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ABSTRACT

Maryland's School Improvement Through Instructional Process (SITIP) program involved 24 local education agencies (LEAs) in implementing one or more research-based instructional models: Active Teaching, Mastery Learning, Student Team Teaching, and Teaching Variables. A summary is presented of: (1) descriptions of each of the instructional models; (2) the evaluation overview; (3) state initiatives and assistance; (4) technical assistance to local education agencies; (5) local implementation impact; (6) scope, intensity and fidelity of use; (7) roles and responsibilities; (8) academic outcomes; and (9) activities planned and influences perceived across all SITIP models. General conclusions on the success of the SITIP model are discussed and suggestions are made on implementing similar efforts. (JD)

INSTITUTIONALIZATION OF STATEWIDE INSTRUCTIONAL IMPROVEMENT

(EXECUTIVE SUMMARY)

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October 1984

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Introduction

In the three years beginning September 1981, all 24 local education agencies (LEAs) in Maryland participated in a School Improvement Through Instructional Process (SITIP) program by voluntarily implementing one or more of four research-based instructional models: Active Teaching (AT), Mastery learning (ML), Student Team Learning (STL), and Teaching Variables (TV). The Maryland State Department of Education (MSDE) encouraged the application of research on planned change, and supported local implementation by providing funds, training, and technical assistance. Evaluation was conducted in order to provide relevant information in a timely fashion so that data-based decisions could be made about the program.*

SITIP was designed by MSDE as a multi-year program consisting of interactive activities which included cycles of planning, training, and technical assistance beginning in late 1980 (see Figure 1). Following the initial cycle of planning and training, 19 LEAs began implementation in September 1981, and five additional LEAs became involved in the summer of 1982. State department support (funding and provision of training and technical assistance to LEAs) continued through the 1983-84 school year. At that time, it was hoped that LEAs would institutionalize their model programs, or, if they were proven to be ineffective, terminate them with each district taking responsibility for

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* Three major evaluation reports have been written. The first focused on implementation during the period December 1980 to June 1982. See: Roberts, et al., Instructional improvement in Maryland: A study of research in practice, 1982. ERIC #: full report, ED222486; executive summary, ED223553. The second report focused on impact during the 1982-83 school year. See: Roberts, et al., Instructional improvement in Maryland: Impact on educators and students, 1984. ERIC #: Full report, ED238873; executive summary, ED238872. The full report upon which this executive summary is based focuses on institutionalization and covers the 1983-84 school year.

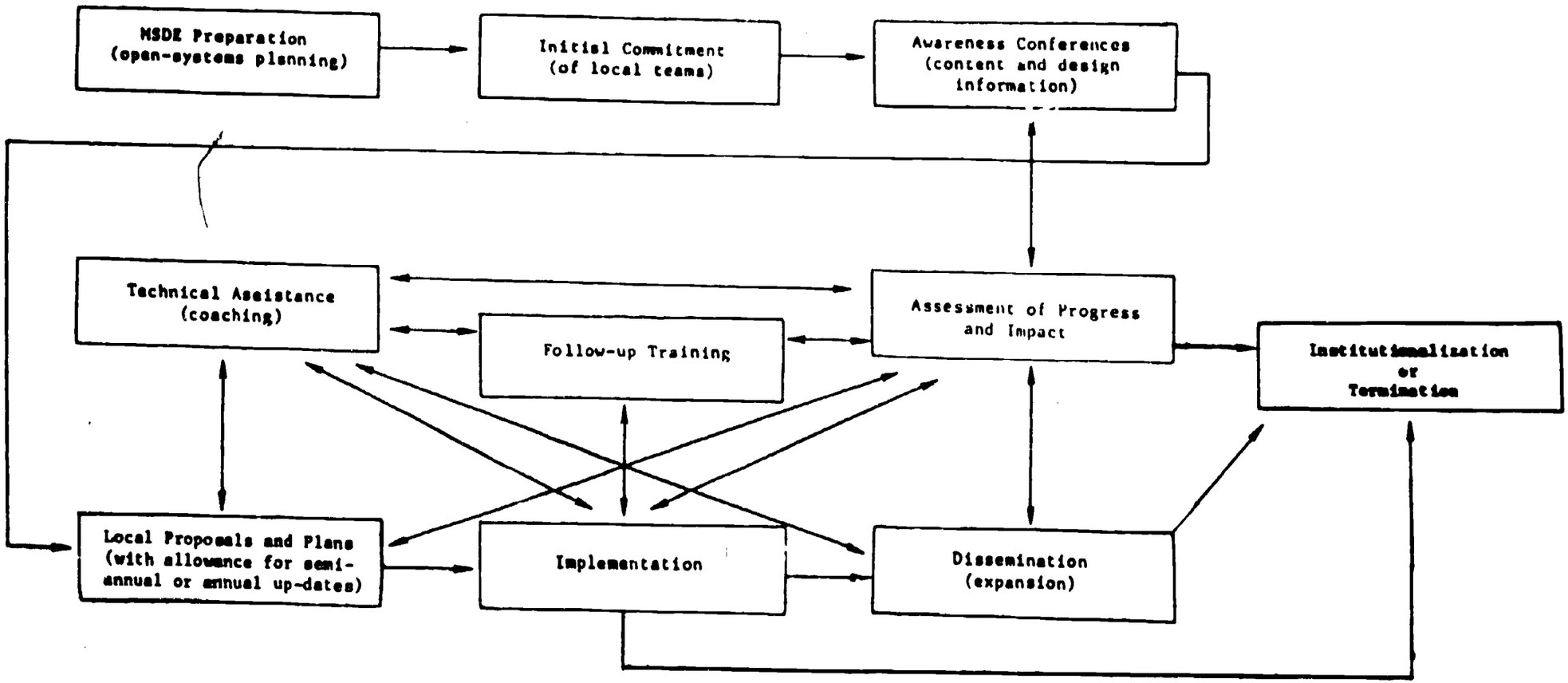

Figure 1. The SITIP Design: An Interactive Model for Program Improvement

local needs, decisions, and actions. After July 1984, "matching" grants were to be made available only for second wave LEAs or for the expansion of programs already in progress.

The Instructional Models

Each of the instructional models is described below.

- Active Teaching (AT) is a system of direct instruction developed by Thomas Good and Douglas Grouws at the University of Missouri. Originally designed for the teaching of mathematics, AT consists of the following components.

  1. Pre-lesson development -- concepts and skills from the previous night's homework are reviewed, homework is checked and collected, and students engage in mental exercises
  2. Lesson development -- prerequisite skills and concepts are briefly reviewed, and new concepts are introduced via teacher explanation and demonstration.
  3. Controlled practice.
  4. Independent, uninterrupted, individual, successful practice is provided in order to increase proficiency in the skills and concepts taught.
  5. Homework -- the homework that is assigned is related to the concepts developed that day.
  6. Review/maintenance -- weekly and end-of-unit reviews help to maintain the skills and concepts that have been taught.

- Mastery Learning (ML), developed by Benjamin Bloom (University of Chicago) and James Block (University of California), combines curriculum alignment and diagnostic/prescriptive instruction with a philosophy that all students can succeed. The essential components of ML follow.

  1. Developing a scope and sequence of objectives, broken down into prerequisite and component skills.
  2. Providing appropriate instruction aligned with the objectives to be mastered.
  3. Testing the students' progress in mastering the objectives through the use of a formative evaluation measure ("no fault" test).
  4. Providing students who have not achieved mastery with additional corrective work in the deficient areas specified by the formative tests, and providing students who have achieved mastery with enrichment activities to reinforce and supplement learning.
  5. Testing final mastery of the objectives with a summative evaluation measure.
  6. Recording student progress in terms of individual mastery of specific objectives. "Mastery" is usually defined as 80% of the students demonstrating success on at least 80% of the objectives in a given unit of instruction.

- Student Team Learning (STL) techniques use peer tutoring and team competition to facilitate student learning. Student Team-Achievement Divisions (STAD) and Teams-Games-Tournaments (TGT) were developed by Robert Slavin and staff at Johns Hopkins University. Jigsaw was started at the University of California at Santa Cruz. The key factors of STL are peer interaction, cooperation, and competition. STAD is basically team learning; TGT is team learning plus competition by ability level; Jigsaw is team learning of specific elements of a program, with regrouping for peer teaching across elements.

- Teaching Variables (TV) was developed by David Helms and staff at Research for Better Schools (RBS). Two variables found to be strongly related to effectiveness of instruction and student achievement were identified: "content" and "time." The "content" variable encompasses the following two factors.

  1. Assessment of prior learning.
  2. Alignment of curriculum objectives and classroom instruction to the testing instrument.

The "time" variable improvement cycle involves the following factors.

1. Measuring student engaged time (SET) via classroom observation.
2. Comparing SET and opportunity for improvement.
3. Reviewing and selecting research-based improvement strategies.
4. Implementing the selected strategies.
5. Using additional classroom observations to evaluate the effectiveness of the strategies in improving SET.

Evaluation Overview

The study addressed five areas: institutionalization, impact, implementation, dissemination, and technical assistance.

