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ABSTRACT

In this paper, the authors describe a research study being carried out in a Pennsylvania school district as a means of demonstrating the role of research in administrative decisionmaking. The research began when the district requested the assistance of the authors in initiating a program of change in the district. The change approach used in the district was based on Glasser's proposals (Schools Without Failure) for humanizing education. The purpose of the research was to determine if significant improvement in elementary and secondary teacher and student attitudes and in elementary student achievement can be effected by this change approach. The research instruments and statistical methodology used in the study are described. (JF)

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RESEARCH AND ADMINISTERING FOR CHANGE:

A Case Study

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This paper is presented to describe a research study being conducted at present in Pennsylvania and to describe the background of this research endeavor because it points clearly to the role of research in administrative decision-making. The implementation of the study proceeds with extraordinary smoothness and has become an integral part of the planning process for the school district involved.

In November of 1971 the superintendent of a small school district in western Pennsylvania called the Pennsylvania Department of Education seeking help. The superintendent wanted to initiate a program of change in his school district, and wanted consultation on how best to go about initiating this change. At that time the presentor of this paper, who was a research specialist with the Department of Education, had just returned from a special studies program sponsored by the U.S. Office of Education which took place at the University of Pittsburgh. This studies program involved a systems approach to change in schools. The request for consultation was referred to me and my colleague, Dr. James Masters, whose particular expertise is in the area of research design and statistical analysis.

Since the central administrators in the school district were concerned with planned change in schools, Dr. Masters and I agreed to work in the district helping to implement the changes and measuring the effects of the change program. The change strategy involved having the teachers assume a legitimate voice in the decision-making process. This meant that the traditional concept of decision-making in schools had to be reconsidered.

The Schools Without Failure approach to humanizing education which is proposed by Dr. William Glasser was the thrust and content for change that the district superintendent was hoping to initiate in his schools. It was agreed that the Glasser approach to humanizing education was a worthwhile effort and could indeed work well within the planned systems approach to change which we were developing. The project task flow is outlined below.

Step 1. A "core group" of teachers and administrators was gathered to consider the possibilities of a Schools Without Failure program for the school district. This core group consisted of members of the central administrative staff, the principals of each of the elementary and secondary schools in the district and teacher representatives from each school. Shortly after the work of the core group began it was decided that an additional staff-selected teacher from each of the schools should be added to this decision-making body.

Step 2. The core group met to hear a brief description of the Glasser program for humanizing education. At this point some general questions were entertained and immediate concerns were resolved. However, the core group was not asked to commit itself or make any decisions as to the relevance of Dr. Glasser's program for their school. Instead they were asked to read the book Schools Without Failure and to return again in several weeks to discuss the book as it might relate to their schools.

Step 3. At the second meeting of the core group, after the text had been read, questions pertaining to the needs of the school district and how they might be met through Glasser's program were discussed. At this point both the strengths and weaknesses of the Glasser program, as they were perceived by the core group members, were discussed at length.

Toward the end of this second general meeting the district superintendent felt he heard the group asking for a School Without Failure program. However, he did not accept responsibility for making the decision about the new program until there was a reasonable consensus in favor of that decision.

At this time the district superintendent asked for a show of hands indicating those who felt that the Glasser program could indeed meet some of the needs of their schools. The purpose of this was to place the responsibility for the program upon those who were directly involved, that is, upon the teachers and their administrators.

During both of these planning meetings, Dr. Masters and I were trying to determine what the concerns of the group were. In essence, we were determining the research questions that we heard being asked during these two general sessions.

We presented a list of questions which were based on their discussions and observations. These were questions that they wanted answered in order to determine whether the needs they identified were met by the new program. The questions were something like this:

What happens to the interaction between teacher and pupil as a result of the Glasser program?

How does a child's self-concept change as a result of a program which emphasizes involvement and responsibility?

Can we expect a child's attitude toward school to improve as a result of Glasser's program?

Will the children have greater tolerance toward one another as a result of Glasser's program?

How will the Glasser program affect achievement?

Step 4. At this point a research design was submitted to the core group and to the central administrative staff which, if adopted, would answer some of the questions that were posed by the teachers.

As was the case previously, all the people involved had a chance to say no to the research program, just as they had a chance to say no to the change program involving Glasser. They said yes. They were convinced that the questions they had asked were indeed important and had to be answered. The Pennsylvania Department of Education, Bureau of Educational Research, received a Federal grant to study the effects of the School Without Failure program in this school district.

