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ABSTRACT

The Levels of Use (LoU) interview has been developed to study implementation as a dynamic process. This paper focuses on the use of a mathematics skills monitoring system and reports how information collected during the typical LoU interview provided the data for assigning each teacher to a configuration or pattern of use of the monitoring system. The monitoring system and the technical procedures for deriving the configurations from the interview data are reported. The primary objective of the paper is to describe in detail the methods used to discover how teachers were using the program and to cluster the teachers into groups with similar patterns of behaviors. The relationships between teacher behaviors and student achievement illustrate one application of the results of these procedures. (Author/MLF)

MONITORING CURRICULUM IMPLEMENTATION: MAPPING TEACHER BEHAVIORS ON A CONFIGURATION CONTINUUM

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MONITORING CURRICULUM IMPLEMENTATION: MAPPING TEACHER BEHAVIORS ON A CONFIGURATION CONTINUUM[1]

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INTRODUCTION

This paper focuses on the use of a math skills monitoring system and reports how information collected during the typical Levels of Use interview provided the data for assigning each teacher to a configuration, or pattern of use, of the monitoring system. The monitoring system and the technical procedures for deriving the configurations from the interview data are reported. Finally, how teachers' configurations relate to student achievement is reviewed. The primary objective of the paper is to describe in detail the methods used to (1) discover how teachers were using the program and (2) cluster the teachers into groups with similar patterns of behaviors. The relationships between teacher behaviors and student achievement illustrate one application of the results of these procedures.

THE INNOVATION: SAM

Beginning in 1975, a Skills Achievement Monitoring System (SAM) was developed for the purpose of assessing mathematics skills in elementary and

[1]Part of the research described herein was conducted under contract with the National Institute of Education and the Fitchburg Public Schools, Fitchburg, Massachusetts. The opinions expressed are those of the authors and do not necessarily reflect the position or policy of the funding agencies, and no endorsement by them should be inferred.

secondary schools in a local school district. The current procedure is that at each six week interval, the system informs classroom teachers, students and their parents what skills each child has learned.

The SAM was developed by classroom teachers with the assistance of an evaluation specialist and a math specialist. All of the district's teachers, in grades 2 through 8, were asked to identify the most critical math skills for their respective grade. After grade level consensus was reached, a representative group of teachers, with the specialists, constructed items asure each skill. These items represent the content of the SAM tests.

Several considerations affected the district's development and implementation of SAM. First, achievement monitoring was assumed to be diagnostic in nature, presumed to be a basic part of instruction. Test results would identify students who need instruction on specific objectives, that is, the results would provide data for individualizing instruction. Secondly, the involvement of teachers from the inception of the innovation was important in gaining their ownership. This meant that they were engaged in the development of the SAM: its content, format and reporting process. Third, teachers were to be given an important decision- making role with respect to use of the program. It was felt that the system would best serve teachers if they had the freedom to use it in their own self- prescribed ways. Use was not prescribed by the district and teachers, as a result, used it in a variety of ways.

A key ingredient in the SAM implementation was the service of a district math coordinator who responded to individual teacher needs. For instance, every six weeks the math coordinator personally delivered the computer printouts (processed by the district) to each teacher in his or her classroom. These visits were designed to explain the test results, answer questions and provide help. The math coordinator supported teachers as they implemented the SAM in their own personalized way, and encourag[illegible] se the SAM test results in conjunction with other available st[illegible]

PREVIOUS [illegible]RCH ON S[illegible]

In 1978, the extent to which the [illegible] had [illegible] plemented in classrooms was assessed in order to evaluate the i[illegible] of S[illegible] on the math achievement of pupils. The district wished to kn[illegible] whe[illegible] erences in student achievement might be attributable to differential use [illegible]e SAM. In order to do this, the district contacted the Concerns-Bas[illegible] Adopt[illegible]on Project at the Research and Development Center for Teacher Education at The University of Texas at Austin. This research team had been engaged for several years previously in research on change in schools and colleges. The work this project has been doing seeks to understand how the adoption of educational innovations occurs, how the individuals involved in implementing change are affected, and how to facilitate this implementation. The research is based on the Concerns-Based Adoption Model (CBAM), which describes what happens to individual users as an innovation is implemented.

In the CBAM, Levels of Use of the Innovation (LoU) (Hall, Loucks, Rutherford, & Newlove, 1975) describes how teachers use new programs. The Levels of Use interview (Loucks, Newlove & Hall, 1975) provides valuable information for assessing and rating the individual teacher's use. Understanding what is happening to the innovation, that is, what teachers are using, is another key dimension of the CBAM work. This is the concept of Innovation Configurations (Hall & Loucks, 1978) and is baseline data collected in the LoU interview.