While Research for Better Schools (RBS) had primary responsibility for the SITIP evaluation, the design called for LEA and MSDE involvement. Guidelines were developed and MSDE staff reviewed them with LEA teams. Data were collected from MSDE staff and local educators (central office staff, school-based administrators, and teachers) representing the 29 projects at 24 LEAs which involved over 180 schools. Five general methods of data collection were used: observations, interviews, questionnaires, document analyses, and

measures of student attitudes and achievement. Data were analyzed and reports were developed by RBS staff and made available to state staff and LEA coordinators so that necessary modifications and improvements could be made.

State Initiatives and Assistance

SITIP was initially designed by the staff of two departmental units of MSDE, building on the needs and successes of existing programs. Once approved by the state superintendent, plans were reviewed by the MSDE Instructional Coordinating Council (ICC), and it was agreed that SITIP would become a jointly-sponsored program, coordinated by the assistant deputy superintendent (ADS), and supported by the person time of selected division staff with field responsibilities. These staff became the SITIP technical assistants (TAs) who continued their usual tasks, and, for SITIP, reported to the ADS.*

Planning**

SITIP policies and activities were planned by the TA team, with members taking into account local needs and interests. Plans were reviewed, revised if necessary, and approved by the ICC. Operational specifics were negotiated with LEA superintendents and SITIP teams. In general, the SITIP TA team took primary responsibility for leadership and administration of the program, with the ADS responsible to the ICC for maintaining quality and cost-effectiveness.

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* The SITIP TA team, chaired by the ADS, included eight TAs (two per model) drawn from the divisions of Instruction; Certification and Accreditation; Instructional Television; Library Services; Compensatory, Urban and Supplementary Programs; and the Office of Project Basic.

** For a complete discussion of planning, see Roberts, J.M.E., & Kenney, J.L. Instructional Improvement in Maryland: Impact on Educators and Students, and Roberts, J.M.E., & Kenney, J.L. Planning: Its Evolution Through Knowledge Utilization, 1983. (ED232246)

Training

MSDE-sponsored training activities related to SITIP during the 1983-84 year included: (1) a summer institute, (2) an instructional leadership conference, and (3) follow-up workshops. Each activity is described below.

Summer institute. In July 1983, MSDE sponsored a three-day training session which was attended by both "veteran" and "new" SITIP implementers (approximately 200 participants from 23 LEAs). A general overview of SITIP was presented, and SITIP findings were reviewed. (Presenters included the ADS, a TA, and an RBS consultant.) Specific training in a model was provided for "new" educators (conducted by MSDE TAs, and -- for STL -- the developers), and a session on the management of change for "experienced" SITIP participants (conducted by an RBS consultant). Time was also allocated for planning the 1983-84 implementation. Overall, the institute was well-organized, informative, and provided participants with an opportunity to interact with each other. Some new participants felt overwhelmed, while veterans found some activities repetitive. The greatest area of need was for additional learning activities (through intercounty visits, state follow-up conferences, or local inservice for other teachers).

Instructional leadership conference.* In May 1984, approximately 500 participants attended the fourth annual Instructional Leadership Conference.** Most participants were local educators, but the audience also included MSDE

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* In addition to the major conference designed primarily for local educators, another was held the following day for MSDE staff. The second conference consisted of a presentation by Jane Stallings and opportunities for SEA staff to interact with her.

** Previous conferences designed to improve instruction, teacher effectiveness, and planned change were held in 1981 (featuring Bloom, Good, Slavin, and Helms), in 1982 (featuring Rosenshine, Bush, and Joyce), and in 1983 (featuring Louis and Hunter).

staff, state and local board members, educators from private schools, and representatives from institutes of higher education (IHE). Topics and presenters included the following.

- Similarit'es and differences in effective elementary and secondary schools -- Jane Stallings, one hour, all participants.
- Communicating what's good about American education -- Harold Hodgkinson, one hour, all participants.
- Role group responsibilities and curriculum subjects addressed in successful school improvement projects -- LEA teams and RBS staff, nine concurrent sessions of 45 minutes.
- Factors facilitating expansion and institutionalization of school improvement projects -- LEA teams and RBS staff, nine concurrent sessions of 45 minutes.

Both Stallings and Hodgkinson received better than average ratings from participant evaluations, but Hodgkinson was more popular. The small group presentations were rated above average, with the presentations on factors facilitating expansion receiving the highest ratings.

While the conference was a success, there was a problem caused by audience diversity in relative sophistication of knowledge on research and its application for classroom effectiveness. Results suggested that if a fifth annual conference is held, it should be designed to take into account participants' "prior learning," and their attitudes toward the philosophy and concepts influencing SITIP-related activities.

Follow-up workshops. During the 1983-84 school year, four follow-up workshops were conducted by MSDE TAs. Each was designed for local educators implementing a given model, and included information, materials, and activities requested by local participants. Two workshops were conducted for STL, one for ML, and one for TV.*

* There was no workshop for AT because the "lead" MSDE TA resigned in early 1984 and the other AT TA had too great a workload to conduct a follow-up workshop.

Follow-up workshops did not focus on training specific to implementation of the models, but were designed to meet needs expressed by participants or identified through evaluation and on-site observation. ML participants gained knowledge in areas that could possibly improve classroom implementation or program management (e.g., using computers). STL participants gained knowledge that could improve classroom implementation. TV participants gained knowledge that could improve program management. In all cases, there was opportunity for participants to learn about each others' projects and to share ideas. Independent networking was most encouraged for STL.

Overall, participant ratings were good, with STL ratings highest (possibly reflecting the positive affect created at STL events), and ML the lowest (possibly influenced by the more cognitive task orientation of ML events). In general, follow-up workshops included appropriate activities, and provided evidence of the TAs' professionalism and hard work (especially in ML since that workshop was the most complex).

Summary. Training was designed for cross-hierarchical teams, supported implementation of the SITIP models, included information and activities to reinforce content and process, took into account participant needs and interests, involved local teams as presenters, involved outside consultant as presenters (carefully coached by MSDE TAs), and was provided on the understanding that MSDE would provide assistance for LEAs wishing to follow ideas through with a larger number of local educators. The various kinds of training events reinforced each other. One problem was the discrepancy between "veteran" SITIP implementers and those who knew nothing about the program. The varying levels of knowledge were not always addressed to participants' satisfaction. This suggests that MSDE needs to explore

alternative designs for future events. Overall, participant evaluation, process observation notes, and subsequent local, state, and college action provided strong evidence of the value of the SITIP-related training sponsored by MSDE.

Technical Assistance

As stated previously, assistance to LEAs was provided by an eight-person team under the leadership of the ADS. The team carried out planning and training activities and also worked in dyads to provide model-specific assistance to local implementers.

The TA system. The TAs were drawn from various MSDE divisions. The ADS provided leadership, coordinated activities across models, allocated resources, and encouraged voluntary acceptance of tasks to be done.

The TA system was loosely-coupled, decentralized, program-oriented, and made up of highly-autonomous members held accountable for maintaining productive working relationships with LEAs. In general, as a team and within each dyad, TAs made appropriate arrangements to get the work done, usually without interpersonal conflict and without things "falling through the cracks." The quality and quantity of work done were influenced by TA perceptions, by the level of effort invested in specific tasks, and by organizational arrangements within each dyad.

Roles and responsibilities. While all TAs agreed that their major responsibility in the third year of implementation was to help local educators assume primary responsibility for the future of their projects, each dyad defined that responsibility slightly differently.

All TAs except one believed that they served a useful purpose and that their role included: coordinating networking among LEAs using the same model; visiting the various sites to acknowledge successful use and to help plan and

problem-solve; maintaining interest among "veterans;" training "new" implementers (mostly at the July 1983 institute); and encouraging local ownership and independence.

As the initial excitement of SITIP waned, the various rewards perceived by TAs became more integrated into their regular roles. Of the seven TAs who served the full year, one was pleased to see LEAs "standing on their own," three enjoyed seeing students and teachers doing well, four enjoyed the personal contact with local educators involved in instructional success, and five had gained knowledge and skill which helped them in their regular roles. One SITIP TA found no rewards in the role since it was perceived as very different from the regularly assigned role.*

Regardless of the perceived rewards, all TAs experienced some common challenges relating to conflicting demands, communication/learning, and relationships.

The challenge of conflicting demands -- between SITIP and regularly assigned responsibilities -- continued to concern those TAs whose regular role was very different from their SITIP assignments. While all TAs officially had 15% of their time allocated to SITIP each year (about 33 days), in practice their regular supervisors expected priority to be given to regular tasks. Most TAs attempted to combine SITIP with their regular duties. When such conflict was not resolved, its impact was reduced if the TAs redesigned tasks and schedules, or negotiated a reduced workload with the partner for a given model.

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* Over the three years, 13 individuals held the TA role, including two who were "delegated" to the assignment. Four resigned from MSDE (one retiring, the other three accepting positions in other organizations). Two received promotions. Two (including one who resigned) became involved in national-level activities directly related to SITIP responsibilities. One was assigned to provided leadership to a new SITIP-like MSDE project. These kinds of professional "rewards" are fairly common for those involved in TA activities.

The challenge of communication or learning was experienced by all TAs and was strongest for newly assigned staff. They had to learn about a model, local projects, and SITIP processes. They also had to learn the norms of the TA system, how to carry out the new role, and the extent to which (in SITIP) they should or could initiate. While the ADS and partners in dyads helped new TAs by offering reading material, formal communication did not always provide the kind of information needed. Informal communication was greatly influenced by staff/office proximity (opportunity to interact) and personal relationships. Some individual TAs did not become part of that informal system.

