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ABSTRACT
                The impact of the School Improvement Through
Instructional Process (SITIP) program in Maryland schools was
studied. The program encouraged application of research on planned
change to implement one or more of four instructional models: Active
Teaching, Mastery Learning, Student Team Learning, and Teaching
Variables of "content" and "time." The study addressed four areas:
impact, implementation, dissemination, and technical assistance. The
extent of program impact was measured on educators and students
through the use of questionnaires, interviews, observation, document
analyses, and student assessment. The SITIP design was perceived as:
(1) encouraging collaboration between the schools and the State
Department of Education; (2) increasing communication using a common
knowledge base about school and classroom effectiveness; and (3)
helping local education agencies establish cross-hierarchical teams
with the purpose of improving instruction. The models were perceived
by local educators as having both subjective and objective value.
Teachers' positive opinions had as much influence as standardized
test data in determining program maintenance or expansion. Teachers'
negative opinions or concerns had little influence in determining
maintenance or expansion but did influence the relative impact of the
project. Twelve tables are included. (JD)

Introduction

Maryland's School Improvement Through Instructional Process (SITIP) program encourages application of research on planned change to implement one or more of four researched-based instructional models. The Maryland State Department of Education (MSDE) supports local implementation by providing funds, training, and technical assistance and by conducting evaluation with reports developed so that data-based decisions can be made.* The instructional models used in SITIP are: Active Teaching, Mastery Learning, Student Team Learning, and Teaching Variables. All 24 local education agencies (LEAs) in the state voluntarily implemented one or more of the models.

SITIP is a multi-year program consisting of interactive activities which are outlined below.

1. **Preparation** (open systems planning): Identify needs and potential solutions. Draft a design.

2. **Initial Commitment:** Review plan with LEA superintendents. Get commitment for local team attendance at awareness conferences.

3. **Awareness Conferences:** Have each of the instructional improvement models presented by its developer at awareness conferences attended by LEA teams, MSDE staff, and interested others. Describe design and nature of (voluntary team) involvement.

4. **Local Proposals/Plans:** Help cross-hierarchical local teams draft proposals to implement one or more of the models.

5. **Implementation:** Help LEAs implement selected models using their own strategies but involving representatives of all role groups.

6. **Dissemination:** Encourage use of the models in many schools, and share information about successes between LEAs.

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* Three major evaluation reports will have been written by the time direct involvement by MSDE comes to an end. The first focused on implementation for 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 last, which will cover the 1983-84 school year, will focus on institutionalization.

7.   Technical Assistance: Assign MSDE staff (across divisions) to assist
     LEAs in planning, implementation, and dissemination; to conduct
     follow-ups; and to facilitate networking. Build capacity; do not
     create dependency.

8.   Follow-up Training: Conduct an intensive three-day training
     session on each model for prospective implementers (teachers,
     school administrators, central office staff). Conduct annual or
     bi-annual follow-up training sessions (using participatory planning)
     to maintain quality implementation. Assist LEAs (central office
     staff) in planning/conducting turnkey training.

9.   Assessment of Progress and Impact (cyclic): Have a "third party
     evaluator" collect and analyze data systematically and use (feed-
     back) information to make improvements and publicize successes.

The activities outlined above began in 1980. All 24 LEAs were repre-

sented at orientation conferences. Nineteen LEAs submitted proposals for

implementation through June 1983. For the 1982-84 school years, five "new"

LEAs decided to participate.

The Instructional Models

Each of the instructional models is described here.

* Active Teaching (AT) is a system of direct instruction devel-
  oped by Thomas Good and Douglas Grouws at the University of
  Missouri. Originally designed for the teaching of mathe-
  matics, 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, new concepts are introduced via teacher explanation
  and demonstration, and student comprehension is assessed
  through controlled practice; 3) seatwork -- uninterrupted,
  individual, successful practice is provided in order to
  increase proficiency in the skills and concepts taught; 4)
  homework -- homework is assigned related to the concepts
  developed that day; and 5) review/maintenance -- weekly and
  end-of-unit reviews help to maintain skills and concepts
  taught.

* Mastery Learning (ML), developed by Benjamin Bloom and James
  Block, combines curriculum alignment and diagnostic/prescrip-
  tive instruction with a philosophy that all students can
  succeed. Essential components are: 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 student's 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; and 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 the 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 two factors: 1) assessment of prior learning, and 2) alignment of curriculum objectives and classroom instruction to the testing instrument. The "time" variable improvement cycle involves: 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 strategies, and 5) using additional classroom observations to evaluate the effectiveness of the strategies in improving SET.

Evaluation Overview

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

While RBS had primary responsibility for the SITIP evaluation, the design called for LEA involvement. Guidelines were developed and MSDE staff reviewed them with LEA teams. Each LEA agreed to a coordinated evaluation effort with local staff responsible for collecting and summarizing data from students relating to attitudes and achievement.

3

Data were collected from MSDE staff, and local educators representing the 29 projects at 24 LEAs, involving over 140 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 staff of Research for Better Schools. Reports were made available to MSDE staff and LEA coordinators, and reviewed to determine what, if any, improvements should be made.

State Initiatives and Assistance

SITIP was initially designed by staff of two departmental units of MSDE, building on needs and successes of existing programs. Once approved by the state superintendent, SITIP was reviewed by the Instructional Coordinating Council (ICC) (the state superintendent, assistant deputy superintendent, and MSDE assistant superintendents each responsible for a particular division/ department). ICC members 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), each "expected" to spend about two days a month on the program. They continued their usual tasks, and, for SITIP, reported to the ADS.*

Planning

Within MSDE three types of planning activities occurred: (1) resource allocation and policy making by the ICC, (2) program modification by MSDE divisions, and (3) program development and modification by the TA team.

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* The SITIP TA team was chaired by the ADS and 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.

● Resource allocation: Continuation of TA support was approved for the 1982-83 year (at 10% time for each TA) and for the 1983-84 year (at 15% time for each TA). Local grants were approved, with from $3000 to $5000 available for each LEA, but, for 1983-84, participating LEAs had to provide matching funds. Funding for Instructional Leadership Conferences, follow-up training, and evaluation was also approved, with amounts for the 1983-84 year cut by about 40% (reflecting overall budget cuts).

● Program modification: MSDE division planning was independent and case-specific, involving modification of existing programs to incorporate concepts, strategies, or content of SITIP perceived as valuable and relevant to particular programs. For instance, the Division for Compensatory, Urban and Supplementary Programs used SITIP-related knowledge and processes for their annual state conference (attended by Chapter I coordinators and LEA assistant superintendents). The Division of Certification and Accreditation launched URATE (Utilizing Research to Affirm Teacher Education--URATE), in which researchers (e.g., Berliner, Cohen, Hunter) addressed representatives of institutes of higher education. Also, the 1982 Instructional Leadership Conferences (focusing on staff development) stimulated review of practices in several divisions, with some modifications to increase impact.

● Program development: TA team planning related to all areas of the program, with most attention to training (Instructional Leadership Conferences, Follow-up, sessions and the 1983 Summer Institute); the improvement of assistance to LEAs; and to evaluation. The more complex an area of activity, the earlier the planning began.* In general, an open systems planning approach was used: objectives and target audiences were specified; substance and process were developed together; material and political support were taken into account.

Major outcomes of these planning activities (other than the implementation of the plans) included: (1) a general knowledge of SITIP by most MSDE staff, (2) sufficient commitment or interest by senior and middle management to be willing to explore elements or knowledge bases of SITIP, and to continue (and expand) cooperative support for technical assistance, (3) application of

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* Complexity related to: extent of participant input in planning; process for approval and/or funding; number and variety of role groups involved as participants and/or presenters; number and variety of content areas or models addressed.