The Levels of Use (LoU) interview was utilized to gather data on teachers' use of the SAM. This interview provided information on how teachers were using SAM, i.e., at which of the eight Levels of Use; it also provided important information on what variations of the possible components, or configurations, teachers were using.

District evaluation personnel defined a "user" as a teacher who utilized the SAM test in instructional decision-making. A "nonuser" was a person who administered the SAM tests, received the results, but took no subsequent action based on the results.

Constructing a Configuration Checklist

In order to describe the teachers' patterns of use, or configurations, district staff were asked to respond to three questions: What are the critical components of SAM? What might be observed when the SAM is operational with classroom teachers? What would teachers, pupils and/or others be doing? Based on responses to these questions and the interviewers' prior experience with a similar math program configuration search, a comprehensive list of all likely components and variations was prepared.

This list was used to structure interviews with a number of teachers using SAM. Information gained in this interview resulted in the elimination of some components and a more orderly and logical sequencing of the remaining components. Appendix A represents this configuration checklist. This checklist was used to codify the practices of 71 teachers who described their use of SAM during an LoU interview.

Results

As the taped interviews were being rated, each teacher was assigned to a configuration group: "minimal use," "mixed use," and "committed use." These classifications were based on a clinical analysis, an overall gestalt formed after visiting with teachers and listening to the taped interviews.

The Levels of Use ratings demonstrated that all the teachers did use SAM, that is, every teacher took some action based on the results of the SAM tests. Analyses of student achievement data indicated that increased use of SAM contributed to student learning (Reidy & Hord, 1979). A state department team validated SAM as a model program and provided funds for a diffusion grant to help other schools adopt SAM for their use.

The Measurement of Configurations in Other Studies

The CBAM Project has developed the concept of Innovation Configurations to describe the various ways that individual teachers operationalize any given innovation. The measurement of configurations has varied from one study to another, and it is of some concern to members of the CBAM Project that readers of papers which report configuration data do not become confused by different procedures which have been used to describe configurations. In other studies which have used the concept of configurations, the developer of the innovation has been interviewed, one or more sites visited to see the innovation in practice, and a configuration checklist drawn on this basis. The developers of the SAM did not specify teacher behaviors, except to say that they expected the teachers to use the printouts to guide their math instruction. Thus, the configuration checklist developed for this study differs from those in other studies because it was developed for an innovation which did not have a great deal of developer specification. A discovery approach was used in this study to define the components of the innovation as well as to describe teacher behaviors.

THE CURRENT STUDY

In 1979, as part of a second evaluation of the SAM in preparation for national validation as an exemplary program, Level of Use interviews were again employed to describe the current state of implementation. In addition to LoU ratings of each teacher, the interview was again expected to reveal the extent to which teachers relied on the SAM to guide their math instruction. Analyses of data collected in the interviews would indicate if there were discernable patterns of use, or configurations. The sample of teachers was expanded to 96 and included nine teachers who were new to SAM.

A "New" Checklist

The attempt was made in the interview to identify and describe all practices in which the teachers engaged with SAM. The interview tapes were reviewed and all teachers' behaviors were noted. Redundancies were removed and a list of 145 items were extracted as exemplars of teacher practices in relation to the SAM. These items were edited and collapsed into twenty-nine statements which represented the variety of teacher practices or behaviors specified by the teachers. The refined configuration checklist contains the 29 items arranged into five groupings (see Appendix B).

Since the 29-item checklist was not available at the time of the interviews, it was not possible to specifically ask about each of the items when talking to the teachers. Even so, it seemed appropriate to make inferences on those items which were not specifically addressed in the interview. When the 29-item checklists were filled out, raters marked every item as True or False, and also indicated whether data were specifically available to make that rating. Making these inferences was a difficult task; the failure of a teacher to mention the presence of a particular practice does not imply that the teacher does not engage in that practice. However, each interviewer had made a rather thorough attempt to get each teacher to describe his or her use of the innovation in detail. The checklist used in the interview contained the same categories of behaviors as the 29-item checklist. In every interview, the teacher was asked specific questions about the use of SAM objectives, instructional materials, testing, printouts and remediation. Most teachers gave very specific descriptions of their practices in the classroom.

Reliability of the Ratings

Six interviews were independently rated by a second person to assess the reliability of the ratings. On these tapes, there was 87% agreement on the True/False rating for items on which one or both raters indicated an inference was necessary. 94% agreement was found on items both raters agreed no inference was necessary. These statistics convinced us that very good reliability of ratings were being maintained even under "high inference" conditions.