At present the Schools Without Failure program is being implemented and the research study is being conducted. The details of the research study are being presented below:

The general objective of this study which is being conducted under the direction of the Pennsylvania Department of Education's Bureau of Educational Research, is to determine if significant improvement in attitudes and achievement of elementary pupils can be effected by a School Without Failure program designed by Dr. William Glasser. The following research questions are being considered:

(1) How do the effects of the Schools Without Failure program upon pupil attitudes toward self, others and school compare with the effects of a traditional elementary program?

(2) How do the effects of the Schools Without Failure program upon pupil achievement in basic skills compare with the effects of a traditional elementary program?

(3) How do the effects of the Schools Without Failure program upon teacher attitudes toward child-centered policies and practices in education and upon teacher job satisfaction compare with the effects of a traditional elementary program?

(4) How do the effects of the Schools Without Failure program upon parental attitudes toward grading, discipline and pupil-centered instruction compare with the effects of a traditional elementary program?

(5) How do the effects of the Schools Without Failure program upon the social-emotional classroom climate and the cognitive interaction patterns compare with the effects of a traditional elementary program?

Sample

The study is being carried out in a school district in western Pennsylvania. The target district may be described as representative of many declining small cities throughout the United States. Much out-migration is in evidence in the area and approximately 25 per cent of the pupils are from economically disadvantaged homes, i.e. families with yearly incomes below $3,000.

The district contains 11 elementary schools, 10 of which will be randomly assigned as indicated below. Overall, approximately 150 teachers and 3,500 pupils in grades 1-6 comprise the sample for the study.

Design of the Study

Because the Glasser philosophy stresses the utilization of a total school approach and because of certain administrative constraints, random assignment within schools of teachers to treatments was not possible. Thus, a feasible alternative was random assignment of schools to treatments. Since only 10 schools are available, the use of school means as the unit of analysis would limit greatly the statistical analysis of results. Also, since classrooms within a school can be expected to vary in a number of ways, the use of school means would provide a much less precise measure than would the use of classroom means. Therefore, although five schools were randomly assigned to the Glasser approach and the remaining five schools serve as controls, classroom means will serve as the unit of analysis.

In order to increase the precision of this random assignment, schools were paired on the basis of size, socioeconomic status and past achievement of pupils; one of each pair was assigned to the Glasser approach and the other school to the control treatment (non-Glasser). Control school teachers will utilize the same materials and instructional methods as they have in the past; they will not be trained in the Glasser approach, nor will they attempt to implement it. The following school pairs were selected on the basis of 1970-71 school year data.

	No. of Classes/No. of Pupils	Per Cent Enrollment From Low Income Families	Mean Standard Achievement Test Battery Median Per Class						
			Grade						
			1	2	3	4	5	6	Total
School 1	19/498	1	3.23	4.07	4.57	5.13	6.40	7.03	5.07
School 2	16/389	1	2.77	3.73	4.35	5.53	5.77	7.03	4.86
School 3	8/177	4	2.25	3.50	4.10	4.50	5.30	6.20	4.31
School 4	15/374	2	2.87	3.25	4.37	5.47	6.10	7.65	4.95
School 5	12/330	22	2.25	3.15	3.55	4.10	5.50	6.45	4.17
School 6	12/275	13	2.10	3.33	3.60	4.80	5.30	6.00	4.19
School 7	19/448	40	2.00	2.85	3.73	4.47	4.83	5.80	3.95
School 8	19/423	39	1.86	2.20	3.50	4.10	4.77	6.00	3.74
School 9	11/195	77	1.75	2.40	2.80	4.05	5.50	5.35	3.64
School 10	16/335	60	1.80	2.87	3.03	3.60	4.60	5.70	3.60

A Pretest-Posttest Control Group Design (number 4, Stanley and Campbell, 1966, p. 8) is being utilized in the study. The design for analysis purposes can be pictured as two 2x3 factorials (one for grades 1-3, one for grades 4-6); classroom means will serve as the unit of analysis in comparisons carried out on a variety of measures. Approximately 12 experimental classes and 12 control classes at each grade level are included in the study.

	Pretest		Posttest	
	Schools Without Failure Classes	Control Classes	Schools Without Failure Classes	Control Classes
Grade 1				
Grade 2				
Grade 3				

	Pretest		Posttest	
	Schools Without Failure Classes	Control Classes	Schools Without Failure Classes	Control Classes
Grade 4				
Grade 5				
Grade 6				

Instrumentation

The instruments discussed below are those being used in the Pennsylvania Schools Without Failure Study. The technical information concerning instruments developed specifically for use in this study will be available shortly, upon completion of factor analysis and reliability studies.