7

SITIP-related information, strategies, or processes in various existing programs, and (4) increased knowledge and skills in instructional improvement and planned change by members of the TA team (which informally filtered back into other program areas).

Planning related to SITIP between MSDE and LEAs used several channels, involved various state and local groups, and related to: planning and project administration, implementation, evaluation, and training.

- General SITIP planning and project administration included a requirement by MSDE that each LEA complete a PEPPs (Promising Educational Program or Practices) form. These single-page forms addressed objectives, target audience, staff development, etc., and so served as summaries of local intentions. PEPPs were compiled and distributed to all LEAs, at the request of local superintendents, to facilitate local networking.

- There were few implementation planning initiatives by MSDE, except with the five "new" LEAs.* In general, the focus was on maintaining communication (networking) so that good ideas could be shared across districts. Issues addressed were influenced by findings reported in the evaluation of the first 18 months of SITIP.

- For the 1982-83 school year, LEAs were more involved in planning for evaluation. Of all areas, this one created some planning (and implementation) problems, partly because LEA evaluation plans had to be revised in 1982, and partly because "ownership" and understanding of the design and related tasks were not clear in some cases.

- Planning for training took the greatest amount of time and effort of both MSDE and LEA staff. Statewide events included a three-day Summer Institute (July 1983) for 200 participants, a one-day Instructional Leadership Conference (May 1983) for 500 participants (plus similar events for college faculty and MSDE staff), and four model-specific follow-up meetings.** In

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* Two LEAs chose Active Teaching, and each of the other models was selected by one LEA. The 19 other LEAs had been involved since 1981.

** The Staff Development Branch of the Division of Certification and Accreditation shared responsibility for the Instructional Leadership Conferences. Two SITIP TAs were in that Branch, which facilitated coordination.

addition, TAs conducted training at the request of specific
LEAs. All of these events required careful planning and some
kind of formal or informal needs assessment, evaluation, and
follow-up.

Coordination among events was facilitated by organizational structures
(including the fact that there are only 24 LEAs in the state), but was,
nevertheless, a challenge that was addressed satisfactorily by the TA team.
There were three ways in which LEA staff participated in state-local planning:
review, involvement, and commitment:

- Review: MSDE shared preliminary ideas or di t documents with
  a particular group. Local input was invited and usually
  given as suggestions for minor modifications. Sin. SITI is
  voluntary, any LEA with strong negative reactions to tentative
  plans had the option not to participate.

- Involvement: MSDE invited local input during planning, some-
  times as an informal needs assessment, sometimes through a
  series of discussions with individuals or groups. Local
  influence on MSDE plans was strong, especially for training.
  Sometimes, local involvement was proactive (e.g., by the
  superintendents of the five "new" LEAs).

- Commitment: MSDE requested support through action following
  review and approval of plans. Usually the immediate action
  was local planning based on the state initiative.
  Subsequently, implementation was expected. Commitment in the
  form of public support, acknowledgement, and recognition of
  SITIP successes was also encouraged during planning. Such
  commitment was given (e.g., all superintendents of "veteran"
  sites participated in team presentations at the Instructional
  Leadership Conference) and the general level of implementation
  of plans was very high.

Summary. Planning was flexible, interactive, on-going, and based on an
open-systems approach. Existing organizational structures were used or new
ones developed to facilitate communication and involve various interest groups
in MSDE-initiated plans. Within MSDE and between MSDE and the LEAs, efforts
were made to coordinate activities and to strengthen or integrate existing
programs with SITIP (or SITIP knowledge bases on instruction and planned
change). Planning was timely, made good use of resources and available

expe... ..., invited local participation by role groups and in such ways as to ...ult in hi.. commitment to the program and real (not lip-service) imp ementation a almost all sites. The combination of visible success and volu.. ...y p... icipation also facilitated planning. One particularly st..... influence in planning was the expertise and positi... of the ADS. As chair of the ICC, the Assistant Superintendents' Council, and the TA team, he could facilitate information exchange, and anticipate or design ways to link SITIP and other activities.

Training*

MSDE-sponsored training activit.. related to SITIP during the 1982-83 year included: (1) an Assistant Superintendents' Retreat, (2) an Instructional Leadership Conference, and (3) Follow-up Workshops on each model. Each of those activities led to site-specific activities at some LEAs. The three kinds of activities are described here, participant evaluations are presented, and follow-up activities are outlined. Attention focuses on training of local educators.

Assistant superintendents' retreat. MSDE sponsored a retreat for 24 LEA and six MSDE Assistant Superintendents of Instruction in October, 1982. The retreat focused on recent research on instruction and planned change. Presentations were made on school and classroom effectiveness (Jane Roberts, RBS) and on planned change (Susan Loucks, The NETWORK). During discussion sessions, participants considered how the information presented could be applied to the classroom, the school, and the LEA. Participants found the seminar useful and well-designed. Fifty-two percent of them planned to share

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* Each event summarized here was described in detail in reports developed by
  RBS and submitted to MSDE soon after a given activity. Information was used
  by the TAs in planning subsequent events.

the information with local educators in their school districts. Also, RB planned to use the seminar information to plan and implement change efforts within their school districts in areas such as staff development, curriculum development, and instructional improvement.

Three kinds of activities occurred as a result of the retreat: for LEAs, at the state level, and among TAs. Three LEAs invited the RBS speaker to repeat her workshop session for administrative and supervisory staff. At the state level, Chapter I staff decided to focus on instructional improvement for their annual conference, and invited RBS staff to assist them. SITIP TAs incorporated information and materials into their own follow-up training, and coordinated SITIP activities with other local and state efforts to apply the shared knowledge base on instructional improvement.

Instructional leadership conference(s). A 1983 Conference was conducted with activities coordinated across MSDE divisions in order to meet various program interests. The objectives were:

- to review research on the processes of planned and managed instructional improvement

- to learn the results from 19 Maryland local education agencies which have implemented planned change in SITIP (School Improvement Through Instructional Process) for the last two years

- to consider facilitating quality in teacher effectiveness.

The first objective -- planned change for instructional improvement -- was addressed by Karen Seashore Louis of the University of Massachusetts. The second objective -- SITIP implementation -- was addressed by LEA teams, introduced by their respective superintendents in a series of concurrent small group sessions each lasting 45 minutes. The third objective--teacher effectiveness -- was addressed by Madeline Hunter of the University of California.

9

11

All 500 local participants received as advance reading materials: "Instru tional Improvement: A System-Wide Approach" (Roberts & Smith), and "The Science of the Art of Teaching" (Hunter). Most LEAs provided small-group participants handouts describing their SITIP activities. Some also used their visual aids in their presentations.

Both presenters conducted seminars for MSDE staff the following day. Also, Madeline Hunter conducted a one-and-a-half day workshop for over 100 college faculty.

In general, the conference was successful, particularly the presentations by LEAs and Hunter. While the content of Louis' presentation was valuable, participants reacted negatively to her delivery, which, in comparison to Hunter, was perceived as dry and academic.

Follow-up SITIP training. The SITIP design provides for follow-up training each year for implementers of each model. The purposes of such events are:

- to facilitate networking by bringing LEA teams together to exchange information

- to reinforce, clarify, or expand knowledge and skills needed to implement the model

- to meet needs identified by local team members, including the maintenance of a support group and the continuing development of an up-to-date knowledge base.

Follow-up events included:

- Joint meeting: AT, STL, TV, September 16, 1982 at MSDE

- ML, September 28-29, 1982 at Harpers Ferry (near Frederick County)

- STL, October 22, 1982 in Charles County

- STL, March 24-25, 1983 in Worcester County

- AT, May 17-18, 1983 in Kent County

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Each of the Follow-up sessions led to further communication between some LEAs and the MSDE TAs. In several cases, especially for "new" counties, TAs conducted site-specific workshops, sometimes assisting local coordinators, sometimes directly conducting training. Also, since two TAs (for ML and TV) were in the MSDE Staff Development Branch, their knowledge of SITIP models influenced content of workshops and training institutes they conducted for principals and others not directly involved in SITIP.