The challenge of relationships related to differences between state and local expectation and actions. For instance, in some projects, relationship problems arose when LEA staff expected greater assistance and responsibility for program decisions than MSDE TAs were willing to give.

In general, the challenges experienced by the TAs reduced their level of effort and enthusiasm, but did not out-weigh the rewards of the role, nor the quality of the work done (partly because partners compensated for each other).

During the twelve months ending June 1984, TAs together spent about a total of 202 days on SITIP, addressing the following ten task areas, which are listed in order of level of effort: (1) visiting sites, (2) training, (3) planning, (4) administration and budget, (5) communication, (6) dissemination, (7) general support, (8) knowledge building, (9) evaluation, and (10) materials development.

For each model, between 45 and 55 person days were spent on technical assistance, with the least amount being devoted to STL (which received additional help from the Johns Hopkins developers), and the largest amount to AT

and ML (which had many more participating schools than STL or TV). Individual TAs invested between 17 and 35 days each, with the veteran in each dyad spending slightly more time and taking lead responsibility.

The impact of TA for each model was influenced by the challenges and perceived rewards. In general, TA accomplishments included: providing leadership for a statewide project; providing opportunities for local educators to share and publicize their successes; applying strategies to facilitate implementation in new sites or expansion in old ones; maintaining networks among projects; and developing expertise themselves to apply not only to SITIP but also to other areas.

In addition, the following impacts were observed for each model.

- AT -- combining expertise in AT (process) and in mathematics (content), so that materials and training provided by MSDE reinforced instruction and curriculum at a time when state functional mathematics test scores indicated a need for improvement. The mean rating across role groups of AT TA was 3.05, ranging from 2.94 (teachers) to 4.00 (central office staff) influenced by TA contact with a given role group.*

- ML -- helping local educators to help themselves, in one case simplifying an overly complex project and resolving old issues, in another pressing for real fidelity of implementation or providing more indepth information; for all projects providing a catalogue of locally developed curriculum and training materials. The mean rating across role groups of ML TA was 3.52, with the greatest difference between school administrators (4.14) and teachers (3.29).

- STL -- helping individual teachers by acknowledging their efforts, providing materials, or providing opportunities for them to visit other classes and exchange ideas; encouraging real fidelity of implementation by having project schools host visits from staff from other LEAs. The mean rating across role groups of STL TA was 3.33 (ranging from 2.91 assigned by teachers to 4.75 by central office staff). Specific reference was made by some respondents to the lead TA for her friendly helpfulness.

- TV -- encouraging involvement of central office staff in local projects and helping to improve organizational climate (e.g., through follow-up activities). The mean rating of TV TA across role groups was 3.20 (ranging from 3.02 assigned by teachers to 3.67 by school administrators).

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* Ratings were on a five-point scale with 5.00 as most positive.

The above examples relate to accomplishments resulting from TA actions. Lack of action sometimes had a negative impact, and was related to the role conflict of differing expectations.* For AT, some LEAs would have liked more on-site workshops. However, workshops were not conducted when an LEA appeared to be taking insufficient responsibility for a project. Also, one TA left MSDE in February, leaving the other with a heavy workload and little time for additional training.

For ML, large LEAs expanding their projects would have liked more MSDE support (funds or person time) to help get more done, but did not get it partly because the policy was to fund each LEA equally (regardless of LEA size, implementation strategy, or complexity of the model), and partly because the TA with appropriate expertise was "spread thin."

For TV, some LEAs would have liked follow-up workshops that provided more substantive training, and others stated (rather vaguely) that they wanted "better" TA. These LEAs did not get what they wanted, partly because the TV TAs believed that local staff should take greater responsibility for their projects.

For all models, there were areas of need that could have been addressed by the TAs, but they were not recognized or were recognized at the end of the school year (e.g., specific curriculum or organizational needs in AT, teaching strategies for "correctives" in ML; curriculum exchange and increased systematic involvement for STL; and a much greater emphasis on strategies to improve instruction -- instead of the over-emphasis on coding -- for TV).

Technical assistance evolved during SITIP implementation, beginning with the July 1981 decision to invest MSDE staff time in the role. The greatest

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* Problems specific to lack of TA action for STL were not identified during the school year.

staff stability was for TV, with the same two people involved for almost the full three and a half years. Each of the other models had at least one TA participating for at least two and a half years. There was most change in ML, with two "unofficial" delegates involved for a short time, and "lead" responsibility switching from one person to another.

Staff had to learn about the model, about local implementation activities, about the norms of the TA system and of LEAs, and how best they could provide assistance. All TAs found such learning difficult, with most difficulty experienced in the first few months of involvement, especially by people who did not attend training events conducted by the model developers. Some TAs (especially for STL and TV) initially thought they did not need to develop expertise in the model, but could focus more on processes of implementation. While this caused no problems for STL (since developers readily provided that expertise on request), it had a negative impact to some extent for all models, and effective TAs did invest effort in learning when they realized the need. Usually in the second year, everything "came together" and incumbents "discovered" how to integrate technical knowledge (e.g., related to a model or curriculum subject) with training skills and organizational strategies. While many TAs considered learning as inadequate, little was done to correct the situation, partly because regular roles made heavy demands on incumbents' time, and partly because people often discovered their "need to know" after the fact. As "hindsight," 1984 TAs recommended greater attention to knowledge building, for themselves and for division directors who would thereby better understand the TA role and assign appropriate staff (with "field" experience and regular roles that could be readily integrated with a given model).

The total number of person days invested in Year 1 (June 1981-June 1982) was 175, for Year 2 -- 263, and for Year 3 -- 202. With the exception of evaluation tasks, percentages of time invested varied from year to year, and the specific nature of each task also varied.

- Variation in the number of days spent was influenced partly by local needs, but more by the incumbent TAs. Branch chiefs spent less time on SITIP, finding the tasks conflicting strongly with their administrative responsibilities. Specialists in their first six to twelve months with SITIP spent less time, either because they were learning what to do or because they preferred working on the irregular role assignments.

- Variations in the percent of time invested from year to year, and variations in the specific nature of a task area, were most strongly influenced by local needs.

- The nature of the administrative task changed very little, consisting primarily of distributing and collecting forms from LEAs, allocating funds, and record keeping. The low investment (5%) in Year 1 was due to the fact that much of this work had been done before July 1981 by staff development branch staff and by administrators reporting to the ADS (before the TA system was organized).

- The low investment in planning (3%) in Year 1 was also the result of a great deal of work done earlier by others. Planning related primarily to major training events such as the annual statewide instructional leadership conferences and summer institutes. It also related to MSDE programs similar to SITIP, such as URATE (a training/implementation project involving colleges and universities), and to LEA planning. The nature of planning changed little from year to year.

- Knowledge building consisted of reading and discussing research and practice on the models, classroom and school effectiveness, and planned change, and developing strategies to apply that knowledge. In Year 1, TAs did not do this, relying on their existing knowledge and experience. (Some did attend the 1981 summer institutes, building somewhat on knowledge of the models acquired at the January 1981 awareness conferences, but they did not believe at the time that they needed to become technical experts, thinking of themselves more as process facilitators.) In Year 2, several TAs (especially in AT and ML) decided they "needed to know" and invested 10% of their time building knowledge. By Year 3, with the exception of the two new TAs, this task evolved into keeping up to date or learning about specifics.

- Materials development/identification related primarily to training. TAs made video tapes and/or distributed developers' or ASCD tapes to LEAs, developed handouts for workshops, and distributed copies of relevant articles. In the first year, TAs did virtually none of this,

relying instead on materials distributed to LEAs by developers. In Year 3, for ML and STL, TAs compiled and distributed catalogues of LEA-developed curriculum and training materials.

- In Years 1 and 3, when summer institutes were conducted, 22% of TA time was invested in training. This task included facilitating sessions at training events, conducting workshops, working as partners with local staff in LEAs, and conducting follow-up sessions which (for STL) included classroom visits. In Year 2, most TA training was conducted for new SITIP projects or in LEAs where staff reassignments had resulted in loss of the local trainer or advocate.

- General support included logistical and affective help, often over the phone or in brief encounters (at SITIP and non-SITIP events). Logistical support consisted of providing information, clarifying tasks or issues, making arrangements for site visits, or linking staff or project teams with common interests. Affective support consisted of acknowledging and publicizing successes, and maintaining a positive program orientation. TAs recognized individual teachers' strengths, and encouraged networking by inviting one project to learn from another's success. More time was spent on general support in Year 1 because local staff were getting accustomed to the project.

- Visiting sites took almost twice as much time in Year 1 (40%) as in Year 3 (24%), and the least time in Year 2 (15%), although in each year TAs visited each project at least twice. In each year, TAs observed classroom application (for all models except TV), and talked with representatives of all three role groups about the model and its use. They also engaged in trouble shooting and planning for project improvement, expansion, or termination. Sometimes they participated in local staff meetings or training sessions, or met with administrators to resolve difficulties or share successes. Most help was needed at the beginning of a project. Also, in the first year, TAs were themselves learning how to integrate tasks and manage time most effectively. Those two factors contributed to the high investment in Year 1. Year 2 was a "maintenance/consolidation" period for veteran projects and TAs learned ways of helping LEAs to help each other. Year 3 required decision-making, and TAs again spent more time "on-site."