Analysis of Configuration Checklist Data

Using ratings on each of the 29 items, a value of one (1) was assigned for items marked "true" and a value of two (2) for items marked "false." Teachers then were clustered into groups which had similar practices. In order to ensure that the groupings were related to the extent of implementation, each teacher was assigned to a high, medium, or low implementation group by the person who had personally interviewed that teacher. These assignments were used as starting points in a non-hierarchical cluster analysis. The procedure used was developed by Forgey (1965), and programmed by Anderberg (1973). Briefly, the procedure consists of the following sequence of steps:

1. Begin with any desired initial clusters of the data.
2. Compute the centroid of each cluster (in this case the mean of each item on the checklist).

3. Considering each teacher's data, assign that teacher to the cluster which has the nearest centroid.

4. Alternate steps 2 and 3 until no teachers change their cluster memberships.

With the data on the 29-item checklist and the initial clusters given by the interviewers' clinical ratings, only two iterations were required to reach a stable clustering. At that point, each teacher was assigned to the group closest to his or her "profile" on the checklist. Most of the changes in group membership were shifts from the medium to high and medium to low groups. Initially, sixteen teachers had been assigned to the low implementation group, twenty were assigned there after the cluster analysis. Also, 40 teachers ended up in the high group while 29 had originally been assigned there. It seems that the raters were hesitant to assign teachers to groups outside the medium cluster, but not surprised at the results, and were in some cases pleased that "the computer" had put the teachers in the final groupings.

In reviewing the individual teachers who had been moved from one group to another, the raters were in agreement with the new cluster assignments, with one exception. One teacher, placed in the low group through clinical assessment, moved to the high group as a result of computer analysis. This teacher had arranged a sophisticated and individualized procedure for student remediation; however, no class time was provided for students to engage in the designed activities. In fact, they were denied "time on this task" by the requirements of the teacher's ongoing math program -- which did not integrate SAM components. This unique configuration really did not fit any cluster well (see p. 16).

Figure 1 shows the proportions of teachers in each cluster who were rated as true for each statement on the checklist. Major differences between clusters were observed on items 1 and 2 under Instructional Materials, items 1 and 4 under Testing, item 2 under Printouts, and items 1, 2, 3, 4, 5, 6, 8, 9, and 11

Figure 1

Results of Hierarchical Cluster Analysis on Fitchburg Configuration Checklist

% True Hi	Med	Low	Item
			Objectives
70	12	5	1 Uses the SAM objectives as the primary curriculum guide for ongoing instruction.
98	95	80	2 Devotes class time to teaching some or all SAM objectives for ongoing math instruction -- not remediation.
4	3	20	3 Increases attention to teaching SAM objectives immediately previous to SAM testing (i.e., "preps" for SAM tests).
78	95	95	4 Teaches math objectives other than SAM objectives (whether or not SAM objectives are taught).
33	32	20	5 Instructs resource room students in SAM objectives.
			Instructional Materials
65	20	10	1 Uses pre-packaged materials (IMP or similar) keyed to SAM objectives for ongoing math instruction.
78	17	15	2 Uses personally grouped materials keyed to SAM objectives for ongoing math instruction.
			Testing
93	20	15	1 Administers tests specifically focused on SAM objectives between SAM tests.
98	97	90	2 Administers other math tests besides SAM tests.
5	5	0	3 Administers more than one level of the SAM to individual students (i.e., a student takes two SAM tests simultaneously).
90	69	40	4 Moves students from one level of the SAM to another during the year.
			Printouts
100	92	95	1 Sees that students each receive a copy of each SAM printout.
100	83	30	2 Provides that each student has a readily accessible record of performance (printout or chart) on previous SAM tests.

Figure 1 (continued)

% True Hi	Med	Low		
85	83	80	3	Expects students to take each (every) printout to parents.
90	95	90	4	Sends printouts home with students at end of year (regardless of other times).
3	3	0	5	Requests parents to sign to show they have received printouts.
10	26	5	6	Shares SAM printouts with child's other teachers (e.g., Title I).
8	6	0	7	Posts SAM printouts in classroom (e.g., on the wall).
				Remediation
98	98	25	1	Requires students to show mastery or work toward mastery of objectives missed on SAM tests.
28	49	15	2	Creates problems or exercises "on the spot" to reteach missed objectives.
83	37	10	3	Uses pre-packaged materials keys to SAM objectives (IMP or similar) for remediation work.
83	37	5	4	Uses personally grouped materials keyed to SAM objectives for remediation.
20	63	35	5	Reviews SAM results with class as a whole within a few days of their return.
93	37	15	6	Reviews SAM results with individual students within a few days of their return.
10	37	40	7	Focuses remediation on whole class (based on SAM results).
60	63	20	8	Forms small groups based on SAM results for the purpose of remediation.
98	66	5	9	Focuses remediation on individual students (based on SAM results).
100	100	60	10	Compares previous results on SAM test with current results.
95	100	30	11	Assists students to be aware of progress made since last test (or over the year).

