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ABSTRACT

All 24 of Maryland's county school systems participated in a voluntary school improvement program that involved the adoption and implementation of one or more of four research-based, instructional processes: Active Teaching, Mastery Learning, Student Team Learning, and Teaching Variables. A 5-year study of this program produced findings on a number of research topics. Findings in two of these topic areas are discussed in this paper: identification of the characteristics associated with institutionalization of innovations, and identification of the factors best predicting the institutionalization of innovations at the school and district levels. The paper briefly reviews related research, then describes the study methodology. Data collection methods used in the 180 schools involved in the program included analyzing local and state documents, observing training events and classroom implementation activities, evaluating annual questionnaire responses from representative program participants, and interviewing project coordinators and implementers. Successful institutionalization was associated with three types of factors: procedural, policy, and organizational. The strongest predictors of institutionalization were administrative support and instructional gain. Districtwide institutionalization correlated strongly with school institutionalization. Institutionalization failed where there was little evidence of instructional gain in the first year and where staff, program, or organizational changes were prevalent. (PGD)

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Introduction

In the fall of 1980, the Maryland state education agency (SEA) initiated a voluntary school improvement program for the adoption and implementation of four research-based instructional processes: Active Teaching, Mastery Learning, Student Team Learning, and Teaching Variables. All 24 of the county school systems in the state participated. Over the five year period a variety of research questions have been addressed.* This paper addresses the following two research questions:

1. What are the characteristics of institutionalization?
2. What factors best predict the institutionalization of an innovation at both the school and district levels?

Perspectives

Since the 1960s, studies have examined and variously defined implementation, as distinct from program effectiveness. Factors studied (identified in Roberts, 1978, pp. 6-10) include:

- Goal congruence: the extent to which implementation is congruent with the goals of the innovation, "protects the original vision, (does) not betray it or abandon it" (Miles, 1976).
- Problem-coping ability: the extent to which those involved are able to cope with unanticipated problems during and after implementation so that the problems "stay solved, don't recure" (Miles, 1976).
- Stakeholder satisfaction: the extent to which those involved, especially practitioners, are satisfied that the innovation and the way it is implemented achieves "things important to them and their constituencies" (Miles, 1976).
- Adaptation: the nature and extent of adaptation of the innovation and of the users (Berman et al., 1977).

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* See list of references. Comprehensive annual reports were submitted to the SEA and also to the ERIC system. This paper summarizes one aspect of the overall major study.

- Level of use/assimilation: the extent or level to which individuals, e.g., teachers, implement the innovation (Berman et al., 1977, Vol. 7, p. 19; Hall & Loucks, 1977; Paul, 1977).

- Incorporation: the extent to which the school or district incorporates the innovation as an integrated part of the educational program or system on an on-going basis (Benman et al., 1977, Vol. 7, p. 186).

- Institutionalization: the extent to which all internal users (from classroom to district) accept and use the innovation on an on-going basis (Berman et al., 1977, Vol. 7, p. 182).

In a review of studies addressing implementation, Fullan and Pomfret (1977) identified four categories of factors: (1) characteristics of the adopting unit, (2) strategies used, (3) characteristics of the innovation, and (4) characteristics of the macro socio-political units. Other researchers suggest similar factors, which may be synthesized as follows:

- Characteristics of the innovation--its sources, nature, purpose, target audience, demand on resources, explicitness, complexity, and scope of change.

- Characteristics of the planning/implementation process--the nature and extent of training, assistance, support and feedback.

- Characteristics of the internal education organization (i.e., those individuals and groups directly involved in the change experience)-- the nature and extent of influence of such factors as commitment/ support, climate, roles and responsibilities, use of resources, and demography and communication patterns within and among levels or units of the system.