- Evaluation was undertaken primarily by RBS. TAs invested about the same amount of time each year distributing and collecting surveys and related materials, keeping their own records, and assisting LEAs or RBS in data collection or evaluation design.

- Communication was defined as the interaction among TAs, other MSDE staff, or RBS about SITIP, and included the formal monthly TA meetings or reporting sessions to the ICC as well as more informal communication. This activity took as much as 13% of TAs' time (Year 2) to as little as 8% (Year 3), and was related to knowledge building and dissemination.

- Dissemination was defined as involving or informing others about SITIP, beyond those intended in the original plan. The greatest investment (13% in Year 2) included presentations at regional and national conferences, and training for non-SITIP implementers.

While all TAs engaged in all task areas to some extent, administration and planning tasks were most likely to be undertaken by the administrators usually reporting to the ADS. Other regular roles did not greatly influence task allocation. For instance, contrary to what was expected, library media staff spent no more time on materials than other TAs, nor did staff development branch staff spend more time on training than other TAs. Local program needs and the individual TA's judgement of how he/she should respond were the strongest influences over the three years.

As TAs looked back over the period, they identified changes that should be made if a project like SITIP was initiated again. Those changes are presented here as recommendations.

- Educate MSDE division directors to build commitment to the instructional improvement program, and to assign staff most likely to be successful.

- Assign TAs who can do double duty in field work and/or integrate program tasks with regular role responsibilities, recognizing that most TA time is spent on site visits and training. Avoid TAs who lack commitment, resist the assignment, or are delegated tasks for which they have little knowledge or skill (especially expertise in classroom teaching and project management).

- Develop TA knowledge and skill in organizational analysis; techniques and strategies of project planning, management, support, and evaluation; application of research on planned change; and the model (innovation) and its relationship to current state and local curriculum and instruction priorities.

- Involve TAs in knowledge exchange, informal observation of each other, and exploration of organizational differences and assumptions (in MSDE and the LEAs) in order to understand and use their autonomy effectively.

- Ensure that the 15% to 20% time per person per year allocated to the program is a real commitment (by TAs and their supervisors), and that (in addition to intensive training and planning ahead of time) 40 to 60 person days are spent on support for each model each year.

- Ensure that in working with LEAs, TAs assist local staff in clarifying their purposes; ensure central office staff involvement and support by building a sound knowledge base and visiting schools and classrooms together; spend time on-site early in the project to build a common understanding of the project and state/local roles and responsibilities; develop and maintain good working relationships with local staff; use site visits to engage in cross-hierarchical problem solving and not pro forma monitoring; and apply positive pressure and sound knowledge to ensure rich fidelity of implementation.

- Explore ways for TAs to build bridges across tasks within MSDE.

- Invest more time and enthusiasm in linking implementation of models, and/or linking program knowledge, beliefs, projects, and people with similar activities or task areas.

These "hindsight" recommendations were made on the understanding that they would be in addition to current TA practices that, overall, have had a positive impact on SITIP implementation.

The notion of institutionalizing general technical assistance in MSDE instructional initiatives appears to have won conditional acceptance. That is, if a program director understands the benefits of TA, and allocates funds to support the person time needed, the assistance role will continue. However, as one SITIP TA pointed out, "It's a risky investment if you don't understand it," and most members of the ICC appear likely to continue to assign staff and develop programs in more traditional ways. As SITIP continues for the 1984-85 school year, so TA will continue, although the number of incumbents will be reduced to reflect reduced local needs.

Local Implementation and Impact

From the state perspective, successful implementation of SITIP would occur if one or more of the models were used by many teachers in many schools in all LEAs. The implementation would improve instruction (thereby improving students' achievement and attitude toward learning), increase teachers' effectiveness, prove to be useful for both elementary and secondary instruction in various academic subjects, increase administrators' ability to

manage planned change, and be carried out in such a way that productive working relationships were maintained across role groups. Finally, as state funds were gradually withdrawn, MSDE hoped that local SITIP projects would be institutionalized, or terminated if instruction had not been improved (with that decision based on project results discussed by all role groups).

The goals of improved knowledge, skills, and attitudes for students and teachers were expected by most LEAs. Organizational harmony and administrative skills were not overt local goals. Also, very few LEAs were initially interested in promoting widespread use or systemic institutionalization, although some districts did address those goals after the first year.

Each LEA was expected to implement a model with "fidelity," to involve cross-hierarchical teams in planning and implementation, to send representatives to state-sponsored training events, to interact constructively with TAs and other LEAs implementing a given model, and to provide information relevant to program evaluation and student assessment. Each LEA received up to $5,000 in state funds for Year 1, and up to $3,000 in each subsequent year on condition that the local system provided matching funds.

LEAs were free to choose the model(s) most likely to meet local needs, and to specify their own implementation strategies and the outcomes they expected. Also, each LEA could change plans (e.g., reduce or expand the scope of implementation, terminate a project, or adopt another model), and, in making such changes, was encouraged to make data-based decisions (e.g., referring to students' test scores, teachers' reports, or RBS' studies). If the LEAs reduced their workscope or procrastinated, they were offered assistance to meet their own goals or given the choice of returning state funds for that year.

Implementation Strategies

During Year 1, it became apparent that staff interest was the most influential factor in selection of the model and design of the implementation strategy. While work at the school site was strongly influenced by the complexity of the model, work across the LEA (how much, how it was shared, how workloads shifted among role groups over time) was determined by the strategy. In other words, strategies requiring more work across role groups (and leading to widespread implementation) were initially selected in LEAs where administrators believed that SITIP could address a local priority. More than one model was adopted in some LEAs, sometimes with different strategies for each, and some models were added or deleted after the first year. When implementation was successful, a switch was sometimes made to a more work-intensive strategy. When implementation was less successful, a switch was sometimes made to a less work-intensive strategy or the project faded away.

The four strategies designed or selected by LEAs are summarized below.

- District-wide. All schools at a given level (usually elementary) were involved, with the selected model used for a given subject all the time by participating teachers (at least three per school in the first year, all teachers in subsequent years). This strategy required the most work from the most people, with central office staff enthusiasm and effectiveness important for success. Two projects began with this strategy, and by June 1984 a third was also implementing SITIP district-wide. The largest project involved 33 schools.

- Pilot/District. One to three schools were involved the first year, with strong central office support for school-based activities. Evidence of success led to greater administrative involvement and, in some cases, use of key teachers as turnkey trainers. This strategy was the most feasible, especially for complex models. Five projects began with this strategy, and eight were using it by June 1984. The largest number of schools involved in a pilot/district LEA was 28.

- Capacity Building. Training was conducted by the LEA team that participated in MSDE institutes. Teachers volunteered to "try" the model. There was no formal commitment to follow-up by administrators, although where this strategy was effective an administrator did "energize" the project. Five projects began with this strategy, of

which three faded out during the second or third year. By June 1984, there were three capacity building projects (one having switched from a lighthouse strategy) with 15 schools involved in the largest project.

- Lighthouse. A single school was involved and no commitment was made by central office staff to advocate further use or initiate planning or training for other schools. Success was usually broadcast informally. This strategy put the greatest burden on school staff. There were 20 lighthouse sites initially; 14 by the end of Year 3, seven having evolved into pilot/district sites and one into capacity building. Two ending as lighthouse sites had begun with other strategies. By June 1984, the largest number of schools involved in a lighthouse LEA was three.

For widespread implementation, the lighthouse strategy was least effective, but this strategy was successful (from a small-scale perspective) when the model matched a principal's priority. Capacity building was least effective for maintaining systemic implementation, but did increase teachers' knowledge of an alternative instructional model. Overall, the pilot/district strategy was most effective, particularly for complex models in large LEAs. The district-wide model was successful with less complex models if attention was paid to building the commitment of school-based staff.

Scope, Intensity, and Fidelity of Use

Influenced by the strategy of implementation chosen and by administrators' investment of time and interest, the dimensions of scope, intensity, and fidelity indicate the nature and extent of use.

Scope. Scope of implementation by LEAs in June 1984 is presented in Table 1 and is summarized in Table 2. The 23 LEAs in the state receiving SITIP funds are listed. Since several LEAs implemented more than one model, there were more than 23 projects. Since each LEA determined allocation of SITIP funds, multiple projects within a district were not necessarily equally funded, nor given equal attention. The strategies presented relate to those employed in Year 3. In several cases the strategies used were different from

Table 1

Scope of Implementation by LEA: All Models, June 1984

LEA	Model	Strategy	#of Schools	Type	#of Teachers	#of Students
Allegany	ML	LS	2	O	18	350
Anne Arundel	ML	LS	1	H	5	300
Baltimore City	ML	PD	28	J/M,H	606	22,594
Baltimore County	ML	PD	6	E	32	1,094
Calvert	STL	PD	3	E,J/M	13	375
	TV	PD	3	J/M	18	468+*
Caroline	AT	PD	7	E,J/M	85	2,695
Carroll	ML	PD	5	J/M	7	700
Cecil	AT	PD	25	E,J/M,H	700	13,000
Charles	STL	CB	15	E,J/M,H	116	650+*
Dorchester	STL	PD	4	E	16	425
Frederick	TV	LS	2	J/M	14	350
Garrett	AT	LS	3	J/M,H	20	1,000
Harford	AT	DW	33	E,J/M	671	18,650
Howard	ML	PD	6	E,J/M	35	1,500
Kent	TV	DW	7	E,J/M	52	1,561
Montgomery	AT	LS	1	E	8	250
	STL	LS	1	J/M	7	350
	TV	LS	2	E,J/M	14	400
Queen Anne's	STL	CB	2	J/M,H	23	800
St. Mary's	AT	CB	7	E,J/M,H	62	1,500**
Somerset	AT	LS	1	E	10	300
	TV	LS	2	E,H	12	420
Talbot	TV	LS	1	O	13	250
Washington	AT	LS	No Data			
	ML	LS	No Data			
	STL	CB	No Data			
Wicomico	AT	DW	16	E	154	3,850
Worcester	ML	LS	1	E	8	240
	STL	LS	1	E	4	113

* At pilot middle school.
** Includes some duplicates.