under Remediation. Generally, the high implementation group contained a majority of teachers rated as performing the practice, while a minority of teachers in the medium or low group exhibited the practice. One interesting exception to this is the distribution of true ratings for item 6 under Remediation. Twenty percent of the high group review the results of the SAM test with the class as a whole, sixty-three percent of the medium group do this, and thirty-five percent of the low. It appears that teachers in the high group review the results with students on an individual basis, teachers in the intermediate group tend to review the results with the class as a whole, while those in the low group do not go over them with students at all.

Relationship of Implementation to Student Achievement

In order to assess the relationship of the teacher's innovation configuration to student achievement, the following analyses were done. SAM test data were available on 2911 students for the 1978-79 academic year. Each student should have taken six SAM tests during this period, at approximately six week intervals. There are seven levels of the SAM tests for grades two through eight. At each level, six forms of the test exist. Students receive a different form of the test each time they are tested at a given level.

Because students frequently move from one level to the next during the year, it was necessary to construct a common scale onto which scores on every test could be projected. This scale was constructed by administering more than one level of the test to students at the same time and comparing performance on the two tests. A total of 498 paired tests were administered, distributed across the levels. The common scale was constructed by examining the mean scores on adjacent level tests taken by the same students, and adjusting the scores on each test so that the mean common scale score was the same regardless of the level of the test used to compute it. Although it was recognized that this procedure was less than ideal, the use of the common scale scores as a covariate as well as the dependent variable mitigates its weaknesses.

An analysis of covariance was performed using the final SAM test of the year as the dependent variable, the three implementation groups as the independent variable, and the initial SAM test, grade level and sex as the covariates. If a student had missed the first SAM test but taken the second, the second score was used in its place (N=145). If a student had missed the final (sixth) SAM test, but had taken the fifth, the score on the fifth was used in place of the final score (N=85). A total of 2299 students had both initial and final scores following this procedure.

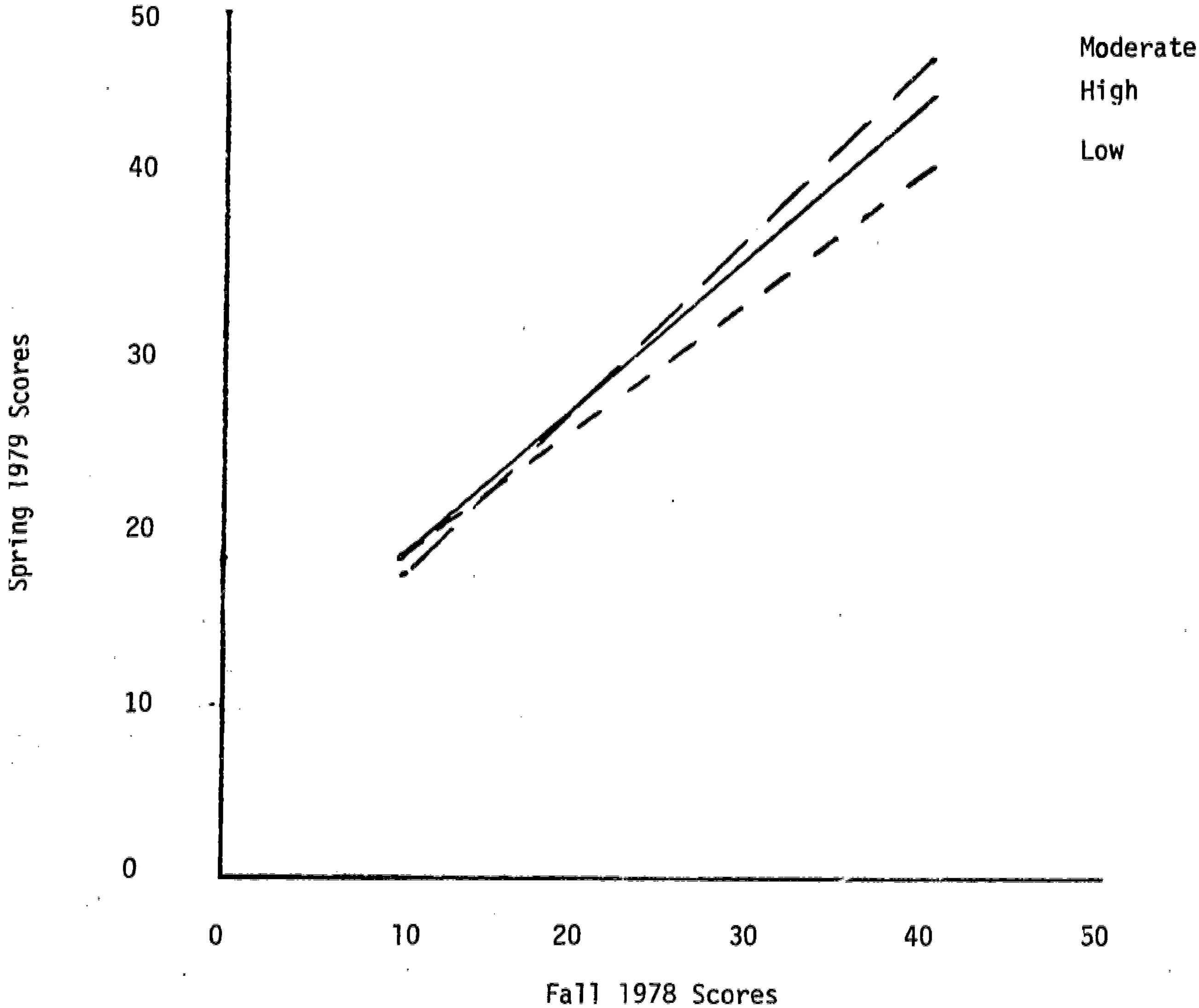
The students' test data was aggregated by sex and grade level, resulting in 160 data points, representing 80 teachers' classrooms. Each of these teachers had been assigned to one of the implementation groups at the end of the year. There were 37 teachers in group 1 (high implementation), 30 teachers in group 2 (moderate implementation), and 13 teachers in group 3 (low implementation). Sixteen teachers, predominately in the low implementation group, were not included because none of their students had received SAM tests in the fall.