Self-Concept

In order to assess the effects upon pupil self-attitudes of the Schools Without Failure approach, the Pictorial Self-Concept Scale (grades 1-3) and the Piers-Harris Children's Self-Concept Scale (grades 4-6) will be administered on a pretest-posttest basis. Both instruments were constructed according to the same theoretical definition of self-concept, that of Jersild (1952).

The Pictorial Self-Concept Scale (PSC) developed by Bolea, Felker and Barnes (1971) consists of 50 cartoon-like picture cards. (Sample cards from the instrument are enclosed.) Children sort each card into one of three piles according to whether the figure designated by a star on his chest is like him, sometimes like him, or not like him at all. Cards on which the central figure is a male are used with boys and cards on which the central figure is a female are used with girls. The instrument was found by its developers to evidence a split-half reliability of .85 when administered to 1,813 pupils in grades K-4. In addition, six studies providing evidence for the validity of the instrument were reported. In one of these studies it was found that, for 63 elementary pupils, the correlation between scores on the PSC and those on the Piers-Harris was .42 (significant at .01 level).

The Piers-Harris Children's Self-Concept Scale (enclosed) was found to evidence internal consistency reliability (both K-R 21 and split-half) of .90 or higher in two try-outs with 6th graders and one try-out with 3rd graders. Test-retest reliability after four months for pupils in grades 3, 5 and 6 was found to be .71 or greater. Five studies supporting the validity of the scale are reported in the test manual.

Peer Acceptance Scales

The scales developed for use with this study consist of a modification of the traditional sociometric approach. In grades 1-3 the children rate each of their classmates on how much fun they think it would be to do something with each classmate. They are instructed to color in from one to five stars for each person.

The pupils in grades 4-6 are asked to perform a similar task. Instead of coloring stars, however, they are asked to circle a number from 1 to 5. The higher the number, the more fun it would be to do something with that person. In addition to rating their classmates on the fun issue, they are also asked to rate their classmates on the quality of their ideas; the higher the number circled the better the ideas.

Attitude Toward School

Since no instrument has proven itself to be reliable and valid for grades 1-3, an instrument to measure pupils' attitudes toward school was field tested and revised subsequent to item analysis. Pupils are instructed to circle one of the five available faces which best shows how he or she feels about each item.

The "Attitude Toward School" instrument developed by the Pennsylvania Department of Education for its 5th grade Educational Quality Assessment program has been administered on a pretest-posttest basis to pupils in grades 4-6. It has been shown to evidence an internal consistency reliability (Coefficient alpha) of .75 when administered to over 20,000 5th graders, items will be read aloud to 4th graders to insure understanding of all words. Items more specifically related to the Glasser approach were added.

Pupil Achievement

During the first month of the school year, the Stanford Achievement Test battery (Form W) was administered to pupils in grades 2-6. As soon as possible after the school year had begun, this battery was administered to first graders. The instrument will be readministered to all pupils at the end of the school year as a means of determining the effects of the Glasser approach upon pupil achievement. Split-half reliabilities for the subtests included in the battery for grades 1-6 and all .71 or higher with most of them being above .85.

Teacher Attitudes

As a means of estimating the effects of the Schools Without Failure approach upon teacher attitudes, two questionnaires will be administered on a pretest-posttest basis to all experimental and control school teachers.

Lindgren and Patton's "Opinionnaire on Attitudes Toward Education" (Shaw and Wright, 1967, pp. 80-83) will be utilized as a measure of attitudes toward child-centered education, discipline and the desirability of understanding pupils' behaviors. A corrected split-half reliability of .82 has been reported for the questionnaire and four studies have provided support for its validity.

DiVesta and Merwin's "Attitude Toward Teaching as a Career" (Shaw and Wright, 1967, pp. 73-74) is being used as a measure of satisfaction with teaching. When administered to college freshmen, the corrected split-half reliability was found to be .71 and test-retest reliability after four months was found to be .79. In a a study by its developers, this attitude scale was found to discriminate between those choosing to teach and those choosing other careers. Since the scale was developed as a measure of attitude toward becoming a teacher, slight revisions were made in three items.

Parental Attitudes

Since no reliable or valid instrument is available to measure parents' attitudes toward the school without failure approach to education, an instrument was constructed for use in this study. The instrument was developed with the cooperation of the Educator Training Center and the New Castle School District. It is in essence a semantic differential approach with a Likert-type answer format. It was administered to 3,600 parents in New Castle, Pennsylvania and a 90 per cent response was received. The data is being analyzed at present. Reliability estimates and factor analyses results will be reported when data analysis is completed. It has been reported that the semantic differential has proved to be a highly productive means of assessing attitudes in a variety of settings (Heise, 1969 p. 421).