Model: AT=Active Teaching
ML=Mastery Learning
STL=Student Team Learning
TV=Teaching Variables

Strategy: LS=Lighthouse school
PD=Pilot district
DW=District wide
CB=Capacity building

Type: E=Elementary school
J/M=Junior high/middle school
H=High school
O=Other

Table 2

Summary of Scope of Implementation: All Models, June 1984

Model	Projects		Schools		Teachers	
	N=	%	N=*	%	N=**	%
Active Teaching	9	31	E 65 S 28 93	51	1/10	62
Mastery Learning	8	27	E 10 S 37 O 2 49	27	711	26
Student Team Learning	6	20	E 15 S 11 26	14	200	7
Teaching Variables	6	20	E 6 S 10 O 1 17	9	123	5
Total	29	100	E 96 S 86 O 3 185	100	2744	100

* Three schools (two elementary and one secondary) are implementing two models.

** Eighteen teachers are implementing two models.

Schools: E = Elementary
S = Secondary
O = Other

Note: No data available for Washington County (Active Teaching and Mastery Learning).

those originally planned. Expansion was influenced by local success (usually as perceived by administrators). Reduction (or termination) occurred due to minimal impact of SITIP (usually influenced by processes used and environmental turbulence). All types of schools were involved, including two vocational-technical centers, ranging from a single school in one LEA to 33 schools in another. As few as four teachers were involved in a project to as many as 700. The number of students in a project ranged from 113 to 22,594.

Overall, more than 74,000 students were involved. The 182 schools monitored by the study represented about 16% of Maryland's schools. More then 51% were elementary, usually involving students in grades 3 through 5. Both junior/middle and senior high schools were included in the 85 secondary schools. About 2,744 teachers used one or more models: additional teachers were trained within LEAs and used SITIP ideas at their own discretion. A comparison across models indicates that Active Teaching and Mastery Learning were the most widely used (impacting about 56% and 36% of SITIP students, respectively), and Student Team Learning and Teaching Variables the least widely used (impacting about 4% and 5% of SITIP students, respectively). While the relative simplicity of AT facilitated its expansion, complexity was not a deterrent: Mastery Learning was used by 27% of the SITIP schools.

Intensity. The average number of years that teachers were involved in SITIP was 1.6 for AT, 1.8 for ML, and 1.9 for STL and TV (while teachers involved from the beginning participated for three years, mean times were reduced by the large number of teachers in expansion sites). During the 1983-84 school year, teachers used STL for an average of five months, ML and TV for seven months, and AT for close to nine months. AT and ML teachers used

the models for a larger percentage of their in-class time (an average of 51% and 43%, respectively) than teachers using TV (36%) and STL (19%). Consistent use facilitated instructional gain.

Fidelity. Each model required the implementation of certain components. More teachers (91%) implemented all critical components of the AT model than did the implementers of the other three models (ML -- 62%, STL -- 59%, TV -- 46% "time", 18% "content"). With the exception of ML, which was second only to TV in complexity, the more complex the model was to implement, the less the degree of fidelity. The degree of fidelity was also related to the extent of administrator "press" for fidelity of implementation. In those LEAs where administrators encouraged and expected to see fidelity of implementation, more teachers implemented all components of the model. Such "press," plus support provided in Years 2 and 3, probably facilitated the fidelity and intensity of ML (overcoming the uncertain implementation experienced in some LEAs in Year 1).

Administrative investment. The average amount of time invested by a SITIP administrator during Year 3 was 21.05 days, with means ranging from 16.45 days for AT to 26.65 days for ML. Activity areas, in order of priority allocation of time, included: (1) inservice, (2) general support, (3) administration/communication, (4) monitoring/evaluation, and (5) dissemination/expansion. While inservice and support were top priorities for three models, top priorities for TV were administration/communication, and monitoring/evaluation. Time investments and priorities were influenced by the nature of the model and the scope of implementation. Results suggest that success (in terms of instructional gain or institutionalization) is facilitated by administrative involvement in inservice and general support.

In general, the quality of implementation varied. While there were some exemplary sites for all models, there were others where fidelity was low, or application was sporadic. Poor implementation was characterized as infrequent use of a model, pro forma application of parts of a model, lack of actual change in classroom behavior, or isolated teachers carrying out an adaptation as best they could. Excellent implementation was characterized by definable changes in classroom behavior, increased student time-on-task directly linked with aligned curriculum and quality instruction, use of the model regularly and/or for a complete unit or course, and data-based decision-making. In the sites where better implementation occurred, administrators were well informed, supportive, and expressed clear expectations of fidelity and intensity.

Roles and Responsibilities

The SITIP design encouraged participatory decision-making and involvement of all three instructional role groups in an LEA. By the end of Year 2, it was apparent that: (1) teachers involved in MSDE training activities sometimes became instructional leaders, and all teachers involved in SITIP needed time to develop materials, and support and assistance in implementation; (2) school-based administrators involved in MSDE training activities were more committed than those trained by LEAs, and all needed to support teachers' efforts for success; and (3) central office staff, after MSDE training, determined their roles by the extent to which a model met local priorities, contributing most effort through inservice or general support, but contributing relatively little (e.g., only administration) when a lighthouse strategy was used or a model was perceived as more teacher-centered. Commitment of any role group was influenced by the extent to which individuals believed they had been given some area of choice.

In Year 3, participants, particularly the LEA teams that initiated local projects, were aware of each other's relative success and the processes and factors that inhibited or facilitated that success. They were advised by MSDE to consolidate successes, make appropriate revisions, and make data-based decisions to terminate or institutionalize as state funds were withdrawn. Particular attention was to be paid to interactive support and leadership.

Interactive support. Support among LEA participants included exchanging information and materials; providing training, coaching, and trouble-shooting; managing logistics; and recognizing successes. Support from MSDE and developers consisted primarily of training, technical assistance, networking, and trouble-shooting. As in previous years, the effects of visibility (frequency and accessibility of interactions) were apparent, with higher ratings awarded to role groups more visible to teachers. When several role groups were fairly equally visible, expertise and affective and logistical support influenced ratings. In general, developers, who interacted very little with local educators, received the lowest ratings, although STL developers, who were the most visible, were rated slightly lower than ML developers. Overall, MSDE staff received the next lowest ratings (all above average) with the expertise of ML TAs and the locally-responsive networking style of the STL TAs being well-perceived. While school-based administrators were rated somewhat higher than central office staff overall, the range for the latter group across models was much wider than for the former. This indicated that school-based administrators played similar roles, regardless of the model, but roles played by central office staff differed by model in visibility and demonstration of expertise and in affective and logistical support. Support by teachers was rated most highly overall, with lower ratings for AT (which was the least complex model), and TV (which made the

least demands on non-observing teachers), and higher ratings for STL (which was teacher-led in many districts), and ML (which was the most complex model and made considerable demands on teachers).

In comparison to Year 2, overall ratings for each role group were slightly lower, suggesting the diminution of energy which might be expected as institutionalization occurs. Slight increases were awarded to teachers for STL and TV, and to central office staff for ML, which related to extra investments of effort which they made. Below average ratings awarded to TV central office staff were related to the fact that the role group was involved in only two of the projects.

Administrative leadership. Affective and logistical leadership behaviors are presented in Table 3, together with ratings assigned to central office staff and school-based administrators for each of the models. Overall ratings for central office staff ranged from 2.49 (press for fidelity) to 3.99 (demonstrate commitment). Overall ratings for school-based administrators ranged from 2.63 (press for fidelity) to 4.23 (demonstrate commitment). For both role groups, affective behaviors were more evident than logistical behaviors, and organizational process behaviors were more evident than those related to "press." With the exceptions of central office staffs' data-based decision-making, and school administrators' press for fidelity and intensity, all ratings for leadership behaviors were lower for TV than for other models. For all models except ML, ratings were higher for school administrators than for central office staff.

In all cases, affective leadership behaviors were above average.

Logistical leadership behaviors relating to the organizational processes of provision of assistance, coordination of communication, and implementation of data-based decision-making, were above average with exceptions for the last

Table 3

Administrative Leadership Behaviors: All Models, 1983-84

Behaviors	Mean Ratings Assigned									
	To central office staff					To school administrators				
	AT N=94	ML N=81	STL N=43	TV N=53	all N=271	AT N=100	ML N=83	STL N=48	TV N=60	all N=291
Affective										
Demonstrate commitment	4.06	1.32	3.93	3.35	3.99	4.55	4.17	4.00	3.95	4.23
Provide support	3.45	4.06	3.74	3.11	3.61	4.12	3.98	3.82	3.80	3.97
Logistical										
Press for fidelity	2.77	2.64	2.16	2.04	2.49	3.02	2.72	2.10	2.23	2.63
Press for intensity	2.95	2.69	2.33	2.04	2.59	3.28	2.80	2.30	2.32	2.79
Provide assistance	3.39	4.16	3.86	3.00	3.61	3.80	4.09	3.83	3.62	3.85
Coordinate LEA communication	2.97	3.76	3.59	2.69	3.25	3.19	3.40	3.40	3.00	3.25
Coordinate school communication	2.81	3.61	3.37	2.68	3.11	3.57	3.55	3.40	3.30	3.48
Implement data-based decision-making	2.76	4.04	3.30	3.88	3.47	3.09	3.71	3.24	3.17	3.31

Scale ranges from 1.00 (not at all) to 5.00 (to a very large extent).