Sex and grade level were not significantly related to achievement on the final SAM test when the initial test was used as a covariate. However, there was a significant interaction between configuration groups ($F = 7.17$, d.f. = 2,154, $p = .001$).

The nature of this interaction is shown in Figure 2. It is readily apparent from Figure 2 that classrooms with teachers in the high and moderate implementation groups performed better than classrooms with teachers in the low implementation group at higher levels of the Fall 78 scores. It was surprising to see that the moderate implemenation group did better than the high implemen-

Figure 2

Relationship of Degree of Implementation and Achievement of the SAM Tests



tation group. A classroom with a mean score of 40 in the fall has an expected mean score in the spring of 41.1 (low group), 45.15 (high group), and 47.5 (moderate group). A test was performed to determine whether the high and moderate groups could be represented by lines having the same slope; a marginally significant difference was found ($F = 3.75$, d.f. = 1,155, $p = .054$), indicating a difference in achievement does exist between the moderate and high implementation groups.

Thus, it appears that teachers using the SAM program in a moderate to high implementation mode have students who perform better on the SAM tests, but only in classrooms with higher fall scores. These differences completely disappear at low levels of the tests. Because scores on the SAM are closely related to grade level ($r = .94$), it can be argued that the differences in achievement are more pronounced at higher grade levels.

It was somewhat surprising that the moderate implementation group had higher achievement than the high implementation group; several additional analyses were run in an effort to understand this. First, analyses of covariance were run using each of the 29 items on the configuration checklist as the independent variable, the posttest dependent variable, and the pretest as the covariate. The results of these tests are presented in Table 1.

Table 1

Items on the configuration checklist significantly related to achievement using an analysis of covariance test

Item		F	p	direction
17.	shares SAM with other teachers	4.52	.04	true/false
23.	reviews results with whole class	7.58	.01	true/false
24.	reviews results with individual students	4.93	.03	false/true

Only three items were significantly related to the achievement of students according to this analysis. One of these was in a direction opposite that expected -- teachers who review the results of the SAM with individual students have lower achievement than those who do not do so.