- Major external characteristics--the nature and extent of influence of such factors as input form federal, state, or other external agency, evaluation and design demands and constraints, incentives, and socio-political complexity. (Roberts, 1978, p.13)

Attention of research has shifted from outcomes to implementation to institutionalization as we have recognized the complexity of school improvement. As Huberman and Crandall (1983) suggest, we need "deliberate attention to the institutional steps that lock an innovation into the local setting." This in turn suggests that we need to challenge the assumption

of "forward mapping" that "policymakers control the organizational, political, and technological processes that affect implementation" (Elmore, 1979). Instead, we might look at some of the elements of "backward mapping," recognizing that "the problem-solving ability of complex systems depends not on hierarchical control but on maximizing discretion at the point where the problem is most immediate." Thus, a study of institutionalization must look not only doe compliant and rational implementation by teachers of programs or policies passed down through the hierarchy and developed by others, but also for varied implementation by all role groups who may adapt outside ideas to meet their own needs. At the same time we need to track threats to institutionalization, identified by Miles (1983) as environmental turbulence and career advancement motivation.

While Miles and others have begun to examine the characteristics and influential factors of institutionalization, the focus has been on single schools, and studies have been conducted over relatively short periods of time. This study looks not only at schools, but also at school districts (ranging in size from 2,383 to 90,866 students) implementing an innovation over an extended (4 to 5 year) period of time.

In order to determine useful ways to explore the issue of institutionalization, the work of Berman and McLaughlin (1977), Crandall et al., (1982), and Miles (1983) was analyzed, and a preliminary list of influential factors was generated. Since one purpose of the present study was to link research with practice, this list was reviewed with state and local staff responsible for assisting schools in adoption and implementation of innovations. Their practical experience combined with the models suggested by

research helped to identify the issues to be addressed and to create the design of the study.

It was anticipated that, over a five year period, various barriers to institutionalization would occur that might be "outside" the innovation itself (i.e., changes in staff, overall program, or the organization). Also, certain characteristics of institutionalization were identified, such as use of local (rather than state or federal) funds, and regular and frequent use of the innovation by close to 100% of teachers asked to participate. While the concepts of "passage completion" (e.g., establishing routines) and "cycle survival" (e.g., surviving budget cuts) were considered during data collection and analysis, more attention was paid to determining the factors that predicted and assured the survival of key instructional characteristics -- overpowering the barriers which occurred.

Methods and Data Sources

Over a period of five years, data were collected measuring state and local efforts toward adopting and implementing the instructional models. Data were collected from all the 24 LEAs that were involved, which included over 15% of the state's schools (approximately 2,700 teachers and 75,000 students in over 180 schools). The instructional models were used in all academic subject areas, with mathematics and English language arts most prevalent. About 56% of the students were in Active Teaching classes, 36% in Mastery Learning, and about 5% each in Student Team Learning and Teaching Variables.

Both qualitative (ethnographic) and quantitative methods of data collection were used. For each of the first four years, data were collected in the following ways:

Both qualitative (ethnographic) and quantitative methods of data collection were used. For each of the first four years, data were collected in the following ways:

- Analysis of documents such as SEA developed materials for planning, training, and communication; locally developed planning, training, and classroom materials, and evaluation reports; and student attitude and achievement data summaries collected and analyzed by the LEAs.

- Observations of SEA-sponsored planning and training events and monthly technical assistance meetings; and site visits twice a year to eight pilot LEAs which included classroom observations of model implementation and observations of local training workshops.

- Questionnaires completed at least once a year by representatives of each role group (project coordinators, teachers, school-based administrators, and central office staff) measuring the level of implementation; local objectives and activities related to objectives; quality of SEA support and assistance; LEA needs; and model impact, dissemination, and institutionalization.

- Interviews of project coordinators, state staff, and local implementers at site visits and training workshops, regarding model implementation, impact, and institutionalization.

For the fifth year data were collected from state staff and project coordinators only via interviews and observations. Information was collected concerning level of implementation, the nature and extent of administrative support, major accomplishments, future plans, and the degree to which the model was integrated or institutionalized into the instructional program of the implementing schools.

Individual project case studies were developed, and data were also analyzed by model and by role group. A "causal network" process (Miles, 1983) was used to facilitate analysis. Annual reports were submitted to SEA staff and to each local school system, and results used in planning program improvements for the following year.

