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ABSTRACT

The primary focus of this study was on differences in satisfaction with school between seventh grade students enrolled in the two junior high schools. One junior high school had made major modifications in its environment, the other maintained a more standard approach to education. A second focus was to investigate the relationship between these student's achievement in mathematics and their attitude toward school. At four time periods a multiple time sequence design was employed to investigate the attitudes of students toward the school. Two school attitude scales and a test of mathematics were used. While most correlations between attitudes and math achievement were not significant, the value of using a multiple time sequence was most apparent. Had data been collected at only two points in time the "cultural shock" effect of the Open Flexible school environment would not have been evident. Neither would the continuously divergent perception of students being encouraged to participate in deciding how classes were conducted have been as evident. (Author/MP)

A Multiple Time Sequence Design Applied to Seventh Grade Student Attitude Toward School in Two Schools With Contrasting Organizational Structure. *

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Focus of This Study

Changes in the structure of schools are being called for by a number of contemporary writers, among them Holt (1967), Glasser (1969), and Silberman (1970). The junior high school is characterized by Silberman (1970, p. 324) as "the wasteland--one is tempted to say cesspool--of American education." He continues, adding that "reform has been slower in the secondary than in the primary schools in part, at least, because the problems are more complex and the solutions a good deal less obvious."

Holt (1967, p. 175) calls for schools to "be a place where children learn what they most want to know, instead of what we think they ought to know." In his conclusion Holt (1967, p. 180) states that:

> In short, the school should be a great smorgasbord of intellectual, artistic, creative, and athletic activities, from which each child could take whatever he wanted, and as much as he wanted, or as little.

Changes in the operational structure of curricula are changes in the school environment. It may be argued (Schmuck, 1971; Fosmire, 1971) that environmental changes that allow for a high degree of student participation in the educational process should be reflected in the student's overall satisfaction with or attitude toward school. This study was concerned with

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two junior high schools, one of which made major modifications in its environment, while the other maintained a more standard approach to education.

The primary focus was on differences in satisfaction with school between seventh grade students enrolled in the two junior high schools. A second focal point was to investigate the relationship between these students achievement in mathematics and their attitude toward school.

The Two Schools

The school which made major philosophic and operational modifications in its program was defined for purposes of this study as the "open flexible" school. The program of this school, described by Mortimore (1971), has attempted to implement many of the concepts described by Glasser (1969).

The school defined as traditional maintained a less innovative and more structural approach to education. The program was not static, but change was slower and along a more structured line.

Both schools had a history of strong academic programs. In addition both schools enroll students from similar ethnic and socio-economic areas of the same community.

The major differences between the two school are few in number but the differences manifest themselves in approaches to education that are different. These differences can be summarized as follows:

Philosophy. The operational philosophy at the open-flexible school is oriented in student terms more than at the traditional school. The operational philosophy of the traditional school is oriented in teacher terms more than is the case at the open-flexible school.

Class Assignments. At the open-flexible school a student may register for classes without concern for grade level designation. The

traditional school specifies grade level requirements for most classes.

Course Requirements. Students at the open-flexible school are not required to register for any specific courses while the traditional school requires registration in specific areas of study.

Registration. Students enrolled at the open-flexible school register for classes every nine weeks while those attending the traditional school register once a year.

Evaluation. Students at the open-flexible school receive written evaluations outlining the specific objectives in each course and describing how the student has met the objectives. Students at the traditional school receive quarterly grade reports in terms of an A - F continuum.

Grades. Students receive either credit or an incomplete for all classes at the open-flexible school. Students at the traditional school are graded on an A - F continuum in most classes.

Counseling. All students at the open-flexible school are assigned (regardless of grade level) to "house," with every teacher acting as an advisor-counselor to twenty or fewer students. At the traditional school all classroom teachers are considered counselors. Full-time staff counselors are available at both schools.

Class Schedule. At the open-flexible school some classes meet on alternate days while at the traditional school all classes meet daily.

Curriculum. The course offerings at the open-flexible school are determined by the teachers and students. Special interest courses are offered if there is sufficient student demand. The traditional school follows the curriculum developed by the District and allows teachers wide latitude in the implementation of curriculum.