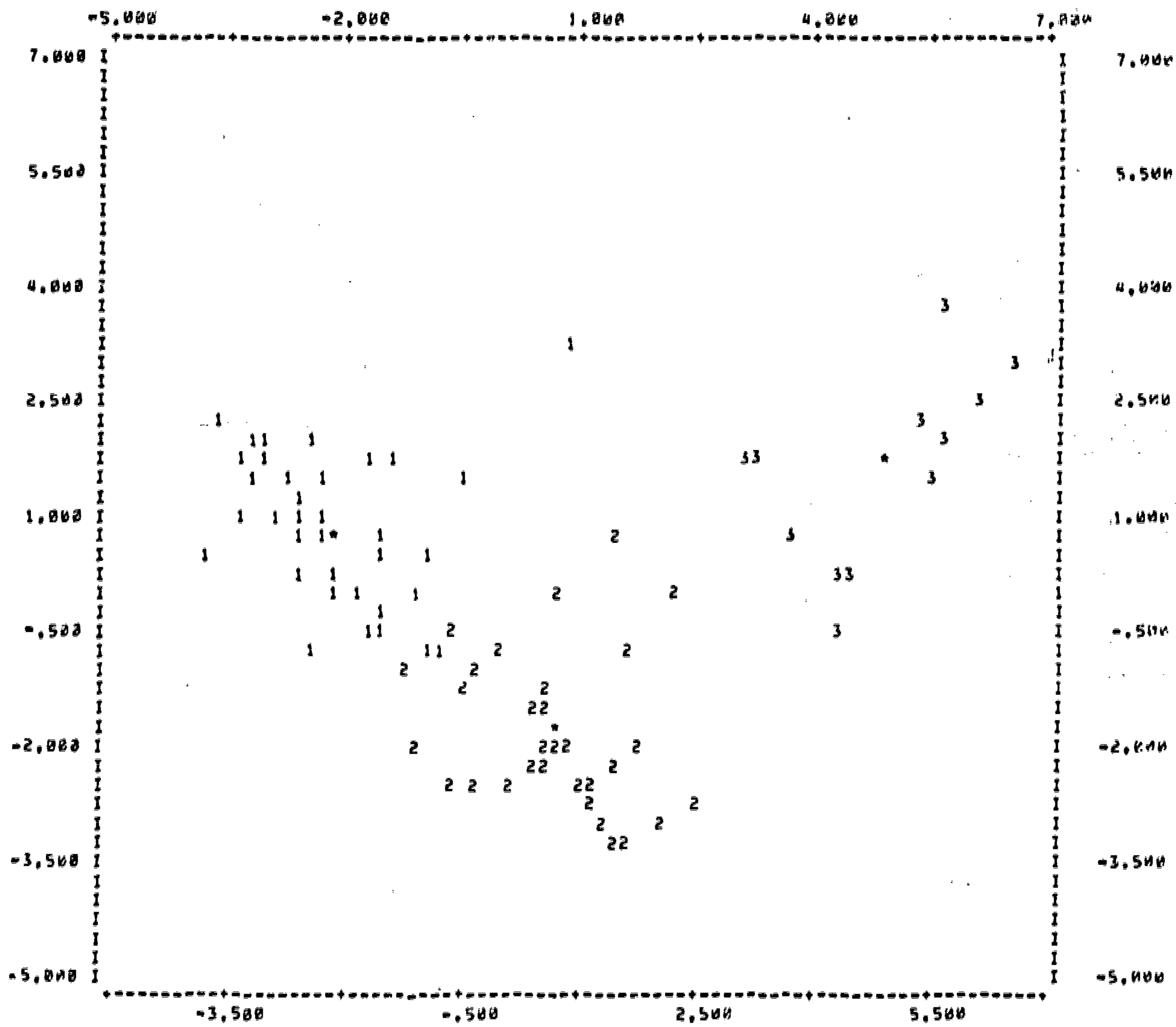
A second analysis was more informative -- a discriminant analysis using the 29 items on the checklist to separate the groups, followed by a plot of the group membership on the two dimensions resulting from this analysis. The SPSS subprogram discriminant was used to select the first 15 items which maximally discriminated the three groups and to do the plot. The number 15 was chosen, somewhat arbitrarily, because this was 50% of the 29 available items. Figure 3 shows the groups along the two discriminant functions found using this approach. It seems that the first function separates the groups along a dimension from high implementation to low (left to right on the horizontal axis), while the second function separates the groups along some other dimension. Since group 2 had the highest achievement, and group 3 the lowest, the vertical axis was tentatively called the "achievement" dimensions, high achievement being toward the bottom of the plot.

It is noteworthy that the one teacher moved from group 3 (low implementation) to group 1 (high implementation) by the cluster analysis is represented on the plot by the lone "1" in the upper center of the plot. This teacher's minimal use of a sophisticated system geared toward SAM seems to constitute a unique configuration. It just happens to be slightly closer to group 1 than 2 or 3.

The steps in the discriminant analysis, and the final coefficients for the 15 variables entered into the analysis are shown in Table 2. These numbers indicate that these 15 items are the most effective in separating the three groups. The previous use of cluster analysis on these same teachers using the same data points made it possible to separate these groups much more cleanly

Figure 3

Plot of Discriminant Score 1 (Horizontal) vs. Discriminant Score 2 (Vertical)



* Indicates a Group Centroid.

Table 2

Order of entry and final weights for 15 items in the discriminant analysis.

