

● Research in Review

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Evaluating Flexible Scheduling¹

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WHAT happens to students and teachers when a school changes to a flexible schedule? Many people are asking this question now as more secondary schools consider such a change.

Although a few schools have used flexible scheduling for several years, little data have been reported on the effects of such a change. Informally, several schools have reported that their students have done as well as previously on standardized tests after changing to flexible scheduling.

Speckhard's (1966) thesis is one of the few experimental studies on flexible scheduling. It is based upon one experimental and one control school with matched groups of students. Speckhard found that both students and teachers approved of the change and both felt that students learned as well as or better than before. The test results indicated that the experimental school stu-

dents showed a greater ability in critical thinking, while the students at neither school were superior in study habits or student attitude. A difficult problem in a design such as Speckhard's is locating a control school that is comparable to the experimental school. Unless the schools are comparable, the results can not be interpreted meaningfully.

The purpose of this article is to suggest an approach to evaluating the effects of open scheduling for the use of any school making such a change.

Changes in scheduling provide opportunities to reorganize instruction in various courses. It is likely, however, that instructional practices will change markedly in some courses and very little in others because of the particular relationships among the teachers of each subject. The change in scheduling is also likely to have some general effects upon student attitudes and behaviors. For example, assigning students to resource centers during their open (unscheduled) time probably will have quite a different effect than allowing students to choose what to do during their open time.

Determination of effects is further

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complicated by the fact that in many, if not most, schools it is impractical to run a traditional and a flexible schedule simultaneously. For research purposes this would have many advantages with random assignment of students to either schedule. However, as far as can be ascertained, no school has reported the results of such a study.

Design

Homewood-Flossmoor High School decided to change to an open schedule in 1967-68 because such a schedule would facilitate increased use of educational opportunities. Since the schedule is not flexible once it is determined for the year, and one of the main features is that approximately one-third of a student's time is not scheduled in class—hence open, it was decided to call this an "open schedule." During "open" time the student may receive special instruction individually or in small groups or use the resource centers or open laboratories. Partly to provide a feedback mechanism for the school as it engaged in such a change and partly in an attempt to determine the effects of such a major organizational change, the following design was developed.

Time-series Experiment

A practical approach to the problem of ascertaining the effects of flexible scheduling is a time-series design. A time-series experiment involves periodic measurement with an experimental change introduced at some point in the series of measurements. This is recommended by Campbell and Stanley (1963) as a useful "quasi-experimental" design when a "true" experimental design is not possible.

Sampling

A sampling procedure was developed that permitted the collection of a large amount of data in a single hour once per year. The student population has been divided into ten groups selected at random by dividing each class by sex and then into ten groups. Each of the ten groups will contain both boys and girls from each of the four grades of the school. The sampling procedure is efficient in saving student time and data analysis time. This makes it possible to collect ten kinds of data at the same time. Since the same group of students will not be given the same instrument at any time during their four years of high school, possible interaction between pretests and the various post-tests has been eliminated.

Base-line Data

The first consideration was to establish base-line data on what the school was like before the change. (Unfortunately, this type of information is frequently not available at schools that have made such a change.) A determination was made of data that would be needed. These data were collected in the spring of 1967. Baseline data will also be collected at the beginning of the 1967-68 school year when students are in the new schedule. This will provide for two measures prior to the change. From then on, data will be collected each April.

Student Instruments

Since a change to an open schedule might affect students in many ways, a variety of instruments was selected. The school's standardized testing with

the *Iowa Tests of Educational Development* administered to all students each year will be continued. In addition, other types of information will be collected from students. The *Watson-Glaser Test of Critical Thinking* is used to determine changes in ability to reason analytically.

To determine whether students feel they have any power to influence their situation, Dean's "Scale for Measuring Alienation" is used. A sample question is: "Sometimes I have the feeling that other people are using me." In addition, Bailer's "Locus of Control Scale" is administered to another ten percent of the student body. A sample question is: "Can you do anything about what is going to happen tomorrow?" Perhaps there will be a significant change on this question when a student has some "open" time which he can legitimately decide to "waste." The Interest Index developed at the Center for the Cooperative Study of Instruction at the University of Chicago is used to determine if student interests are broadened by the opportunities presented by an open schedule.

Two additional instruments are used to measure the school climate. The School Anxiety Scale by McNeil and Phillips contains items such as: "Do you often have the fear that other students might think you dumb?" and "Do some students in the class say things to hurt your feelings?" A Social Interaction questionnaire, modified from the Halpin-Croft *Organizational Climate Description Questionnaire*, is used to ascertain students' perception of the school climate. It contains items such as: "Classes are conducted mostly as teacher lectures" and "Students enjoy

going to school here." This instrument will also be administered to teachers so that teacher and student perceptions can be compared.

Possible changes in student study skills may be studied by Kagan's "Learning Strategy Questionnaire." Sample items are: "My note taking style is the same in all courses," and "When studying for an essay test, I concentrate on learning details—facts, examples, etc."

Student writing ability can be assessed through scoring of two essays. Each essay was written by ten percent of the student body. One essay was on the topic "Most teachers are really interested in problems of the average student." In addition to being a sample of student writing ability, this essay can be subjected to content analysis to ascertain possible changes in student attitude toward the school. Another ten percent of the students record the amount of time spent in various types of schoolwork for one week.

Teacher Instruments

To determine possible changes in teacher attitude or behavior, all teachers will complete several instruments. In the University of Illinois' *Occupational Characteristics Index*, Self-Actual and Self-Ideal ratings are used to determine if there is a change in the teachers' actual and ideal self-image. To determine whether teacher and student perceptions of the school climate differ, the Social Interaction Questionnaire, which is administered to students, is also completed by all teachers. Also, all teachers keep a record of the amount of time spent in various kinds of school-related work for one week each year.

For several years many teachers have

used the "Student Opinion Questionnaire" produced by the Student Reaction Center of Western Michigan University. Although the scores on this instrument are given only to the teachers, the Center will analyze and report results for the school.

An attempt to determine possible changes in teacher behavior will be made by observing classes, selected at random, using interaction analysis. Also a simulated recall technique will be used in which students, upon hearing a tape of a class session replayed, will be asked to indicate what they were thinking about during various teacher statements. This procedure may help to determine if students concentrate on class work to a greater extent after the change. The above two kinds of data were not collected before the change to flexible scheduling, since most classes will be either larger or smaller than at present.

Parent and community reactions toward the school will be assessed by a questionnaire sent to every household. Also, the follow-up study of graduates will be continued each year.

In conclusion, although the research program described here can be useful for an individual school in studying organizational changes, it would be of greater use if the results of such a program of research at several schools were readily available. Since the effects of gross changes in a school's program cannot be determined in a controlled laboratory experiment, it is important that efforts be made to use available research techniques to determine the effects.

Since the results of such a research program at one school in themselves are not of great use to other schools, a means needs to be developed for accumulating the results of similar studies. To facilitate this, Homewood-Flossmoor High School will send details of the design of this research project, a packet of samples of locally prepared instruments, a statement of the sampling procedures, scoring techniques, and procedures for analysis of the data to any school requesting this information if the school will agree to share the results of its research.² Homewood-Flossmoor will then distribute the results received from all schools to those that participate. Pooling of results of a similar research design may be an effective way to use research to provide information on the effects of major organizational changes.

References

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