Each Follow-up session addressed the general purposes of such events and satisfactorily met participant needs. In all cases LEA progress reports were given, an outside consultant conducted at least one session, and both formal presentations and participatory activities were included. This mix of activities appears to have been well-received, and participants particularly liked learning about others' activities—the more first-hand the better as is apparent from the STL site visits. If outside consultants were involved, they were more successful if they attended to the guidelines negotiated with the TAs.

Summary. Training was designed for cross-hierarchical teams, was directly related to 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 consultants as presenters (carefully coached by MSDE TAs), and was provided on the understanding that MSDE would provide assistance for LEAs wishing to follow through ideas with a larger number of local educators. The various kinds of training events reinforced each other, and MSDE also tried to establish a common knowledge base for all hierarchical levels. Communication

11   13

among TAs and through the ICC facilitated coordination, and influenced training designs and content that reinforced application of research-based instructional improvement and yet did not result in redundancy.

Participant evaluation of events, the subsequent local requests for on-site presentations and assistance, and the scope and fidelity of implementation, provide strong evidence of the value to participants of the SITIP-related training provided by MSDE.

Technical Assistance

Assistance to LEAs was provided by an eight-person technical assistance (TA) 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.

Roles and responsibilities. While all TAs agreed that their responsibility was to help local educators implement the models selected according to LEA plans, each dyad defined that responsibility slightly differently. Here, roles, challenges, and tasks are discussed for the whole team with references to model dyads.

TAs believed that the assistance role included: coordination of networking among LEAs using the same model; on-site visiting to acknowledge fidelity use; training and coaching; trouble-shooting; and information giving. They differentiated assistance to "veteran" LEAs (encouraging independence) and "new" LEAs (building trust, training). They understood their value as outsiders in crossing hierarchical boundaries within an LEA, and were sometimes frustrated when their help was not sought. Differences among TAs resulted in four different dominant role sets: AT -- trainer/coach; ML -- consultant/trainer; STL -- observer/networker; TV -- information linker/

trainer. These differences were influenced by personal style and preference (e.g., AT and ML), by the nature of a model, the relative availability of developers as trainers (e.g., STL), and by the number of "new" LEAs and of "veteran" LEAs in which training was done to encourage expansion (e.g., AT, TV).

Challenges related to conflicting demands, relationships, and reassignments. Conflicting demands -- SITIP vs. regularly assigned responsibilities -- required TAs to make choices. Most TAs looked for ways to combine SITIP with their regular duties. For instance, the mathematics specialist integrated SITIP and regular tasks relating to his subject area and piggy-backed site visits with other field work. Attempts to balance (rather than integrate) roles were less successful, partly because the official allocation of 10% time to SITIP was insufficient, and sometimes because the "regular" role responsibilities were highly demanding or very different from TA responsibilities. The relationships challenge occurred when a TA sincerely wanted to provide assistance in a client-responsive manner, but the LEA suspected that all that MSDE staff wanted was to enforce implementation of their own ideas and programs. A second kind of challenge occurred when key local staff were reassigned: program activities faltered, and TAs needed to provide additional help in training, coordination, and communication.

Ten task areas were addressed. During the twelve months ending June 1983, the TAs spent 263 days on SITIP. Officially, each TA could spend 10% of his or her time on SITIP. In practice, investments ranged from 2% (of the TA who handed over AT responsibilit es in December) to 35%, with one partner in each dyad investing 20% or more and the other partner investing 12% or less (of official workdays). Almost twice as much time was invested by TV TAs (47%) as by AT TAs (25%), with ML (32%) and STL (27%) between those two.

- Administration and budget (5%) consisted primarily of distri-
  buting and collecting forms from LEAs relating to funding and
  to local participation in SITIP training events.

- Planning (10%) related primarily to training.

- Knowledge building consisted primarily of developing expert!se
  in application of research on planned change and one or more
  SITIP models. Four TAs spent between 10% and 20% of their
  SITIP time (up to 8 days) on this, while the others spent less
  than 5%.

- Materials development/identification work was greatest for TV
  training (15% of one TA's SITIP time, about 10 days) and
  minimal for other models.

- Training included both conducting workshops in LEAs and at
  model follow-ups. Five TAs conducted training, with two of
  them spending about 25% of their SITIP time (12-24 days) on
  the activity, and the others spending less than four days.

- General support included over-the-phone assistance, networking
  sites with common needs or interests, and sharing information.
  Each "lead" TA spent between 5% and 10% of SITIP time on this
  activity (between two and seven days).

- Site visits were conducted by six TAs, each spending between
  two and eleven days (10% to 40% of their SITIP time).
  Specific purposes varied.

- Evaluation was conducted by RBS, but TAs determined criteria
  for the design, informed LEAs of their responsibilities,
  clarified RBS' guidelines, helped LEAs develop evaluation
  plans, distributed and collected surveys and reports, and
  arranged for RBS' visits to pilot sites. Four TAs contributed
  to evaluation tasks, each investing between two and five days
  (5% to 10% of their SITIP time).

- Dissemination took up to 15% of a TA's SITIP time (from one to
  14 days) and included: assisting LEAs develop presentations
  for the Instructional Leadership Conference (May 4); referring
  to SITIP or making SITIP-related presentations to key interest
  groups; responding to requests for information from other
  states and from researchers in school improvement and effec-
  tiveness; and making presentations at national meetings such
  as AERA.

Accomplishments of the TA team included: providing leadership for a

statewide school improvement program while at the same time encouraging local

ownership; maintaining communication within MSDE and among LEAs; developing

networks and teaching/learning opportunities for local teams to share successes and build expertise; developing expertise among themselves and applying it not only in SITIP but also in other areas; and incre -ing awareness of effective SITIP practices to researchers and educators outside Maryland. The most apparent impact made by the team related to the statewide training events. By involving others in planning, the team also made an impact in that area.

Impact relating specifically to assistance activities included: increased trust and openness in communication between LEAs and MSDE; increased effort by some LEAs to carry out their plans; better linkage or a clearer common knowledge among hierarchical levels within LEAs; increased involvement by central office staff in some LEAs; changes in planning, decision-making, and/or communication (e.g., more involvement of teachers) in some LEAs.

Impact for each model included:

- AT (trainer/coach) -- better LEA/MSDE rapport, increased expertise and confidence of local educators, modifications made to plans to facilitate continued and willing participation, application of strategies to facilitate expansion, and application of knowledge and strategies to facilitate implementation in three "new" LEAs.

- ML (consultant/trainer) -- better LEA/MSDE rapport, some increased expertise of local educators, application of knowledge and strategies to facilitate implementation in a "new" LEA; and a negative impact in one LEA of confusion in cross-hierarchical communication and inadequate strategizing to overcome problems.

- STL (observer/networker) -- better LEA/MSDE rapport, application of knowledge and strategies to facilitate implementation in a "new" LEA (including accessing the developer), to participate in networking, and facilitate expansion.

- TV (information linker/trainer) -- better MSDE/LEA rapport, application of knowledge and strategies to facilitate implementation in a "new" LEA (including accessing the developer), to increase involvement of central office staff, to maintain or expand implementation, and to decrease teacher resistance and facilitate continued participation.

15   17

The above examples of impact relate to TA actions. One other kind of impact -- local educators' disappointment -- related to TA inaction. Specifically, some LEAs requested assistance, e.g., clarification of evaluation guidelines, and received only part of what they needed. In other instances, LEAs wished that TAs had been more proactive or capable in offering help. In general, what was done by TAs was helpful to LEAs, but in some cases more quality and quantity was needed.