Correlational analyses were used to determine relationships among variables such as instructional gain, administrative support, level and fidelity of implementation, and institutionalization at the system and school levels.

Results

This paper addresses two research questions. The findings related to each research question are summarized below.

The characteristics of institutionalization

When institutionalization occurred, three types of dimensions were apparent: procedural, policy at the school and/or district level, and organizational. Indicators defining these dimensions are summarized below.

- Procedural: (a) inservice was modified to support the program, (b) staff were assigned and accountabilities modified, (c) resources (time, materials) were allocated annually, and (d) local funds were used.
- Policy: (a) management (leadership, advocacy, decision-making) was shared, not reliant on a single administrator, and (b) effectiveness was assessed and data used in decision-making.
- Organizational: (a) in the cognitive domain, the status of the program was commonly understood, clearly stated, and close to 100% of teachers asked to participate did so regularly; and (b) in the affective domain, local educators felt "ownership" of the program, there was harmony between teachers and school-based administrators and between school-based staff and central office staff about the program.

There were no significant differences between the four models on either school or district institutionalization. In the majority of implementing schools and districts, the models became an integral, institutionalized part of the educational program. Successful projects that integrated the model into their regular programs addressed these procedural, policy,

part of the educational program. Successful projects that integrated the model into their regular programs addressed these procedural, policy, and organizational dimensions either incrementally, or together after some initial setbacks.

For instance, in the first year all projects relied heavily on outside funds and training, but, as such support was gradually reduced, local resources were applied. Also, while a few LEAs formally assigned project leaders at the beginning, only after the first year were old accountabilities modified to ensure sufficient investment of time and energy to the project. Another example relates to the extent of teacher participation: successful projects involved close to 100% of the staff who were asked to use the models. In a few cases this occurred in the first year (some teachers enthusiastic, others resisting, depending on the extent to which they felt coerced rather than invited). By the fifth year high participation (and regular use) occurred in projects where teachers had experienced some success and believed that use of the model(s) was expected and rewarded by administrative and supervisory staff.

Factors predicting the institutionalization of an innovation at both the school and district levels

A multiple regression analysis was conducted to determine which indices (instructional gain, central office and school administrator support, or fidelity) were the best predictors of institutionalization at the school and district levels.

Instructional gain was defined as: (1) increase in teachers' knowledge and skill in effective instruction and a positive attitude toward the

programs; plus (2) increased student achievement, acceptance of responsibility for their own learning, and a positive attitude toward the program. Administrative support consisted of: (1) affective behaviors that demonstrated interest and commitment to the program; and (2) logistical behaviors that (a) "pressed" for faithful, regular use of the program by at least three teachers in each participating school, (b) provided assistance by coordinating, training, responding to requests, and providing resources, (c) coordinated communication across hierarchical levels for program review and improvement, and (d) implemented data-based decision-making. Fidelity referred to the faithful, regular use of the model in the classroom.

Together these indices explained approximately 48% of the variance in school institutionalization which was significant at the .05 level. The strongest predictors of school institutionalization were school administrator support followed by instructional gain. Fidelity was the least strongest predictor.

Table 1

Multiple Regression Results for School Institutionalization

Index	B	F
School administrative support	.4928	27.320*
Instructional gain	.2365	5.614*
Central office support	.1183	1.364
Fidelity	.0732	.563

R^2 = .47884
Overall F = 17.538*
N = 73
*p = less than .05

Administrative support in schools was usually provided by principals, but in secondary schools department heads were often more visible. Demonstration of interest and commitment included: (1) small acknowledgements in staff meetings or "passing in the corridor" comments; (2) reference to teachers' project success in public meetings, school notice boards, or newsletters; (3) attention to the ways in which the project or elements of the model addressed school priorities, affirming overlapping concepts or activities. For instance, a new principal found ways of using the model (in its second year) to address his goal of encouraging communication across departments. In another school, the principal suggested that students should design buttons celebrating the success of the model, and all staff should wear the buttons for parent conferences and to state and district staff development activities. The shared belief in success, and the administrators' affirmation of the teachers' efforts were made evident in such behaviors.