AT=active teaching; ML=mastery learning; STL=student team learning; TV=teaching variables.

three behaviors for central office staff in AT, and for communication behaviors for TV. Press for fidelity and intensity by school administrators were above average only for AT.

An analysis of variance showed significant differences between the four models on central office support (see Table 4). TV had the lowest, and ML had the highest mean on this index. There also were significant differences between the four implementation strategies on this index (see Table 4). The lighthouse school strategy had the lowest mean, and the pilot/district and district-wide strategies had the highest means on central office support. There were no significant differences between models or strategies on school administrator support.

"Press" indicated administrative expectations of fidelity and intensity, without which teachers could assume that it was acceptable for them to make little or no change. Low administrative press was related to low success and potential project decline.

In several LEAs, leadership was undertaken by teachers (with administrative support). In some cases, teams of key teachers conducted training and coaching, and, for TV, conducted classroom observations. In other cases, individual teachers ran the project, usually in a single school, but in one case across the LEA (with release time to do so). The strongest leadership behaviors of teacher leaders were provision of assistance (when they had been trained at MSDE events), and support (when they believed in the model and had release time to help their colleagues). The weakest behaviors were coordination among schools (when they had insufficient release time and little influence on other schools), and press for fidelity (when they had low

Table 4

ANOVA Results for Central Office Support

Factor	N	$\bar{X}$	F	df	p
1. Model	228	3.30	9.19	3/224	.001
AT	77	3.12			
ML	65	3.77			
STL	37	3.46			
TV	49	2.84			
2. Strategy	228	3.30	10.14	3/224	.001
Lighthouse school	87	2.86			
Capacity building	21	3.19			
Pilot district	91	3.64			
District-wide	29	3.64			

AT = Active Teaching; ML = Mastery Learning;
STL = Student Team Learning; TV = Teaching Variables

expertise in the model or in influencing others). In order to be effective, teacher leaders had to have real expertise in the model and strong administrative support.

Overall interactive support and leadership were good, and for most projects improvements were made over the three years. However, there were problems if reassignments resulted in leaders who lacked expertise or commitment,* if central office staff functioned only as administrators, if principals had priorities addressed by activities very different from SITIP, or if teachers were expected to do most of the work with little support. In contrast, where project teams remained stable and project management tasks were shared, where leadership behaviors were above average, and where expertise in the model helped achieve an existing priority, implementation was smoother, impact was more evident, and institutionalization more probable.

Outcomes

Institutionalization of successful projects was the desirable outcome for Year 3, and indicators were identified to determine the extent to which that was occurring. In addition, impact on students and teachers was assessed to determine instructional gain.

Students. As indicated in Table 5, students enjoyed SITIP classes (with STL being most popular), increased their achievement (most obviously in ML), retained more of what was taught (most obviously for AT), took somewhat more responsibility for their own learning (more so for AT), and, in general, behaved a little better (more so for AT). Empirical data -- summaries of results of standardized tests and analyses of student progress comparing SITIP

* Multiple reassignments -- several key staff changed in one year, or project leadership changed each year -- resulted in loss of expertise and momentum, contributing to project decline.

Table 5

Instructional Impact as Perceived by Survey Respondents: All Models, 1983-84

Impact on Instruction	Models				
	AT N=124	ML N=97	STL N=54	TV N=72	Total N=347
Instructional Value					
Works in the classroom.	4.50	4.35	4.33	4.14	4.36
Is worth the work it takes.	4.29	4.05	3.96	3.82	4.14
Impact on Teachers					
Teachers enjoy it.	4.06	4.02	4.02	3.60	3.94
Teachers have increased knowledge.	4.01	4.24	3.96	3.94	4.02
Teachers have increased skills.	4.05	4.19	3.77	3.92	4.02
Impact on Students					
Students enjoy it.	3.99	4.13	4.47	3.46	4.00
Students' achievement has increased.	3.87	4.04	3.69	3.47	3.81
Students are learning/retaining more.	3.89	3.79	3.63	3.38	3.72
Students' general behavior is better.	3.70	3.55	3.60	3.58	3.62
Students are taking more responsibility for their own learning.	3.56	3.73	3.77	3.31	3.59

Mean ratings range from 1.00 (strongly disagree) to 5.00 (strongly agree).

AT = Active Teaching; ML = Mastery Learning; STL = Student Team Learning; TV = Teaching Variables

classes and non-SITIP classes -- supported educators' perceptions that student achievement was significantly higher when AT or ML was implemented, particularly in mathematics. No standardized test data were provided for STL or TV.

Teachers. Teachers' knowledge of effective teaching and skill in instruction improved.

Impact on teachers and students combined was defined as instructional gain. A one-way analysis of variance showed significant differences between the four models on instructional gain (see Table 6). TV differed from the other models on this index. Results showed that the mean for TV: (1) had the largest deviation from the total group mean, and (2) was the only model mean lower than the group mean.

Table 6

ANOVA Results for Instructional Gain: All Models

Factor	N	$\bar{X}$	F	df	p
1. Model	335	3.93	4.65	3/331	.003
AT	124	4.00			
ML	93	4.01			
STL	51	3.96			
TV	67	3.67			
2. School Type	320	3.92	8.85	1/318	.003
Elementary	160	4.03			
Secondary	160	3.81			

AT = Active Teaching; ML = Mastery Learning; STL = Student Team Learning; TV = Teaching Variables

There were also significant differences between elementary and secondary schools on instructional gain. The mean on this index was significantly lower for secondary schools than for elementary schools. (This may have been influenced by the fact that SITIP models were more often used in the latter for basic skills.)

Schools. As indicated in Table 5, educators agreed that the SITIP models worked in the classroom (with AT most strongly affirmed), and that they were worth the work they took (with strongest agreement apparent for AT).

School organizational outcomes were fairly good, although local "ownership" was only moderate (see Table 7). Policy outcomes (Table 8) indicated that shared management and data-based decision-making were more apparent for SITIP than for other programs. Procedural outcomes (Table 9) indicated that modification of inservice and staff assignments was occurring to a greater extent than allocation of resources and use of local funds. However, other data sources indicated that most LEAs made significant in-kind contributions.

The three sets of outcomes -- organizational, policy, and procedural -- made up the indicators for school institutionalization. An analysis of variance showed that there were no significant differences between models or strategies for school institutionalization.

A multiple regression analysis was conducted to determine which indices (instructional gain, central office support, or school administrator support, or fidelity) were the best predictors of school institutionalization (see Table 10).* Together, the four indices explained approximately 48% of the variance in school institutionalization, which was significant at the .05

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* Seventy-three teachers responded to all five indices and were included in the calculation.

Table 7

Organizational Outcomes: All Models, 1983-84

Outcomes	School N=310	System N=55
Cognitive		
Status of SITIP established.	3.76	3.83
Close to 100% of teachers asked to participate do so regularly.	3.61	3.35
Affective		
Local educators feel "ownership" of SITIP.	3.27	3.24
There is harmony between teachers and school-based administrators about SITIP.	3.87	3.78
There is harmony between school-based and central office staff about SITIP.	3.63	3.95

Scale ranges from 1.00 (not at all) to 5.00 (to a very large extent).

Table 8

Policy Outcomes: All Models, 1983-84

Policies	School		System	
	N	Mean	N	Mean
Management is shared.	76	3.96	58	3.50
Decisions are data based.	313	3.49	57	3.51

Scale ranges from 1.00 (not at all) to 5.00 (to a very large extent).

Table 9

Procedural Outcomes: All Models, 1983-84

Procedures	School		System	
	N	Mean	N	Mean
Inservice modified to support SITIP.	309	3.75	64	3.61
Staff assignments and accountabilities modified.	317	3.73	57	3.35
Resources allocated annually.	315	3.50	57	3.68
Local funds used.	70	3.07	51	3.15

Scale ranges from 1.00 (not at all) to 5.00 (to a very large extent).

level. The strongest predictor of school institutionalization was school administrator support, followed by instructional gain (see Table 10). School institutionalization was also strongly correlated with central office support (see Table 11).

Table 10

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

School system. Institutionalization indicators of outcomes relating to organization, policy, and procedures at the system level are presented in Tables 7, 8, and 9, with ratings given only by administrative and supervisory staff. In comparison to the school level, ratings assigned at the system level for the status of SITIP and for school and system harmony were somewhat higher. Also slightly higher at the system level were data-based decision-making, allocation of resources, and use of local funds. Of some concern were the extent of teacher participation, local ownership, modification of staff assignments, and use of local funds (although the ratings on the latter were somewhat misleading given the considerable investments of in-kind contributions). It should be noted that system-level outcomes were less important in LEAs focusing on a lighthouse school approach. However, from an overall cost-effective perspective, higher ratings were desirable since they indicated greater likelihood of district-wide institutionalization.