Summary and Conclusions

MSDE initiated a statewide instructional improvement program that offered LEAs choices of exemplary models. The state department established an organizational structure across divisions, using existing expertise and mechanisms to provide coordinated support and to facilitate communication.

Planning activities invited participation acr[o] hierarchies and organi-ional units at the state and local levels. On-going communication about SITIP interacted with related activities in other program areas so that the "   sage" was clear, consistent, and widespread. The "message" was the research-based knowledge on classroom and school effectiveness and planned change.

Through various state-sponsored training activities, all members of the educational community in the state had the opportunity to learn about this knowledge base. LEA teams contributed to the training and learned from each other and from "experts". Training activities were very well received and were followed-up by assistance from MSDE staff.

SITIP TAs worked as a team to contribute to planning, design, training, and provide on-site assistance related specifically to the models. They also

monitored plans, administered grants to local projects, and coordinated evaluation and dissemination activities so that data-based improvements could be made and successes could be widely spread.

The obvious impact of MSDE initiatives and provision of assistance is the voluntary involvement of all 24 LEAs, with all but one providing matching funds for continuation in the 1983-84 school year. The application of research on planned change facilitated the process (e.g., helped build commitment, maintained energy levels). The use of research-based models built credibility, and the provision of choice allowed LEAs to maintain their sense of autonomy. Other areas of impact arising from MSDE initiatives related to communication, coordination, widespread understanding of a common knowledge base, and a high sense of professional achievement on the part of those involved in SITIP.

State initiatives in planning, training, and assistance are recognized by LEAs and also by such nationally-known researchers as Karen Louis who was impressed by such facts as the R&D knowledge base is clear; the role of technical assistants is research based; MSDE is providing quality information/ models with sound research bases; there is provision of training and funds for local implementation with relevant follow-up; LEAs have choices and are building their capacity; and there is attention to monitoring the implementation of state-funded projects. Statements such as these, LEA reactions, and comparison to the literature on planned change and school effectiveness, indicate that Maryland's state initiatives and provision of technical assistance are exemplary.

17

19

Local Implementation and Impact

This section focuses on local implementation of the models: Active Teaching (AT), Mastery Learning (ML), Student Team Learning (STL), and Teaching Variables (TV), examining the following areas: planning, scope and intensity of implementation, time spent and responsibilities shared, impact, and participant concerns.

Planning.

Objectives addressed by LEAs can be divided into four categories: student impact (objectives 1, 2, and 9); training (objectives 3 and 4); teacher impact (objectives 5, 7, and 8); and curriculum alignment (objective 6). (See Table 1.) The level of achievement varied across the four categories, with the highest level in curriculum alignment followed by training, teacher impact, and student impact. These results are strongly influenced by the amount of time and effort that educators spent on the objectives. For instance, educators have been working on curriculum alignment for Project Basic since 1979 and so have a sound foundation on which to build. Local achievement of training objectives was influenced by the fact that provision of information and training for SITIP began in 1980 and has been strongly reinforced by both MSDE and LEA activities since that time. Changes in teachers' behavior have arisen from that training, and achievement of objectives in this category was strongly influenced by the interactive support provided by LEA team members. The three objectives relating to improvement in students' achievement and attitudes can only be achieved after the other categories of objectives have been accomplished. These findings re' force those of other school improvement studies which have found that major changes affecting students take from three to five years to bring about.

Table 1

Status of Objectives: All Models, June 1983

Local Objectives	Number of Projects Addressing Objectives					Status**		
	Total N=29	AT N=7	ML N=7	STL* N=8	TV N=7	% of Projects		
						1	2	3
1. Improve student achievement (basic skills).	26	6	7	6	7	23	50	27
2. Improve student achievement (other subjects).	22	3	6	7	6	45	45	10
3. Inform local educators about model.	27	6	7	7	7	11	33	56
4. Train educators about model.	26	5	7	8	6	4	61	35
5. Improve teachers' classroom competence.	29	7	7	8	7	3	59	38
6. Ensure match of instruction, curriculum, and tests(s).	18	1	7	4	6	0	39	61
7. Help teachers become better organized.	27	6	7	7	7	4	66	30
8. Improve time-on-task.	25	6	7	5	7	8	56	36
9. Improve students' involvement in learning (motivation).	23	6	5	7	5	13	48	39

* Prince George's County did not submit data on status of objectives in June 1983.
** Status: 1 = Hoped for
        2 = Partly achieved
        3 = Achieved

21

Scope and Intensity of Implementation.

During the 1982-83 school year, all 24 school districts were involved in SITIP, 20 implementing a single model, three implementing two models, and one implementing three models. (See Table 2.)

There were six AT projects, seven ML projects, nine STL projects, six TV projects, and one combined AT-TV project for a total of 29 SITIP projects across the state. Over 986 teachers and 34,955 students in 139 elementary and secondary schools were involved in SITIP. Of the 139 schools involved, 65% were elementary, 34% were secondary, and 1% were "other" (i.e., K-12, vocational-technical). Fifty-two percent of the schools, 58% of the teachers, and 69% of the students in SITIP were using the AT model. More than 11% of Maryland's schools were involved in SITIP (AT -- 6%, ML -- 1%, STL -- 3., TV -- 1%). (See Table 3.)

LEAs selected one of four implementation strategies: (1) district-wide, (2) pilot-district, (3) capacity building, and (4) lighthouse school. The lighthouse school strategy was the most popular (16 projects), followed by pilot district and capacity building each used for five projects, and district-wide used for three projects.

There was a relationship among the implementation strategy used, the nature and extent of central office staff involvement, and the extent to which the model(s) used were perceived by central office staff to fit LEA priorities. For instance, the district-wide strategy required central coordination and considerable central office staff involvement, and was used where the model fit closely with a local priority. The pilot-district strategy was not quite as demanding and (with the exception of two LEAs) was used where the model fit local priorities.* The lighthouse school strategy, implemented as

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* In both cases (of exception) the model as implemented did not support local priorities: expansion was curtailed and central office support was low.

Table 2

Scope and Intensity by County: All Models, Time 1(?)

County	Topics	Strategy	# of Schools	Type	# of teachers	# of students
Allegany	ML	LS	1	O	22	80.?
Anne Arundel	ML	LS	1	H	?	?
Baltimore City	ML	PD	5	J/M, H	150	3,33?
Baltimore County	ML	LS	3	E	13	3??
	STL	PD	2	E, J/M	9	?
Calvert	STL	LS	3	E, J/M	1?	300
	TV	LS	3	J/M	2?	5,??
Caroline	AT	LS	2	E	5	3??
Carroll	ML	LS	1	J/M	2	161
Cecil	AT	PD	17	E, J/M	5?	?,??
Charles	STL	LS	10+	E, J/M	17*	65?
Dorchester	STL	PD	7	E	9	1??
Frederick	TV	PD	2	J/M, H	15	600
Garrett	AT	LS	?	H	1?	??
Harford	AT	DW	34	E, J/M	?6	19,17?
Howard	ML	LS	1	J/M	9	26?
Kent	TV	DW	-	E	32	6?6
Montgomery	AT	LS	1	E	9	1??
	STL	LS	1	J/M	10	?
	TV	LS	1	J/M	?	300
Prince George's	STL	CB	No data			
Queen Anne's	STL	CB	1	H	23	900
St. Mary's	AT	CB	5	E, J/M, H	27	1195**
Somerset	TV	LS	1	E	8	217
Talbot	TV	LS	1	O	4	80
Washington	STL	CB	14	E, J/M, H	20	600
Wicomico	AT	DW	12	E	43	1100
Worcester	ML	LS	1	E	4	75
	STL	CB	4	E, J/M	16+	400

*Ma... Hous... Middle School only
**... ... ... duplicates

Topics: 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
J/M=Junior high/middle
H=High school
O=Other

Table 3

Scope and Intensity Summary: All Models, June 1983

Models	Projects*		Schools**		Teachers		Students	
	#	%	#	%	#	%	#	%
Active Teaching	7	24	72 E 52 S 20	52	572	58	24,037	69
Mastery Learning	7	24	13 E 4 S 8 O 1	9	203	21	4,603	13
Student Team Learning	8	28	42 E 28 S 14	30	113	11	3,732	11
Teaching Variables	7	24	12 E 6 S 5 O 1	9	98	10	2,583	7
Total	29	100	139 E 90 S 47 O 2	100	986	100	34,955	100

  * Although Prince George's County implemented STL in abcut 10 schools, no
    "hard" data were available at the end of the school year Therefore,
    this LEA is not included in these results.