Independent Study. Each student at the open-flexible school may elect the independent study option. Independent study is available only to ninth grade students at the traditional school.

Technique

This study involved comparisons between schools at four time periods of seventh grade student's satisfaction with school by use of a multiple time sequence design. Data were collected from discrete groups of seventh grade students in the two different schools at four times during the school year. The data collection periods were October, December, March, and May. Within each school, seventh grade students enrolled in mathematics classes designed for students with average mathematics ability were assigned at random to each of the four data collection periods.

Two measures of student attitude toward school were used. One was a 40-item scale developed by Fosmire (1971) and associates at the University of Oregon. This scale was designed to assess the expectations and preferences of students regarding various aspects of school life. The second measure, developed for this study, was a nine-item scale that focused on specific areas of peer relations. In addition the relationship between achievement in mathematics and satisfaction with school was investigated. Tests of mathematics concepts, computation, and problem solving (from the Metro '70, Advanced Form F) were used to measure achievement.

The two school attitude scales were factor analyzed and resulted in the identification of 14 factors. Differences between schools for each of the 14 factors measuring attitude toward school were tested by means of a 2 x 4 analysis of variance design. The relationship between attitude toward school and mathematics achievement was investigated by correlational procedures.

Results and Conclusions

The analysis of variance used to analyze both between school and time of year differences yielded 42 F-ratios. Statistically significant differences were found on three of the 14 factors. One of these differences was on the time dimension, while two were between schools. No significant interaction effects were found.

The significant finding on the time dimension was for a group of items that appeared to focus on student-school, student-teacher, and peer relations. Figure 1 presents a plot of the mean factor standard scores for both schools on this factor.

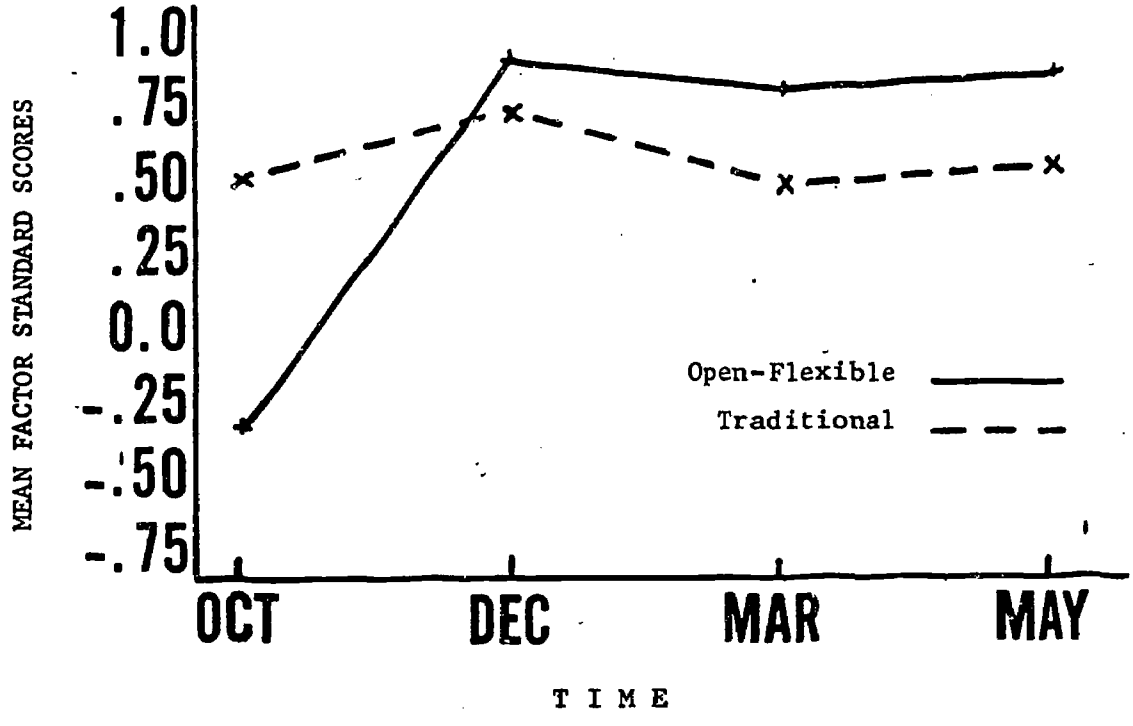

Fig. 1. Mean factor standard scores for SES Factor 1 from the two schools at four time periods.