Logistical support by school administrators included schedule changes to allow for common planning time by teams of teachers, provision of materials or access to equipment (or the telephone in some cases), and delivery of training and information. Facilitating communication across grade levels or subject areas not only helped the project to run smoothly in a school, but also improved teachers' morale and general understanding of each others' concerns and capabilities. The "positive press" included formal and informal classroom observation that recognized the use of a new instructional model (allowing for initial setbacks as teachers adjusted classrooms practices, and praising improvements in classroom management and students' engagement in learning). "Press" also included maintaining a "critical mass" of teachers. Less than three in an elementary school or a

high school department resulted in gradual loss of energy and enthusiasm. Also, as staff were reassigned, others needed to be involved, and combined encouragement from the administrator and other teachers was helpful. A team of at least three could share the workload, ensure reasonable fidelity, counter staff absences or reassignments, and support and coach each other. (Since several initiating teachers were promoted, administrative support for the team concept was important.)

While it might seem obvious that instructional gain influenced institutionalization, it is worth examining this factor. First, teachers found evidence of instructional gain (or lack of it) in their daily interactions with students and in the results of unit quizzes. They made up their minds fairly quickly about the relative value of a given model. School based administrators, in some cases, saw improvement in classroom management or students' increased involvement with learning, but usually they wanted to hear the teachers' opinions and see end-of-semester grades. Central office staff were strongly influenced by reports from school based administrators, and to varying degrees by teachers. If the model was to be used district-wide, central office staff usually wanted evidence of instructional gain in terms of student achievement (preferably as measured by standardized or criterion-referenced tests commonly used in the district). If there was little or no evidence of instructional gain, the project could well continue until state funding ended. However, the level of implementation was minimal.

These results indicate that institutionalization is more likely to occur when the innovation not only makes a difference in the classroom, but also when it is linked to the principal's priorities, thus increasing administrative investment in affective and logistical leadership behaviors.

Table 2

Intercorrelation Among the Five Indices: All Models

Index	1	2	3	4	5
1. Instructional Gain		.44	.34	.23	.26
2. System Institutionalization			.67	.80	.42
3. School Institutionalization				.51	.68
4. Central Office Support					.45
5. School Administrator Support					

Note: The number of cases upon which the correlations were calculated varied.

As would be expected, district-wide institutionalization was strongly correlated with school institutionalization (r=.67). Central office support was also an important influence on whether or not the model became an integral part of the district's instructional program (r=.80). Central office support included direct response to the needs of the teachers implementing the program. For example, central office staff in one project provided extensive training in specific areas where teachers were experiencing difficulty in implementing the model. Through these training sessions, and observations and conferences with individual teachers, central office staff were able to help teachers successfully adapt the model to meet their classroom situations. In another project, supervisory staff asked teachers to assist in the design of a classroom observation

checklist to be used by supervisors during observation of model implementation. In other cases central office support was responsive to the needs of the project coordinator. For example, in one project central office staff provided the funding and expertise needed to establish a computerized management information system to help teachers keep accurate, up-to-date records of student progress.

By comparison, when central office staff did not create a positive press and appropriate coordination, problems occurred. At one project site, a Chapter I site visit team told school staff that they could not and should not use the new instructional model. After anger and resistance had been overcome by apologies and explanations, the monitoring team realized their mistake, and SEA and central office administrators paid greater attention to communication and coordination across programs and between schools -- not only for this project but also for others.

Institutionalization did not occur for projects that used funds primarily for training with voluntary use of the models by teachers. In such cases, while individual teachers did use the models well for varying periods of time, very few integrated them into their regular instruction. Their explanation was that alternative accountabilities or principal expectations led them away from this program, and/or that isolated use by one teacher (without support or coaching from colleagues) was too lonely or difficult to maintain over time. When school teams receiving training precontracted to use the model to a specified degree in their classrooms, and received follow-up assistance and administrator support and "press" for implementation, institutionalization of the model was more likely to occur.