 ** One school is implementing two projects -- AT and TV. It is counted once
    under TV.

Schools: E = Elementary
           S = Secondary
           O = Other

designed at all sites, required a fit between the model and the school's
priorities (not necessarily the district's priorities), and central office
administrative support. Expansion occurred beyond the lighthouse site only
when: (1) there was impact on student achievement (objective value); (2)
teachers liked the model (subjective value); and (3) central office staff
provided additional support (usually to make the necessary arrangements for
staff in other schools to attend training). The capacity building strategy
was centrally coordinated in two LEAs and school-based at three sites, with a
fit between the model and LEA priorities at only one of the latter. The
greatest weakness of this strategy was that once teachers were trained, in
most cases they had high autonomy and low interactive support (reflecting low
involvement of central office staff), and the fidelity and frequency of
implementation was not as great as for other strategies.

These findings suggest that the closer a model was to existing LEA
priorities the more likely it was to draw central office involvement, and sub-
sequently lead to strong and widespread classroom use. Conversely, when the
model did not fit a district priority, it could be well implemented in a
school where it fit that school's priorities but was not likely to be widely
used, and its survival depended more on the individual teachers involved.
Implementation strategies initially selected by LEAs reflected the amount of
energy and commitment of local educators which was based on the fit -- as they
perceived it -- between the model and their priorities. If, subsequently, it
became apparent that the fit was greater or smaller than at first perceived,
the strategy was changed.

Fidelity relates to the extent to which teachers implemented the models
as designed. AT had the greatest fidelity, with 72% of the teachers
implementing all six components, as compared to ML where 23% of the teachers

23

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carried out all ten components, and STL where 33% of the teachers carried out the five required components. For AT, no single component was addressed by less than 88% of the teachers, as compared to ML (52%) and STL (76%). For TV, the majority of the educators (62%) implemented the time variable. Most of the teachers (72%) had been observed by principals and vice-principals, and 45% reported strategizing during staff meetings.

Time Spent and Responsibilities Shared.

This section summarizes the amount of time spent on SITIP activities for all four models by each role group during the 1982-83 school year.

The average number of months' involvement by teachers for three models (AT, ML, TV) was eight months, with no one involved for less than five months. AT implementation was continuous for the specified number of months. With the exception of some ML sites, teachers did not use ML and STL continuously during those months. TV teachers were usually observed at the beginning and end of the time, applying improvement strategies in the interim, if appropriate. During the period that teachers were directly involved, the average time spent during a given week ranged from 21% (STL) to 39% (AT). For three models (AT, ML, STL) elementary teachers spent less time (15% to 23%) than did secondary teachers (23% to 51%). This reflected the fact that elementary teachers used a model for only one or two curricular subjects, while any secondary teachers involved used the model for his/her subject area specialty with a relatively large number of classes. For TV, secondary teachers spent 19% of their time and elementary teachers spent 33% of their time teaching subjects for which "time" observations were conducted o the "content" variable addressed. This reflected the higher credibility which the TV data base had among elementary teachers.

In order of investment of classroom time, models were: AT, ML, TV, STL. Investment varied from one site to another, influenced strongly by administrative decisions and the amount of development work completed in the first year. Factors working against high investment of classroom time included: (1) need for materials (STL, ML); (2) need for preparation time (ML, STL); (3) pressure to cover the curriculum in a given amount of time (ML, STL); (4) relative suitability of a model to the curriculum (STL); (5) relative suitability of a model to a grade level (TV, secondary); and (6) negative experiences in early implementation which were not totally resolved by local administrators (some sites for AT and ML, perceived most strongly for TV). Factors facilitating high investment included: (1) availability of materials (ML, STL); (2) low complexity of the model (AT); (3) suitability of the model to a curriculum and grade (AT); (4) successful application experienced by teachers early in the project (AT, STL); and (5) successful application facilitated by local administrative support (all models in some sites, but perceived most strongly for STL).

The average amount of time invested by <u>central office staff</u> and <u>school-based administrators</u> ranged from nine or ten days for AT and STL, to 23 days for ML. Individual administrators spent as few as two days on SITIP to an almost full-time commitment. With the exception of TV, central office staff spent almost twice as much time as school-based administrators. In all cases, combined time of administrators was invested least in materials identification and/or development. For three models (AT, ' STL) most combined time was spent on supporting school implementation and , stration. The ther three areas of activity -- inservice, dissemination, evaluation -- took relatively little time. Since appropriate materials were essential for ML and STL, and since administrators invested so little in this activity, classroom use was

reduced unless teachers already had materials or were given release time for development. Given teachers' concerns and needs relating to TV, greater investment in support (rather than administration) was desirable at some sites.

Interactive support included both logistical and affective support: information exchange; training (both traditional inservice and one-on-one coaching); provision of materials and other resources; arrangements for teacher release time; assistance in development of quality materials, tests, record-keeping systems, etc.; acknowledgement and publication of success; and supportive use of feedback to encourage improvement. Support was rated for all role groups by the three local role groups (on a five point scale, 1=very poor, 5=excellent), and results are presented for all four models in Table 4. While ratings of developers' support are relatively unimportant at this stage of implementation, the somewhat low ratings for central office support (below average -- 2.98 -- for TV, to 3.82 for STL) are of concern where projects are not school-based, and where the LEA expects SITIP implementation beyond a single school.

Impact.

This section discusses impact for all models on school systems, central office staff, schools, school administrators, teachers, and students.

As can be seen in Table 5, the most common impact at the district level was the commitment and sharing among educators (reported for AT and ML) which was encouraged by the SITIP design. Also, for two models, policies were put into practice to facilitate implementation and encourage institutionalization.

Knowledge of a new teaching or observation strategy was noted by central office staff for all models, plus acknowledgement of AT's influence on improving organization for instruction. The strongest area of impact at the

Table 4

Perceptions of Support Received: All Models, 1982-83

Models/Respondents	N	Teachers	School Administrators	Central Office Staff	MSDE	Developers
Active Teaching	112	3.79	3.83	3.79	3.61	3.24
Mastery Learning	75	4.11	3.95	3.81	3.64	3.21
Student Team Learning	86	4.12	4.12	3.82	3.94	3.72
Teaching Variables	61	3.74	3.64	2.98	3.29	2.90
Totals	334	3.94	3.90	3.65	3.90	3.29

Mean ratings range from a low of 1.00 (very poor) to a high of 5.00 (excellent).