An analysis of variance showed significant differences between the four implementation strategies on system institutionalization (see Table 12). Results showed that the mean for the lighthouse school strategy: (1) had the largest deviation from the total group mean, and (2) was the only strategy mean lower than the group mean.

There were no significant differences between the models on system institutionalization.

Correlation among the five indices showed strong direct relationships ($r \leq .50$) between system institutionalization and two indices -- central office support and school institutionalization (see Table 11).

Table 11

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.

Table 12

ANOVA Results for System Institutionalization

Factor	N	$\bar{X}$	F	df	p
Strategy	48	3.60	10.76	3/44	.001
Lighthouse school	12	2.51			
Capacity building	4	3.73			
Pilot/district	24	4.01			
District-wide	8	3.95			

Influences and Plans

Table 13 presents activities planned and influences perceived across all SITIP models. Maintenance and minimal expansion (to other classes or subjects) were the most prevalent activities, with 57.35% respondents planning the former, and 36.93% planning the latter. Expansion by adding components (e.g., for STL or TV) or models was not likely (4.67% and 2.60%, respectively), and neither was reduction (2.33% suggesting termination and 2.65% suggesting a 25% project reduction).

The single strongest influence on plans was student achievement results (62.91%), followed by improvement in teachers' instructional skills (49.65%). Achievement of a local priority and liking for SITIP were about equally influential. The strongest negative influences were funding cuts, with other things taking priority over SITIP (indicated by 3.85% of the respondents), and lack of staff support (2.97%). Less than 10% of the local respondents identified negative influences on any planned activities.

In addition to the influences discussed above, three kinds of environmental turbulence led to changes during implementation which influenced relative success. In some cases, funding cuts stimulated the changes. However, even when that was so, the negative impact was reduced when staff commitment and instructional gain were high enough to stimulate the extra effort needed to overcome cutbacks and setbacks. The three kinds of changes were: (1) staff reassignments resulting in shifts in leadership (which were negative when expertise was lost or communication lags occurred); (2) program changes revising priorities (often positive, leading to SITIP expansion, sometimes negative if administrators involved teachers in multiple projects);

Table 13

Activities Planned and Influences Perceived by Implementers: All Models (N=344)

Type of Activity	% Respondents Planning*	% Respondents Indicating Influential Factors**									
		1	2	3	4	5	6	7	8	9	10
Maintenance											
Maintain current level	57.35	26.81	7.04	10.35	13.73	5.76				.30	
Allow voluntary use	21.80	14.39	2.05	6.26	5.06				.90		.90
Expansion											
Expand - classes,	36.93	0.31	3.57	7.85	11.29	.87		.28			
Expand - schools	12.80	2.04	2.36	1.44	2.02	1.78					
Add component	4.67	1.75	11.69		1.16	.60					
Add a new model	2.60	1.17	.27	.60		.27					
Support											
Conduct inservice	17.45	2.03	2.61	1.17	7.91	1.14	.30		.30		
Provide resources	22.07	4.41	2.33	2.35	8.48	2.03	.60	.28			
Reduction											
Discontinue SITIP	2.33						1.78	.60	1.77		
Reducte activity by 25% or more	2.65										
Totals		62.91	31.98	30.02	49.65	12.45	3.85	1.16	2.97	.30	.90

* Many respondents checked more than one type of plan.

** Influential Factors:
1. High student achievement data indicate SITIP value.
2. SITIP helps achieve a local priority.
3. Students and staff like SITIP.
4. Teachers' instructional skills improve with SITIP.
5. Senior administrators advocate SITIP.
6. Funding cuts: other things take priority over SITIP.
7. SITIP is not cost-effective.
8. There is little staff support for SITIP.
9. Senior administrators have little interest in SITIP.
10. SITIP has very little to do with local priorities.

and (3) organizational changes (negative when SITIP leaders received additional assignments or participants had to learn new systems). When two or more kinds of changes occurred and perceptions of SITIP value were low, the project was likely to decline. However, even when high environmental turbulence occurred, projects survived and made progress when scores were high on the five key indices of successful implementation: system institutionalization, central office support, school administrator support, school institutionalization, and instructional gain.

In Year 4, 21 LEAs will receive state funds to support maintenance and expansion of SITIP projects. In most cases (exceptions include Baltimore City and Baltimore County), new schools will not be added, but additional teachers may become involved and current participants will receive additional training and support. To date, it appears that local educators have given SITIP a fair trial, with some LEAs contributing a great deal more than they felt they received from MSDE. Where their experience indicated that the SITIP models did not meet their needs (or their implementation strategy and processes did not facilitate success), LEAs did not expand, and three terminated. Where instructional gain was apparent and administrative leadership and support helped accomplish outcomes relating to organization, policy, and procedure, institutionalization was more likely. Overall, all LEAs benefited in some way from their involvement.

Summary and Conclusions

Each of the two preceding chapters has included a summary of findings, and various sections of the report have provided background information. Rather than repeat those discussions, this chapter attempts to answer

questions most often posed by researchers, policy makers, and practitioners who are interested in large scale instructional improvement. Most such questions are contained in the overall question:

- If the "bottom line" is instructional gain, and if that is accomplished by bringing about long-lasting, worthwhile changes in teachers' behavior, what are the processes and content to be applied by large systems such as state departments or large school districts?

Since SITIP was informed by the research on classroom and school effectiveness and planned change, the authors of this report believe that the processes, findings, and conclusions are generalizable, and may well prove to be useful to those involved in similar projects elsewhere.

<u>If an instructional improvement program is initiated, what indices should be monitored to gauge the "health" of the program and the probability of eventual institutionalization?</u>

- Indicators of program fidelity and intensity include:

  1. The extent to which participating educators carry out critical components of the program regularly and/or continuously.

- Indicators of instructional gain include:

  1. Impact on teachers: increase in knowledge and skills, positive attitude to the program.

  2. Impact on students: increase in achievement, learning, and retention; improvement in general behavior and the extent to which they take responsibility for their own learning; a positive attitude toward the program.

- Indicators of administrative support include:*

  1. Affective behaviors that...

     (a) demonstrate commitment and belief in the program's value

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* Tasks that are specifically administrative (e.g., budget) take minimal time, and are subsumed under 2c of administrative support.

(b) provide support by demonstrating interest and recognizing teacher success.

2. Such logistical behaviors as...

(a) a "press" for fidelity, monitoring implementation, and expecting a given level of use of the program

(b) a "press" for intensity, monitoring implementation, and helping to ensure that at least three teachers in each participating school use the program regularly

(c) providing assistance by coordinating, training, responding to requests, and providing resources

(d) coordinating communication across hierarchical levels for program review and improvement

(e) implementing data-based decision-making.

- Indicators of institutionalization include:

1. Organizational outcomes

(a) cognitive: the status of the program is commonly understood, clearly stated, and close to 100% of teachers asked to participate do so regularly

(b) affective: local educators feel "ownership" of the program; there is harmony between teachers and school-based administrators about the program; and there is harmony between school-based staff and central office staff about the program.

2. Policy outcomes

(a) management (leadership, advocacy, decision-making) is shared, not reliant on a single administrator

(b) effectiveness is assessed and data are used in decision-making.

3. Procedural outcomes

(a) inservice is modified to support the program

(b) staff are assigned and accountabilities are modified

(c) resources (time, materials) are allocated annually

(d) local funds are used.

- The strongest predictors of school institutionalization are support from school-based administrators and instructional gain. This indicates that the program selected has to be one that really makes a difference in the classroom, and is sufficiently linked to the principal's priorities to influence administrative investment in affective and logistical leadership behaviors.

- District-wide institutionalization is strongly correlated with central office support and school-level institutionalization. The lighthouse school implementation strategy does not facilitate district-wide institutionalization. However, central office support is more evident when pilot/district or district-wide approaches are used, and in programs with high probability of instructional gain.

- If the program selected has proven its value elsewhere, but results in little or no instructional gain at a new site, the fidelity and intensity of use should be assessed. If both are high but apparent for only a few isolated teachers, administrative support needs to be improved and organizational, policy, and procedural outcomes assessed and modified if institutionalization is to occur.

How can a state education agency (or large school system) use a relatively small amount of money to facilitate instructional gain?

- In all LEA-SEA interactions, the SEA should be a supporter or facilitator of instructional improvement, acting on the assumptions that the SEA may influence but cannot control the LEA, and the immediate responsibility for instructional change rests with the LEA.

- Within the SEA, particularly in the early phases of project design, interactive strategic planning should be conducted to establish a clear common knowledge base of local interests, state expectations, and relevant research-based alternatives.

- The SEA can offer grants to participating LEAs, requiring matching funds after the first year, continuing funds after the third year only for expansion of local efforts, and expecting LEAs to attend to program weaknesses identified in annual evaluation reports.

- The SEA should sponsor a series of related training activities, carefully designed to link relevant research and exemplary practice, pre-contracting with LEAs so that expectations and responsibilities are clear, coaching researcher-presenters to meet participants' needs, involving LEAs teams as presenters to publicize successes, conducting

"matching" training activities for state staff and faculty of colleges and universities involved in pre-service, and putting into practice concepts and components of the Joyce and Showers training model.*

- The SEA should use existing organizational mechanisms and modify staff responsibilities for planning and delivery of services, rather than creating new structures or totally reassigning staff.