Classroom Interaction Patterns

The Expanded Category System (enclosed) and the Reciprocal Category System (enclosed) are modifications of the Flanders System of Interaction Analysis (Flanders, 1970). These two systems are being utilized in interaction analysis observations. Both instruments require classroom observers to record, every three seconds, categories of verbal interactions in the classroom. These recordings are then transcribed onto a matrix and tabulated for analysis purposes.

The Expanded Category System is a revision of Amidon's modified system, which expands certain categories of the Flanders so that such details as the types of praise and types of questions used by the teacher may be recorded. Scott coefficient reliabilities (Scott, 1955) obtained with the system are reported to range between .87 and .92 (Simon and Boyer, 1967).

The Reciprocal Category System (RCS), developed by Ober, Wood and Roberts (1968) provides a means of using the original Flanders categories to record not only teacher-pupil interactions but also pupil-pupil interactions. The reliability of this system should closely approximate that of the original Flanders which is reported to evidence Scott's coefficient reliabilities ranging between .75 and .95 (Simon and Boyer, 1967).

In assessing the effects of the Glasser approach upon classroom interactions, such ratios as "large I/D" (indirect to direct teacher talk), "revised i/d" (motivation versus control), the ratio of cognitive memory teacher questions to the total number of teacher questions, and the ratio of pupil-pupil interactions to pupil-teacher interactions will be examined.

Analysis of Data

Since it is assumed that entering behaviors and attitudes of teachers, pupils and parents are reasonably related to their behaviors and attitudes at the end of the program, multivariate analysis of covariance (Cooley and Lohnes, 1971, p. 287) will serve as the major means of statistically analyzing the effects of the Glasser approach. In these analyses, posttest scores of experimental and control classes will be adjusted for their pretest scores before multivariate analysis of variance is performed. If significant differences are obtained on adjusted posttest scores, discriminant analysis (Cooley and Lohnes, 1971, p. 243) will be used to describe the differences. A correlation matrix will be prepared for all variables. The following table summarizes the data analyses to be performed (Table I).

Table I

Source of Data and Projected Statistical Analysis

Data Description	Grades	Variables	Statistical Analysis	Design
Pupil Attitudes	1-3	1. Pictorial Self-Concept 2. Constructed Attitude Toward School 3. Peer ratings of liking for others 4. Peer ratings of achievement of others	Multivariate Analysis of Covariance (Pretest experimental and control class means as covariates of posttest class means)	2 x 3 factorial
	4-6	1. Piers-Harris Children's Self-Concept 2. EQA Attitude Toward School 3. Peer ratings of liking for others 4. Peer ratings of achievement of others	Multivariate Analysis of Covariance (Pretest experimental and control class means as covariates of posttest class means)	2 x 3 factorial
	4-6	Subtests of Piers-Harris	Multivariate Analysis of Covariance (Pretest experimental and control class means as covariates of posttest class means)	2 x 3 factorial
Pupil Achievement	1-3 and 4-6	Subtests of Stanford Achievement Test	Multivariate Analysis of Covariance (Pretest experimental and control class means as covariates of posttest class means)	Two 2 x 3 factorials

Table I (Con't)

Data Description	Grades	Variables	Statistical Analysis	Design
Teacher Attitudes	1-3 and 4-6	Opinionnaire on Attitudes Toward Education	Analysis of Covariance (Pretest experimental and control teacher total scores as covariates of posttest total scores)	Two 2 x 3 factorials
	1-3 and 4-6	Attitude Toward Teaching as a Career	Analysis of Covariance (Pretest experimental and control teacher total scores as covariates of posttest total scores	Two 2 x 3 factorials
Parent Attitudes	1-3 and 4-6	Four semantic differential questions	Multivariate Analysis of Covariance (Pretest experimental and control parent means per class as covariates of posttest parent means per class)	Two 2 x 3 factorials
Classroom Interactions	1-3 and 4-6	Selected ratios on Modified Category System and Reciprocal Category System	Multivariate Analysis of Covariance (Beginning of year MCS and RCS selected ratios per experimental and control classes as covariates of end of year selected ratios per class)	Two 2 x 3 factorials
	1-3 and 4-6	Selected ratios on Modified Category System and Reciprocal Category System	Repeated Measures Analysis of Variance for each selected ratio includes five observations per experimental class (Beginning of year, end of year, and each of the three types of class meetings)	Because of small N's, grades 1-3 grouped together and grades 4-6 grouped together

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