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Table 7

Impact of Implementation on Administration
Schools, and Districts: All Models, 1982-83*

Impact**	Role Groups and Models															
	School Systems				Central Office Staff				Schools				School Administrators			
	AT	ML	STL	TV	AT	ML	STL	TV	AT	ML	STL	TV	AT	ML	STL	TV
Knowledge of a new teaching strategy		?			?	3	3				3	4	3	5	3	
Knowledge of time-on-task																?
Knowledge of effective observation/ supervision method/criteria								5					?			3
Knowledge of learning (theory, practice)						?										
Belief in traditional teaching													2			
Commitment/sharing among educators	?	4								5	2	3				
Continuity/consistency across classes									4							
Interest/enthusiasm of students/teachers (e.g., in subject area)									2		4					
Better management, organization or instruction					?							?	?			
Appreciation for teachers, recognition of success											3		2	?		
Support (e.g., arranging common planning time) for teachers										4						
Closer monitoring of teaching									?							
Policy to release teachers to train others or coordinate project		?														
Policy to implement for a given subject or grades	3															

* Reported in number of LEAs:
   Active Teaching N=7, Mastery Learning N=7, Student Team Learning N=6, Teaching Variables N=6.

** Impact areas reported only when stated by two or more LEAs for a given model.

28

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sch ol level was sharing among educators, with continuity and consistency across classes. Interest, appreciation, and support were valued, as was closer monitoring and better organization for instruction. Principals and other school-based administrators for all models valued new teaching or observation strategies, gained an appreciation for teachers' capability (AT, ML), and strengthened their belief in traditional teaching (AT). The impact of involvement in SITIP, in terms of teachers' understanding the models and improving their teaching ability, is summarized in Table 6, with the percent of teachers noted for each area of impact for each model. The relatively low perceived impact of TV may have been influenced by the amount of training, by the number of teachers who were found to have satisfactory engagement rates (time-on-task) and therefore saw no need to change, and/or by the interactions between observers and teachers.

Table 6

Percent of Teachers Impacted by Involvement: All Models, 1982-83

Impact Models	AT	ML	STL	TV
teachers understanding model	72	73	80	64
teachers improving teaching ability	66	64	50	28
teachers seeing no change in teaching ability	13	16	27	36

Each of the three local role groups rated impact on teachers in terms of enjoyment, increased knowledge, and increased skills (on a five poi.. scale where 5.00 = strongly agree). Responses are summarized in Table 7. Mean

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Table 7

Instructional Impact as Perceived by
Survey Respondents: All Models, 1982-83

Impact on Instruction	N=	Models				
		AT 122	ML 76	STL 89	TV 63	Total 350
Instructional Value						
Works in classroom.		4.47	4.35	4.42	4.00	4.35
Is worth the work it takes.		4.29	3.85	4.18	3.73	4.07
Is a worthwhile teaching approach.		4.38	4.28	4.43	3.79	4.26
Impact on Teachers						
Teachers enjoy it.		4.02	3.77	4.17	3.56	3.92
Teachers have increased knowledge.		4.08	4.08	4.14	3.60	4.01
Teachers have increased skills.		4.05	4.08	4.06	3.51	3.96
Impact on Students						
Students enjoy it.		3.88	4.09	4.37	3.52	3.99
Students are less disruptive.		3.88	3.16	3.65	3.11	3.62
Students' achievement has increased.		3.59	3.76	3.76	3.08	3.58
Students are learning more.		3.61	3.67	3.60	2.81	3.48
Students' general behavior is better.		3.73	3.09	3.57	3.08	3.43
Time						
Teachers spend more time preparing students.		3.09	4.01	3.93	2.69	3.43
Teachers cover curriculum in less time.		3.13	2.51	2.56	2.79	2.79

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

31

ratings in all cases indicated that impact on teachers in all areas did occur to some extent, with greatest certainty among local educators for STL and least for TV.

More specific kinds of impact on teachers, in terms of increased knowledge and skills and strengthened attitudes, are summarized in Table 8. For each kind of impact for each model, the number of LEAs where that impact was found is presented. Since most LEAs hoped that teachers would improve skills relating to instruction, impact in that category is particularly important. Since each model emphasizes particular activities, comparisons are not always relevant. However, the first three skill areas listed are addressed by all four models, and results indicate that a large number of LEAs found that teachers made improvements in teaching/observing, classroom management, and assessing and addressing student needs. For three models (AT, ML, STL), these results indicate that in 50% or more of the LEAs, impact on teachers reflected the objectives or claims of the model(s) implemented. For TV, appropriate impact was weaker (e.g., knowledge of time-on-task in 33% of LEAs, skill in effective use of time in 33% of LEAs), which may be related to the fact that 46.8% of teachers did not need to make changes to improve time-on-task, or may have been influenced by the strategizing for improvement (only 44.7% of teachers were involved in team strategizing). In general, impact on teachers was positive and clearly related to the model(s) implemented.

Impact on students as perceived by local educators is presented in Tables 7 and 9. For each kind of impact for each model, the number of LEAs where that impact was found is presented. Across all models, the strongest areas of impact perceived by local educators were: improved student attitudes toward learning and school and about their ability to learn; increased student achievement as indicated by test scores, and mastery and retention of facts

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Table 8

Impact of Implementation on Teachers: All Models, 1982-83

Impact: teachers have...	Models			
	AT	ML	STL	TV
N* =	7	7	8	6
Increased knowledge				
-of components or procedures of effective teaching	7	5		2
-of time-on-task				2
-of curriculum alignment and program		4		1
-of research and learning theory		3		2
-about teaching and learning through staff development/observation			3	
Improved skills				
-in a new teaching/observation technique	5	7	7	5
-in classroom management/organization/planning	6	7	6	3
-in assessing and addressing student needs	6	3	4	3
-in specific components of effective teaching	3	4		
-in effective use of time	7			2
-in use of peer tutoring			1	
-in working with students (e.g., motivation)			4	
-in curriculum development		1		
-in instruction	5			
Strengthened attitudes/perceptions				
-about teaching	3	6	7	4
-of teachers' confidence or self-image	3	2		
-of the value of traditional teaching	2			
-of the value of specific components of effective teaching	1	4		
-that the larger group must be emphasized	3			
-of what students can accomplish		4		
-of how well students can work together			5	
-of the importance of keeping students on task				2
-that teachers must teach every day	2			

* N is the number of LEAs implementing a given model.

36

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

Table 9

Impact of Implementation on Students: All Models, 1982-83

Impact on Students	Models			
	AT	ML	STL	TV
N* =	7	7	9	6
Improved attitudes or awareness				
-about their learning ability	3	5	3	
-about their learning responsibilities	2	2		
-about learning/school	7	4	8	2
-of their strengths and weaknesses		3		
-about tests		2		
-about classroom behavior/time-on-task				4
-of teacher interest				1
-of value of being organized				1
Increased achievement				
-in test scores	5	5	4	3
-in grades	1	1	4	
-in general		1	2	
-in mastery/retention of facts and skills	4	4	3	
-in problem solving and conceptual understanding	2	1		
-especially for lower achievers		1	2	
Benefitted from better instruction which provides				
-a structured, consistent format	4	5		
-a clear understanding of teacher expectations	4	2		1
-a greater variety of activities			3	1
-effective learning activities	3			
-a more complete instructional program			1	1
-better use of time/more materials covered	4			
-opportunity for independent work	1			
-opportunity to relearn (after "no fault" test)		3		
-opportunity to advance			1	
-special benefits for slower students	1			
-more individualized instruction	1			
-peer tutoring/working in groups			3	
-large group instruction	1			
-more organization				1
-more attention to academic content				1
-fewer gaps in skill development		1		
-competition			1	
-less pressure		1		
-recognition of success			1	

* N is the number of LEAs implementing a given model.

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

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and skills; and benefits derived from instruction in a structured, consistent format with a clear understanding of teacher expectations. In general, educators offered statements indicating that ML, AT, and STL had somewhat more impact on students than TV.