Institutionalization did not occur where there was little evidence of instructional gain in the first year and where staff, program, and/or organizational changes were prevalent. These changes included funding cuts; shifts in student population; staff reassignments resulting in reduced leadership, advocacy, or program expertise; and reorganization or relocation of the program and revision of priorities.

No project can avoid environmental turbulence. As illustrated in Figure 1, changes occur to staff, the program, and/or the organization. Such changes create barriers to implementation and institutionalization. For instance, reassignment, retirement, or promotion of key staff cause shifts in leadership, and may result in serious loss of program expertise. Turbulence may also create opportunities for greater scope of implementation, or for review of progress. Turbulence will occur, and project designers should anticipate that its relative impact will be strongly influenced by the extent to which predictors and indicators of institutionalization have been addressed.

If a project is designed for survival, the characteristics of institutionalization will be addressed in planning. During the life of the project the predictors (instructional gain, administrative support, and fidelity) interact with the indicators defining the dimensions of organization, policy, and procedure. A dynamic system evolves. Without attention to the Characteristics of institutionalization, the project is not likely to survive turbulence; with attention to those characteristics--assuming that the project results in instructional gain or its equivalent-- the project is very likely to survive turbulence.

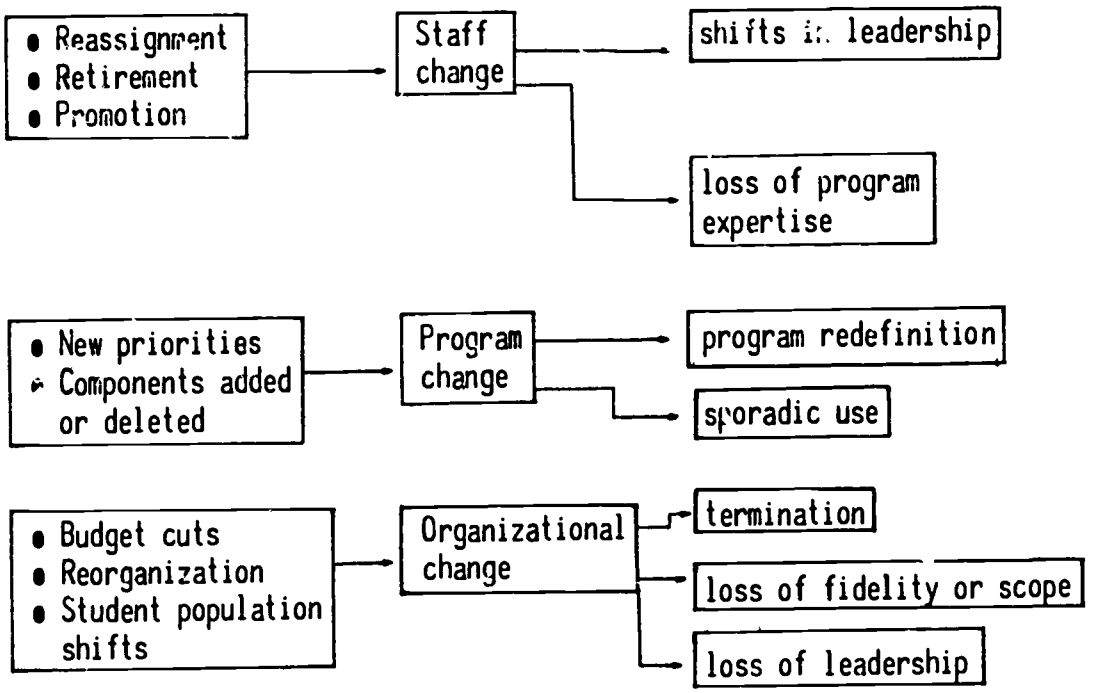

Figure 1. Environmental Turbulence

Conclusions

If districts and schools can more readily identify characteristics, barriers, and positive influental factors on institutionalization, they can more effectively plan implementation. For instance, they may attempt to differentiate between short term projects, pilot activities, or programs which (if successful) should be institutionalized. Investments of time and energy could then be linked to priorities. Backward mapping might be facilitated if the indicators . . institutionalization are understood as operational strategies to be applied.

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