		Standardized Discriminant Function Weights		
Item	F ratio	Function 1	Function 2	
19	85.26	-1.21	-1.33	mastery on missed objectives
8	25.44	- .43	.41	SAM tests between SAM tests
24	12.09	- .40	.48	reviews test with individuals
1	9.84	- .35	.45	SAM objectives primary math guide
21	8.03	- .35	.25	IMP for remediation
25	4.07	.32	- .23	remed focused on whole class
28	4.61	- .65	- .30	compares previous SAM to current
7	2.86	- .51	.44	personally grouped materials for instruction
18	2.62	.26	- .15	posts SAM in classroom
13	2.53	- .47	- .66	provides readily accessible records
12	5.40	.04	.60	each student receives every printout
29	3.56	.35	.56	assists students to be aware of progress
15	1.81	.27	- .13	sends printouts home at end of year
16	1.81	.26	- .15	parents sign for printouts
5	1.76	.23	.16	insures that resource students get SAM

than might be encountered in other studies. Indeed, as can be seen from the plot in Figure 3, only four cases might be incorrectly assigned the "wrong" groups using these two functions -- there is a slight overlap between groups 1 and 2.

Looking at the discriminant function weights, we see that requiring mastery on missed objectives is the most indicative item for both the implementation and the achievement dimension. The next four items are indicative of high implementation but low achievement: administering tests keyed to SAM objectives between SAM tests given by the district, reviewing the results of the SAM tests with individual students, using the SAM objectives as the primary guide for on going math instruction, and using IMP or other pre-packaged math materials for remediation. Focusing remediation on the whole class is indicative of low implementation but high achievement, and so on. The negative weights on coefficients which are positively related to either dimension are due to the polarity of the discriminant functions: high implementation is toward the left (negative) and high achievement toward the lower (negative) portions of the plot.

In order to investigate the relationship of achievement to the discriminant functions, the teachers' discriminant scores were used to predict achievement. The procedure used was to predict posttest performance using the pretest performance, and then see if the addition of the first or second discriminant scores significantly increased the accuracy of prediction. This test proved non-significant for the first discriminant function ($F = .003$, $p = .95$), but significant for the second function ($F = 5.19$, $p = .02$). Thus, it seems that the two discriminant functions were correctly interpreted. However, the question remains concerning what it is about teachers with moderate implementation scores that results in high achievement gains.

Interpretation of These Analyses

Teachers who limited their math instruction to the SAM objectives did not have the highest achievement on the SAM tests. Apparently, the most effective teachers used the SAM tests as an indicator and a check on the effectiveness of their instruction. It should be noted that the local developers of the SAM tests did not intend for these objectives to be the only math content. Perhaps the term "high implementation" was incorrectly applied to those teachers who did not modify or deviate from the program. These teachers were, in a very real sense, not implementing the program in the manner in which it was intended. The teachers who modified and added to the program were actually using it in the manner envisioned by the developers.

Even with these considerations in mind, some of the results are surprising. How is it that teachers who go over the SAM results with individual students have lower achievement than those who do not? Why is the use of pre-packaged materials for remedial work apparently less effective than not using these materials? When one considers that it is performance on the SAM tests which was used to measure achievement in this study, how can it be that administering tests focused on SAM objectives to students between the district's SAM tests is negatively related to achievement gains?

One possibility may be the manner in which the scores on the different levels of the SAM were translated into common scale scores (See p. 12). Students on the higher level tests may not be given enough "credit" after moving from one level to the next. This and other possibilities will be explored in the future study of this innovation and its implementation.

IMPLICATIONS

The major significance of this work is that it demonstrates that the behaviors of teachers using an innovation can be defined by interviewing teachers. The developers of the innovation did not formally define the innovation. They facilitated group meetings in which the teachers defined the content of the tests, provided some support structures, and allowed the teachers to engage in whatever behaviors seemed appropriate. One outcome of this approach is that all teachers are "users" of the innovation, because no specific behaviors are identified as necessary for "use" of the innovation. This paper illustrates that teacher behaviors can be documented quantitatively based on interviews with teachers.

For Researchers

Researchers might be interested in both the procedures and results of this study. Studies of innovation implementation have repeatedly shown that teachers do not all comply with the demands of even the most structured innovations. The attempt to create "teacher proof" curriculum packages has not succeeded in eliminating variation in use of innovations. In this study we were able to identify quite specifically those variations in the use of the SAM and those that were positively related to student achievement.