Student attitude data were summarized   projects using either a brief questionnaire or a longer inventory (Learning Environment Inventory for grades 5-12, My Class Inventory for younger students).* The questionnaire was used for three models by seven LEAs (Allegany, Baltimore County, Carroll, Cecil, Dorchester, St. Mary's, Worcester). Results were positive for all items at all sites. Students knew the difference between SITIP and regular instruction. They found the lessons relatively easy, enjoyed and understood them, considered that in comparison to regular lessons they were better, and students learned more and got better grades. Overall, this last criterion (better grades) and the first (ease of lessons) drew the least certain responses from students, with the total mean on those items pulled down by responses from older students (grades 4-12) -- possibly because they are more discriminating than younger students. In general, mean scores for STL were higher than for the other two models.

Results of the inventories (Anne Arundel, Baltimore City, Caroline, Charles, Worcester) indicate that the means for each project and across the three projects were better than national norms for secondary students on four

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* The Learning Environment Inventory (LEI) measures 15 dimensions, eight of which were relevant for assessing impact on student attitudes. Four dimensions are included in the My Class Inventory (MCI). Each is defined: Competitiveness--Students compete to see who can do the best work; Satisfaction--Students enjoy their class work; Difficulty--The work of the class is difficult; Friction--There are tensions among certain groups of students that tend to interfere with class activities; Disorganization--The class is disorganized; Apathy--Failure of the class would mean little to individual members; Favoritism--Certain students are favored more than the rest; .nvir·nment--The books and equipment students need or want are easily available to them in the classroom.

dimensions: satisfaction, difficulty, apathy, and environment. There was room for improvement in relation to friction for all sites, for favoritism at all secondary sites, and disorganization at two secondary sites. There were no significant differences between models, regardles of the fact that STL is designed to reduce friction and avoid favoritism.

Cognitive achievement data from standardized mathematics tests were reported by four projects -- one in AT and three in ML. In all cases, gains were greater than normally expected, with most significant improvement found for low or middle a nieving students. Eight projects reported data based on teacher-made criterion-referenced tests (AT=2, ML=4, STL=2). In most cases, SITIP students did better than students in "regular" classes, with gains made most consistently by below average students. Data supported claims for ML that at least 80% of the students achieved mastery (established at 80% or more of the course objectives mastered).

These results support developers' claims for AT, ML, and STL. However, direct cause-and-effect conclusions should be made with caution, attending to the nature and extent of implementation relating to a given set of results.

Participant Concerns and Recommendations.*   .

Concerns were reported by participants of all projects, and were categorized as being related to the model(s) or to the general process of implementation. (See Table 10.) Most model-specific concerns related to management -- the need for time and materials for effective implementation.

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* In the 1982 report, concerns were analyzed using the Stages of Concern (SoC, developed by the Center for Teacher Effectiveness at the University of Texas). In general terms, that same framework is used here. Stages are roughly developmental (Awareness, Information, Personal, Management, Consequences, Collaboration, Refocusing) as an individual or group learns about an innovation, uses it, and fits it into existing activities. Concerns in earlier stages need to be satisfactorily addressed before participants can be expected to move to another phase of activity.

Table 16

Participant Concerns: All Models, ...

Concerns		AT	ML	STL	TV
Model Concerns					
Time	-- allocations too rigid				
	-- requires too much record-keeping/ paperwork				
	-- requires too much student testing		1		
	-- requires too much in general		1		
	-- requires too much preparation/scoring				
Materials	-- need enrichment activities		5		
	-- need materials that fit LEA curriculum			1	
Students	-- holds back talented Ss		6		
	-- remedial Ss go off task				
	-- weak Ss depend on strong Ss				
	-- absentees hard to handle				
	-- grouping is difficult		1		
Discipline	-- less teacher control, more noise				
Curriculum	-- does not fit all subjects/grades	4	2		
	-- coverage is reduced		1		
Teachers	-- creativity is inhibited	6			
	-- observation creates fear, pressure				
	-- model more useful for new teachers				
Assessment	-- achievement is difficult to measure			1	
	-- point system (bumping) is not popular			1	
	-- checking should not be done by Ss	2			
Design	-- lack of research base				1
	-- complex, difficult to implement				1
	-- coding categories are judgmental				1
Implementation Concerns					
...			2		2
Insufficient central office support					1
Poor coordination (model, materials, m... ement)		3			
People and resources not used to meet ...ect needs		5			
Inflexible budget process			1		
Unclear evaluation guidelines			1		
No monitoring of observers					
Leaving class to teacher substi...es					1
Poor communication -- teachers don't know why model is used					1
Poor attitude teacher apathy					1
Teachers ...ging students in learning		1			

... ...menting a given model.
AT=Ac... ...n... =Mastery Learning; STL=Student Team Learning; TV=Teaching Variables.

36   40

Many concerns related to consequences -- the impact on particular kinds of students, on curriculum, and on discipline and the assessment of that impact. Teacher concerns are also consequential, with some personal overtones. Concerns about the design and some of the assessment concerns were related to refocusing -- a dissatisfaction with the model as implemented and a desire to do something different. General implementation concerns were reported for three models (there were none for STL). All of them related to management, with some personal or consequential overtones. These results are what might be expected given the age(s) of the projects.

Recommendations were made by participants of all projects, and were categorized into six general areas: learning, teachers, classroom use, implementation process, interactive support, and expansion/revision. (See Table 11.) Learning recommendations related to the SoC "information" stage, and reflected a cycling of sophistication and appreciation for on-going training and assistance: participants have learned and want to continue learning -- sometimes in a particular way or in a particular area of expertise. Recommendations for teachers related to the "personal" SoC stage and indicate that in some cases there is fear, resentment, or confusion that needs to be overcome (ML, STL, TV). Classroom use and implementation process recommendations related to two levels of management, and indicate that local implementers have become sufficiently familiar with the models to identify (and want to overcome) barriers to successful use. The AT recommendation for situational adaptation suggests a need to clarify understanding of the model (how it is explained, and how it is implemented). There were fewer management recommendations for STL than for other models, which is somewhat surprising given the number of concerns about time and students. Recommendations classified as "management" were influenced by interest in consequences. The "collaboration"

41

Table 11

Participant Recommendations: All Models, 1983-85

	Recommendations	AT N=	ML N=	STL N=8	TV N=
Learning	-- provide training and follow-up assistance				
	-- provide research updates on school improvement, teacher effectiveness		1		
	-- provide research results before implementation			1	
	-- encourage teachers to increase knowledge & skills			1	
	-- provide more specific instructional improvement ideas				
	-- allocate resources for classroom observation			1	
Teachers	-- reduce burden on Ts				
	-- have only voluntary participation (it's not for every T)				1
	-- help Ts see value of model				1
	-- compensate Ts for after school activities				
Classroom Use	-- allow situational adaption	3			
	-- maintain fidelity (and monitor)	3			
	-- allocate/adjust use of time	3			1
	-- provide materials	1			
	-- sequence units more carefully		1		
	-- have ability grouping/smaller classes	2	1		
	-- develop record-keeping system (computerized)		1		
	-- develop strategies to deal with absentees	1			

Implementation
  Process
	-- allocate time (development, paperwork,
	     preparation
		1	5	1	2

	-- assign new leadership				1
	-- do not add model on top of LEA priority				1
	-- do not begin in first few days of semester				1
	-- use earlier in the year			1	
	-- evaluate effectiveness	1	2		
Interactive Support	-- increase funding	1	2	1	1
	-- increase central office support	1			1
	-- increase MSDE/central office cooperation to help Ts solve problems	1			
	-- increase MSDE assistance		1	1	
	-- encourage more networking among and within LEAs		2		
	-- provide or develop materials			1	
	-- involve more Ts in curriculum development		2		
Expansion Revision	-- drop the program				2
	-- increase involvement schools/grades/subjects	6	6	6	3
	-- try another model	2			
	-- use every day	1			
	-- use for the full year	3			
	-- use another part/technique of model				

N=number of LEAs implementing a given model.
AT=Active Teaching; ML=Mastery Learning; STL=Student Team Learning; TV=Teaching Variables.

