics directly related to school achievement. Instead, talks were given on the following topics: the resolution of parent-child conflict; the responsibilities of adolescents in regard to their parents; censorship of movies and reading material for adolescents; and what restrictions are necessary and acceptable for teenage activities such as parties, staying out, and fashions.[3] This group was told that they were picked by random sampling, and that they were part of a project dealing with adolescent problems and that their purpose was to furnish information on the attitudes of teenagers.

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[3]In order to avoid any unwarranted controversy on these topics, the experimenter adopted positions conforming to community positions and drew from SRA booklets on topics related to these.

The experimenter met with each group seven times between October, 1962, and May, 1963. Pre-test questionnaires were administered in September, 1962, and the post-test was administered in June, 1963. No contact was made with the control group.

The groups which ended the experiment did not constitute all of the random samples selected. Therefore, in order to determine whether those who actually participated in the experiments could still be considered a random sample, another analysis of variance was computed on the same variables. Again there were no F ratios significant at the .05 level on any of the questionnaire data or on the two eighth grade GPA's. This analysis in addition to a Chi-square test indicated that the groups were still random samples from a low-achieving population.

When the experiment was concluded, the questionnaire was re-administered to the groups. The pre- and post-administration of the questionnaire was done so that the control group was not aware that it was a selected group. Grades for the two semesters of ninth grade were gathered.

Analysis to determine whether there was any significant change in self-concept and achievement was of three types: the sign test was used to determine whether there was a significant proportion of movers in one direction; analysis of variance was used to determine whether the magnitude of such change would be sufficient to indicate that there was now a significant difference in means; and correlated "t" tests were used to assess change within each group.

The sign test applied to self-concept indicated that the experimental groups had more positive changers ($p = .10$) while the placebo group had an equal number of positive and negative changers ($p = .5$) and the control group had more negative changers ($p = .08$). None of the proportions of changers were significant at the .05 level.

When the sign test was used to analyze the proportion of changers on grade point average from June of eighth grade to January of ninth grade, it was found that the experimental group had changed significantly in a positive direction over the period of one semester ($p < .0005$). The placebo group had also a significant proportion of positive changers ($p = .004$). The control group had more positive changers than negative changers though this did not reach a significant level ($p = .07$). It should be noted that the experimental group was also the group which showed a tendency toward positive changes in self-concept. The significant proportion of positive changes in the placebo group could be a result of the Hawthorne effect, the very reason why this group was included in the design. This writer, however, favors a more conservative conclusion. Since the control group showed a tendency toward a positive change in grade point average, it is felt that this is indicative of a positive change for the class as a whole during the first semester of ninth grade.[4] Therefore, though the null hypothesis is rejected for

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[4]Analysis of the other two experiments reported in this symposium indicates that there is this tendency toward improved GPA over all groups in all three experiments. Thus this change was not a treatment effect.

the experimental and placebo groups, the tendency of the control group to move in the same direction indicates caution in claiming a significant change in GPA.

Such caution seems warranted when the second semester grades for ninth grade are compared to the eigth grade June grades. The experimental group did have more positive than negative changers but not significantly more ($p = .28$). The placebo and control groups both had nearly as many positive changers as negative ones ($p = .42$ for both groups).

On the bases of these results, it is concluded that there was no significant proportion of changers in self-concept or GPA.

On the measure of Importance of Grades, the experimental group and the placebo group had more negative changers ($p = .006$ and $p = .011$ respectively); the control group had an equal number of changers in either direction ($p = .5$).

On the measure of Perceived Parental Image, none of the three groups had a significant number of changers. The experimental had more negative than positive changes ($p = .16$). The placebo group and control group about the same number of positive as negative changers ($p = .42$ and $p = .41$ respectively).

Analysis of Perceived Teacher Image shows the experimental group had more negative changers than positive ($p = .09$), the placebo group an equal number ($p = .58$) and the control more negative changers ($p = .03$).

Thus on the variables of Importance of Grades, Perceived Parental Image, and Perceived Teacher Image, it is not possible to say that there were significantly more positive changes for all groups.

The post-analysis of variance shows no significant differences between means of the three groups on any of the variables studied.

Correlated "t" tests to test changes from pre- to post-experiment for each group indicate that the experimental group decreased significantly on Perceived Teacher Image and Importance of Grades. The placebo group also decreased significantly on Importance of Grades.

Table I

CORRELATED "t" TESTS FOR THREE GROUPS IN EXPERIMENT B

	Experimental N=32	Placebo N=28	Control N=26
General Self-Concept	1.04111	-.52033	-1.3144
TPI Parents	-1.1816	.5922	-.0763
TPI Teachers	-2.1947*	-.56949	-.5660
GPA - 6/62 - 1/63	4.28097*	2.88730*	2.1275*
GPA - 6/62 - 6/63	1.06935	-.2282	-.0566
Importance of Grades	-2.43153*	-3.22210*	-1.0262

*Significant at the .05 level one-tail test.

All three groups improved significantly on the first semester grades indicating that there were no treatment effects. On a comparison of grades, at the end of the experiment in June, 1962 indicates that the placebo and control group had made no change. That is they had

lost all of the significant increase in grades found at the end of the first semester. The experimental group at the end of the school year was slightly positive, though not significantly. It could be possible, therefore, that the treatment for the experimental group at least raised grades somewhat but it was not sufficient to change grades significantly.

In conclusion, the use of an "expert" presenting material designed to enhance self-concept in a formal manner does not appear, on the basis of this experiment, to be an efficient means of increasing either self-concept of ability or school performance among low-achieving ninth grade students.