- The SEA should provide technical assistance to LEAs by establishing a cadre of technical assistants (TAs) with a strong knowledge base, on-going communication and learning opportunities, and time, administrative support, and professional capability to help LEAs carry out the plans designed by local teams.

- The SEA should encourage cost-effective implementation designs that build state initiatives into existing local priorities.

If the innovation is directly related to a local priority, how can an LEA design implementation to ensure that program benefits are greater than investments (of staff, time, and funds)?

- A cross-hierarchical team should be formed that takes responsibility for planning, making decisions, and modifying activities by using information about the relative effectiveness of the program. This team (plus other representatives of role groups) should have a thorough understanding of the innovation so that plans are realistic and policy and practice are interactive.

- A pilot/district or district-wide strategy can be used. In both cases, the goal is for all program eligible teachers to be implementing the model regularly by the end of the third year, and a process of incremental involvement is used. The pilot/district strategy begins by focusing on a very few schools, and expands by school, beginning in each school with the principal's support and an active team of volunteer teachers. The district-wide strategy begins by focusing on teachers (from all schools) with responsibility for a given subject area and grade level(s), and expands by grade level (and sometimes also by subject area). In both cases, awareness training should be conducted for all administrative and supervisory staff before teachers are trained. "First wave" participants should be volunteers to the extent feasible.

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* See Joyce, B.R., & Showers, B. Power in staff development through research on training. Alexandria, Va.: ASCD, 1984. Components of the model include: rationale and theory building (for awareness), demonstration and modeling (for conceptualization), practice and feedback (for skill development), on-site coaching (for application or horizontal transfer), and integrated learning (for executive control or vertical transfer).

- Attention should be paid to the indicators of institutionalization, particularly those relating to organizational outcomes and administrative support.

- Participating teachers should be given release time, and school teams should have common planning time in their first year of implementation, with more time available if curriculum materials are to be developed.

- Classroom instruction should not begin until teachers are prepared to teach a complete unit or course. Stops and starts, sporadic implementation, and low fidelity should be discouraged by team leaders providing relevant coaching or support so that participating teachers can experience success.

- Assessment of implementation processes and instructional gain should be on-going to inform decisions -- replicating successes, and dealing with problems as soon as they are identified.

How can an SEA maintain inter-agency harmony and encourage high productivity?

- The SEA should employ cross-hierarchical and inter-agency planning and decision-making.

- The SEA should put into practice a philosophy of assistance rather than monitoring, and of developmental assessment to make improvements rather than after-the-fact evaluation or pro forma review.

- The SEA should establish clear expectations for local projects and provide relevant assistance, information, and training to help LEAs meet those expectations. The TA should "press" for fidelity and intensity of implementation.

- The SEA should acknowledge local efforts, publicize successes, and facilitate networking.

- The SEA TAs should identify problems in their early stages, and alleviate or resolve them effectively, dealing with individual or organizational conflict and responding quickly to requests for help.

- The SEA should maintain program integrity, fostering beliefs and behaviors that facilitate instructional gain, open communication, and constructive problem-solving.

- The SEA should acknowledge the realities of failure by helping LEAs to terminate unsuccessful projects gracefully, rather than letting them slowly fade away.

- The SEA should acknowledge the interests of the various educational groups, such as colleges of higher education, and design activities to exchange information and/or explore opportunities for collaboration.

- The SEA should encourage real involvement by all role groups, including LEA superintendents, central office staff, school-based administrators, and teachers in exchanging information about program challenges and successes.

- The LEA leadership teams should develop plans through which involvement in the state initiative maintains program fidelity and also serves a local priority. The SEA should suggest revision of plans (or non-involvement) if local objectives are inappropriate to the innovation.

How can technical assistants be most useful in improving classroom instruction?

- If staff are assigned as part-time technical assistants (TAs), they need to form a group that has strong leadership from a senior administrator, and real support from their regular supervisors. The TA group coordinates program planning, communication, and resource allocation, and designs major awareness-level training activities. The group invests energy in achieving program goals (avoiding tangential or pro forma activities).

- Staff selected as TAs should value the program and have regular assignments that can readily be integrated with the improvement project. Their responsibilities should be adjusted so that each TA team (of two or three people) spends 40 to 60 days a year on the improvement project.

- Effective TAs should have a sound knowledge of instruction, curriculum development, staff development, planned change and organizational analysis, and the models/innovations to be implemented. They should be familiar with schools and school systems, particularly those to they which are assigned, and should establish positive productive relationships with those systems, maintaining program integrity in the context of local constraints.

- In order of time invested overall, the following tasks are addressed by TAs: (1) visiting sites to assist and review local implementation; (2) conducting training; (3) developing program activities and planning, at state and local levels; (4) administration and budget; (5) maintaining communication and exchanging ideas within the TA system; (6) building knowledge; (7) providing general support to local educators; (8) disseminating; (9) selecting and developing materials; and (10) evaluation. In a three year effort, most TA time is needed in the second year.

- Three recurring problems should be addressed by the TA group: (1) conflicting demands of regular and project responsibilities, (2) individual opportunity to learn and group attention to effective communication, and (3) differences between state and local expectations of the responsibilities of each organization and the "ownership" of the program.

- From a local perspective, TAs are useful when they are program advocates; provide quality information, training, and assistance relevant to local needs to facilitate rich fidelity of implementation; and engage in cross-hierarchical problem-solving that helps to clarify program purpose, maintain harmony, and contribute to instructional improvement. TAs should support local leadership teams, and acknowledge successes.

How can training activities be most useful in improving classroom instruction?

- The overall design for training should include various kinds of activities for various audiences. In general, trainers should recognize that the more intense the intended outcome, the greater the frequency of trainer/trainee interaction, and the smaller the ratio of trainers to trainees. Also, the less intense the outcome (e.g., awareness), the less investment is likely from participants.

- While participants enjoy the less intense kinds of training activities, they value and are more likely to be influenced by the more intense activities (especially when content is highly relevant). As the project progresses, training activities should increase in intensity, and when participants have "executive control" of the model/innovation, training should stop.

- Training should be directly related to participants' need to know, building on existing knowledge, and addressing current tasks and interests. Pre-contracting clarifies mutual expectations of participants' responsibilities for action following training.

- Training should be designed to be transferred, using a trainer of trainers approach, or expecting district and school teams to follow through on the more intense activities.

- Team training, with common activities for everyone as well as activities for specific roles and for groups with varying levels of expertise, should address both program content and implementation processes.

- Training should be conducted by outside "experts," such as program developers, and by state and local instructional leaders, with each event including trainers from several role groups. ("Outsiders" should be carefully coached about trainees' interests.)

- Teachers who conduct training usually are most successful when they form trainer teams of two or three people. Individual teacher-trainers need strong support from administrative staff.

- The final components of training (on-site coaching and integrated learning) can be facilitated by three-person teams in each school which are supported by a district-wide network.

- While the integrity of the knowledge base (program fidelity and completeness) should be maintained, trainers should be flexible in the delivery of training, modifying methods to meet participants' needs (e.g., using different approaches for different schools).

If the innovation(s) match local priorities, and the research on planned change is applied to facilitate implementation, what is the likelihood of local institutionalization of an externally-initiated program?

- The likelihood of some projects being institutionalized is increased by the use of the research on planned change, but schools are impacted by the constant changes of society. Schools and school systems cannot accurately predict or control the social pressures or environmental turbulence that can change priorities or undermine programs. However, they can select innovations most likely to address the basic business of schooling -- effective instruction -- in which they naturally invest their own efforts and for which external support may be a welcome temporary addition.

- In lighthouse schools, institutionalization is probable if the principal's priorities are addressed, there are no conflicting innovations, and at least three teachers advocate and implement the innovation regularly.

- Institutionalization is unlikely if funds are used primarily for training (a capacity-building approach) with voluntary application by trainees, unless school teams pre-contract and those teams receive follow-up assistance in the context of an administrative "press" for implementation.

- Institutionalization is likely where the indicators (described earlier) are attended to from the beginning of the program, where materials development is essentially completed by the middle of the second year, and where total local ownership is expected by the end of the third year.

If instructional gain is the intended outcome, what kind of innovation is best?

- Instructional gain is defined as (1) increase in teachers' knowledge and skill in effective instruction and a positive attitude toward the program, and (2) increased student achievement and acceptance of responsibility for their own learning, and a positive attitude towards the program.

- Since instructional gain is such a comprehensive construct, it is unlikely to be achieved without careful implementation and planning, a reasonable scope and intensity of use, and application of an innovation designed to achieve such an outcome. The four models used in SITIP were so designed, and careful attention was paid to implementation processes.

- Assuming appropriate implementation and good fidelity, greatest instructional gain is likely if Active Teaching or Mastery Learning are used, with best results in elementary mathematics, or for structured academic subjects in secondary schools. Student Team Learning results in somewhat less instructional gain since educators tend to use it sporadically. Least gain is likely for Teaching Variables since educators tend to use it for assessment rather than for improvement.

Was Maryland's School Improvement Through Instructional Process program a success?

- Yes it was. Furthermore, it continues to be a success since a large number of schools are involved, many educators have increased their knowledge and skill in planned change and instructional improvement, and many students have increased their achievement, participation, and enjoyment through SITIP-based lessons.

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