At the October data collection period the students from the open-flexible school scored much lower on this factor than did the students

from the traditional school. The three subsequent data collection periods showed that students from the open-flexible school scored higher than those from the traditional school. The scores from the traditional school showed little fluctuation between the four data collection periods. This finding was interpreted that students experienced a major change in environment resulting in temporary "cultural shock" when they transferred from somewhat traditional elementary schools to the open-flexible junior high school.

Two statistically significant differences among the 14 factors were found between the schools. The first of these differences (plotted in Figure 2) was for a factor that appeared to focus on a student's desire to be like his or her peer group. At the October and March data collection

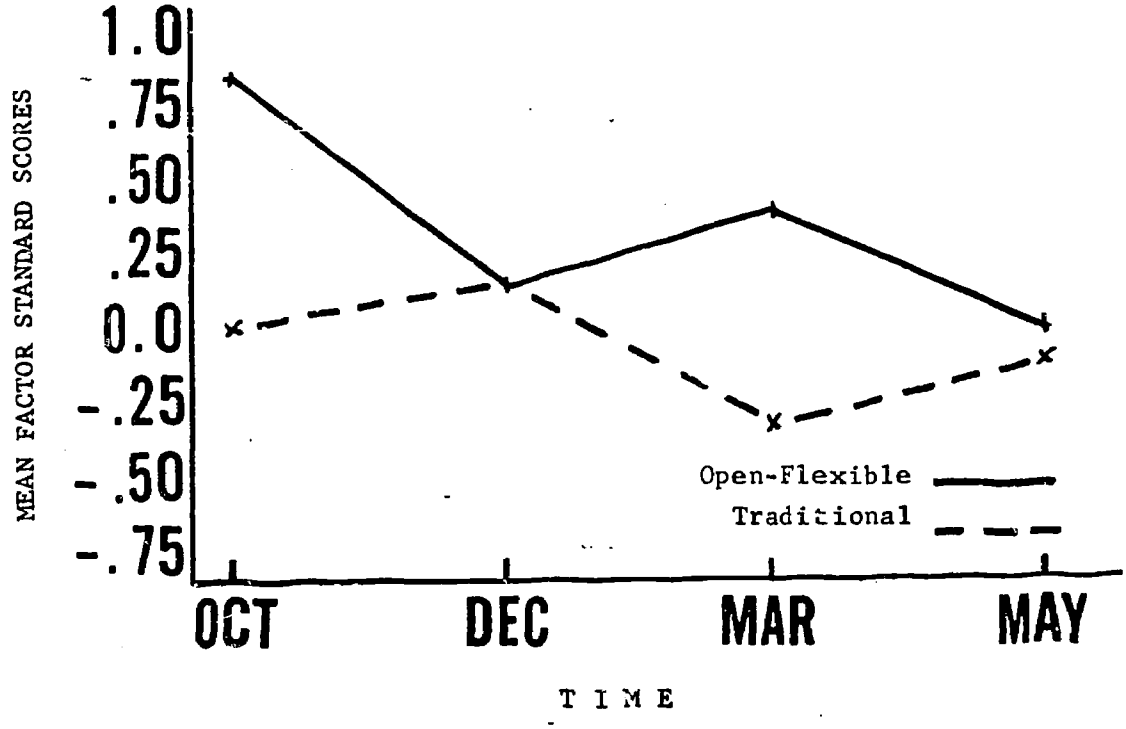

Fig. 2. Mean factor standard scores for SES Factor 2 from the two schools at four time periods.

periods the students from the open-flexible school scored much higher than those from the traditional school, while at the December and May

data collection periods the scores were nearly equal. It was difficult to interpret this finding logically.