For Staff Developers

Information provided by the configuration checklist could be of great help in staff development efforts. Knowing that certain teachers are or are not engaged in certain practices should enable persons responsible for workshops to do a more effective job. In addition, staff developers can utilize this procedure in order to determine what is actually taking place in the classroom, independent of what the developer expects. The practices of some teachers can also be communicated directly to other teachers. One of the outcomes of the reported work on the SAM was to send all the teachers interviewed a list of activities extracted from the interviews. Each of these methods of using the program had been "field tested" by other teachers in the district.

For Developers

Finally, the developers of the innovation were able to see which practices had gained widespread use and which seemed to be most effective. Some components of the innovation were either more difficult to implement than others or less acceptable to the teachers. Program developers who are considering curriculum improvement efforts might use this discovery approach to configuration checklist development to identify the practices which are actually occurring before engaging in efforts to define new practices. It may be possible that what is necessary is a dissemination effort in which teachers share what they are doing, rather than undertaking a new start.

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Appendix A -- 1978 Configuration Checklist

Appendix B -- The 29-Item Configuration Checklist for SAM Math

Appendix A

1978 Configuration Checklist

_____________________ _____________________ _____________________

School Name Grade

Please check any items which describe this teacher's use. A star will indicate emphasis by the teacher.

1. Administers tests:

   _____ SAM test to math class students

   _____ Teacher made tests

   _____ Commercial

   _____ Other

2. Uses objectives:

   _____ SAM objectives

   _____ Textbook objectives

   _____ Teacher-generated objectives

   _____ Other

3. Groups for concept development/skills instruction:

   _____ Large group, heterogeneous

   _____ Large group, homogeneous

   _____ Small stable groups (little movement)

   _____ Small changing groups (frequent movement)

   _____ Individuals

   _____ Other

4. Uses test results for instruction:

   _____ Regroup classes

   _____ Regroup kids (within classroom)

   _____ Plan work/activity for individuals

   _____ Plan work/activity for groups

   _____ Plan work/activity for total class

   _____ Other

5. Additional uses of test results:

_____ Share with parents by sending a copy home

_____ Share with parents in conference

_____ Place in child's folder

_____ Post on wall

_____ Other

6. Moves individuals to another level of test:

_____ Teacher judgement

_____ Daily class work

_____ Other

_____ Teacher tests

_____ SAM test results:

_____ percentage of items passed

_____ percentage varies with pupils

7. Uses instructional resources:

_____ IMP

_____ Textbook

_____ Workbook

_____ Other

_____ Games

_____ Manipulatives

_____ Teacher made worksheets

_____ Commercial worksheets

8. Influences report card grades:

_____ SAM test results considered

_____ SAM test results not considered

Appendix B

The 29-Item Configuration Checklist for SAM Math

T/F	*

Objectives

1 Uses the SAM objectives as the primary curriculum guide for math.

2 Devotes class time to teaching some or all SAM objectives specifically.

3 Increases attention to teaching SAM objectives immediately previous to SAM testing (i.e., "preps" for SAM tests).

4 Teaches math objectives other than SAM objectives (whether or not SAM objectives are taught).

5 Instructs resource room students in SAM objectives.

Instructional Materials

1 Uses pre-packaged materials (IMP or similar) keyed to SAM objectives for ongoing math instruction.

2 Uses personally grouped materials keyed to SAM objectives for ongoing math instruction.

Testing

1 Administers tests specifically focused on SAM objectives between SAM tests.

2 Administers other math tests besides SAM tests.

3 Administers more than one level of the SAM to individual students (i.e., a student takes two SAM tests simultaneously).

4 Moves students from one level of the SAM to another during the year.

Printouts

1 Sees that students each receive a copy of each SAM printout.

2 Provides that each student has a readily accessible record of performance (printout or chart) on previous SAM tests.

3 Expects students to take <u>each</u> (every) printout to parents.

4 Sends printouts home with students at end of year (regardless of other times).

5 Requests parents to sign to show they have received printouts.

6 Shares SAM printouts with child's other teachers (e.g., Title I).

7 Posts SAM printouts in the classroom (e.g., on the wall).

Remediation

1 Requires students to show mastery or work toward mastery of objectives missed on SAM tests.

2 Creates problems or exercises "on the spot" to reteach missed objectives.

3 Uses pre-packaged materials keyed to SAM objectives (IMP or similar) for remediation work.

4 Uses personally grouped materials keyed to SAM objectives for remediation.

5 Reviews SAM results with class as a whole within a few days of their return.

6 Reviews SAM results with individual students within a few days of their return.

7 Focuses remediation on whole class (based on SAM results).

8 Forms small groups based on SAM results for the purpose of remediation.

9 Focuses remediation on individual students (based on SAM results).

10 Compares previous results on SAM test with current results.

11 Assists students to be aware of progress made since last test (or over the year).