42

stage related to what others are doing -- interactive support -- and most recommendations in this group indicate that school-based staff are not ready to take full responsibility for implementation (and perhaps should not be expected to do so). Recommendations about expansion or revision related to the "refocusing" stage, and mostly indicate that local educators value the models enough to want expansion (although opinions are divided for TV between expansion and termination and reflect concerns about the design and the way some teachers in some LEAs react to it).

If a project is to succeed, concerns and recommendations should be addressed by MSDE TAs and LEA teams. For AT, the most critical issue is local perceptions of the fit of the model to specific grades, subjects, or students (as grouped). For ML, the most critical issue is cost-effectiveness in terms of time allocated for unit and test development, and the subsequent record-keeping, in relation to the perceived value of the model. For STL, the most critical issue is cost-effectiveness in terms of teachers' investment in relation to impact (including discipline) on various kinds of students. For TV, the most critical issue is the perceptions -- fear, apathy, resentment (primarily of teachers) -- about local implementation decisions and about the model design. While those issues suggest negative impact in some sites, it should be noted that they are not pervasive and do not out-weigh the positive impacts reported earlier.

Conclusions.

While processes of implementation based on the research on planned change were recommended for all models in all LEAs, and TAs encouraged local educators to attend to such principles as participatory decision-making, two-way communication, tra' .ng and support, and appropriate investment of time and energy, those pr_ .esses of implementation and principles were not always

39

43

applied.* When they were applied, implementation went sufficiently smoothly for energy to move gradually from establishing structures, relation- ships, and expectations toward actual classroom use. When there were arbitrary administrative decisions, top-down or incomplete communication, low support by central office staff, and insufficient time allocated for materials development or group planning by teachers, implementation problems occurred.

At the local level, these principles or practices were generally referred to as interactive support, and, depending on the nature and extent to which they were applied, had positive impact or created barriers to success. (See Table 12.)

Impact was made on student achievement by three models (AT, ML, STL), with the strongest evidence of success in mathematics and reading/language arts for AT and ML. Positive results were most apparent when either of those models was used consistently over a period of time for a given subject and grade.

Impact was made on student attitudes to some extent for all models. Data summarized by 12 projects (AT, ML, STL) indicated that SITIP students enjoyed the lessons, did not find them difficult, and wanted to succeed. Friction among students, and their perception of favoritism and disorganization needed to be addressed at some sites. While teachers believed that for STL students self-esteem and willingness to work with others increased, student data for STL indicated no differences for that model in comparison to AT or ML.

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* In some cases, the responsibility for the low level of application was shared with the assigned TA. In other cases, the TA's efforts were disregarded by local staff.

44

Table 12

Barriers and Facilitators to Successful Implementation

Barriers	Facilitators
Heavy reliance on training (ML, STL) Insufficient resources for training (STL) No follow-up assistance (STL)	Training and assistance responsive to Ts' expressed needs (AT, ML, STL, TV)
Rationed resources, broad development (ML)	T time & skill to develop materials (AT, ML, STL) Resources allocated for development
T adapt model (STL) T perceive no credibility of model (TV)	Fidelity understood, advocated, & acknowledged by SA & CO (AT, ML, STL)
CO maintain administrative control, but expect work to be done by school staff without building ownership (AT, ML)	CO demonstrate interest in project success (AT, ML, STL, TV) and acknowledge T efforts (AT, STL) CO act to overcome problems (AT)
Plans overly ambitious (STL) Plans not followed by project leaders (STL) Purpose not clarified, mutually understood (TV)	Shared planning, purpose setting, decision-making (ML, TV) Networking encouraged (ML, TV) SA fit model to school priority (TV)
Ts perceive their efforts are devalued (ML)	Ts believe their opinions and efforts count (ML, TV) Ts believe project is designed for improvement (TV) Ts value recommendations of observers (TV) SA emphasizes professional development (TV)
Single energizer with low influence (AT) Conflicting messages (CO, SA, some MSDE) (ML, STL)	

AT=Active Teaching; ML=Mastery Learning; STL=Student Team Learning; TV=Teaching Variables.
CO=central office staff; SA=school administrators; T=teachers.

Impact was made on teachers' knowledge for all models through training. Skills in a new teaching/observation technique increased through classroom practice and coaching. Positive attitudes about teaching were strengthened as teachers experienced success.

Impact was made on a school (the faculty and how instructional matters were dealt with) through commitment and sharing among teachers (ML, STL, TV), and provision of support (ML) and recognition of success (STL) by school administrators (usually the principal). Staff interest in teaching/learning increased (AT, STL); there was more continuity across classes (AT); better management of instruction (TV); and closer monitoring of teaching (AT).

Impact was made on school administrators' knowledge for all models through training, and they improved instructional management (AT), strengthened their belief in traditional teaching (AT), and were more appreciative of teachers' capability (AT, ML) as implementation occurred in their schools.

Impact was made on central office staff's knowledge for all models through training, and, for AT, they improved instructional management as they became involved in implementation.

At the system level, there was knowledge gain (STL), cross-hierarchical sharing and commitment (AT, ML), and policies enacted to release teachers to train others or coordinate activities (ML), and to implement the model district-wide for a given subject or grade level (AT).

As stated earlier, the implementation strategy used influenced impact (with capacity-building being the least effective). Another strong influence was the relationship between a model and local priorities (as perceived by

local educators). Probably the strongest influence on successful implementation was interactive support: while teachers can and do teach alone in their own classrooms, they do much better when their efforts and successes are acknowledged and they are part of a cross-hierarchical team working toward instructional improvement which benefits students.

Summary and Conclusions

Application of the research on planned change facilitated implementation of models of instructional improvement. The SITIP design encouraged collaboration, increased communication using a common knowledge base about school and classroom effectiveness, and helped LEAs establish cross-hierarchical teams with the purpose of improving instruction. Unless the principles of planned change were applied, the model adopted had little chance of success.

The models themselves were perceived by local educators as having both subjective and objective value. Teachers' positive opinions had just as much influence as standardized test data in determining program maintenance or expansion. Teachers' negative opinions or concerns had a little influence in determining maintenance or expansion and did influence the relative impact of the project.

Active Teaching and Mastery Learning, when implemented with fidelity for a complete course, had a positive impact on student achievement, and helped teachers to organize instruction effectively. The models were valued more by teachers when used for structured academic curricula than for more open-ended subject areas. Mastery Learning required considerable administrative support. Both models were more successful when administrators acknowledge teachers' efforts.

47

Student Team Learning was popular with students and teachers and had a positive impact on achievement in some cases. However, it was not used consistently, and so cause-and-effect claims cannot be verified. Maintenance and expansion usually occured when teachers saw the value of the model, and appropriate materials were available.

Teaching Variables was used as a professional development process (and was then more likely to be valued by participants), or as part of a supervision process (and was then more likely to be viewed with suspicion by teachers). Little evidence was provided to indicate impact on student achievement, but there were some reports of teachers improving their management of instruction.

Key staff in all LEAs, in 11% of Maryland's schools, in colleges of education, and at MSDE increased their understanding of recent research on planned change and school and classroom effectiveness. Nearly 1000 teachers modified their instructional techniques, and most of them believed that the results are worthwhile. The general attitude of all role groups involved in SITIP was positive, with appreciation for the opportunities for professional growth, and for the benefits to students receiving improved instruction.

During the 1983-84 school year, local implementation will continue to be supported by MSDE, with attention to participant concerns and recommendations and to the results reported here. SITIP advocates hope that LEAs will make purposeful data-based decisions -- either to terminate or to institutionalize, preferably the latter with local commitment to build on the state initiative.