The second of the significant differences (plotted in Figure 3) between schools was for a factor that appeared to focus on teachers encouraging students to participate in deciding how classes will be conducted.

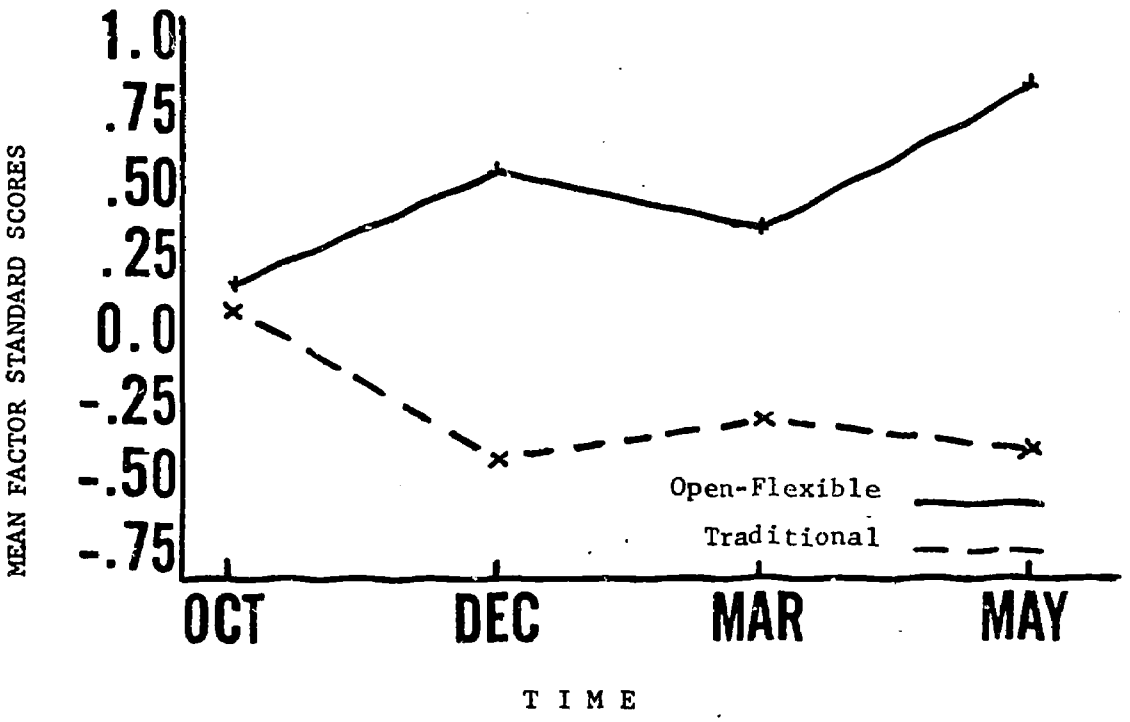

Fig. 3. Mean factor standard scores for EDQ Factor 3 from the two schools at four time periods.

The scores from both schools were approximately equal at the October data collection period. Over the school year the scores from the open-flexible school increased in value while those from the traditional school decreased in value. This finding is consistent with the philosophy and operational procedure of both schools and, further, indicates that part of the philosophy of the open-flexible school is

perceived by the students as being operationalized.

The investigation of the relationship between each of the 14 factors of the attitude scales and the three measures of mathematics achievement yielded correlation coefficients that were essentially not significant. Correlation coefficients were computed for data from both the schools. Five of the 84 correlation coefficients were statistically significant (alpha set at .05). The statistically significant correlation coefficients were between different variables for each school. The lack of relationship between attitude toward school and academic achievement was consistent with other research as reported by Jackson (1968).

Summary

This study used a multiple time sequence design to investigate the attitudes of students toward school in two philosophically and organizationally different schools. The value of using a multiple time sequence design is apparent when one considers the statistically significant findings of this study. Had data been collected at only two points in time the "cultural shock" effect (as shown in Figure 1) would not have been evident. Neither would the continuously divergent perception (as shown in Figure 3) of students being encouraged to participate in deciding how classes were conducted have been as evident.

It was only by viewing the relationship between the schools at a number of time periods that that finding became both statistically significant and logical.

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