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ABSTRACT

An analysis was made of a collaborative research and development project designed to stimulate and support collaborative development of preservice teacher education strategies. The project was based on the assumption that teacher education programs could incorporate research as an inquiry-based process for student teachers, cooperating teachers, and teacher education faculty. Three teacher education program sites in Nevada, Utah, and California used the inquiry-based process in their programs. A cross-site analysis identified variables associated with the different sites and the interactions among the variables. Little variation was reported among the three sites. However, there were some differences in the goals, initial planning, and the methods of intervention. A supportive relationship between each teacher education program and its cooperating school district was important. While there were no clear results regarding change in classroom teaching behaviors, the perspectives of students and cooperating teachers toward the value of research became increasingly positive across all three sites. Achievement of the project goal of continuing and expanding networks among teacher education programs and local education agencies appeared promising. (Author/JD)

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FAR WEST LABORATORY
FOR EDUCATIONAL RESEARCH AND DEVELOPMENT

APPLYING RESEARCH IN THREE TEACHER EDUCATION PROGRAMS: FACTORS INFLUENCING VARIATIONS

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ABSTRACT

This report analyzes a collaborative research and development project implemented by Far West Laboratory for Educational Research and Development in conjunction with three teacher education programs in Nevada, California, and Utah. The purpose of this project was to stimulate and support collaborative development of preservice teacher education strategies, based on the assumption that there is a relatively substantial body of recent research findings on effective instruction that could be rapidly and usefully incorporated into classroom practice.

Three teacher education program sites used an inquiry-based process for student teachers, cooperating teachers, and teacher education faculty. A cross-site analysis identifies variables associated with the different sites and the interactions among the variables.

Little variation is reported among the three sites. However, there were some differences in the goals, initial planning, and the method of intervention. Relationships between each teacher education program and its cooperating school district was important.

There were no clear results regarding change in classroom teaching behaviors. However, the perspectives of student and cooperating teachers toward the value of research became increasingly positive across all three sites. Achievement of the project goal of a continuing and expanding network among teacher education programs and local education agencies appears promising as well.

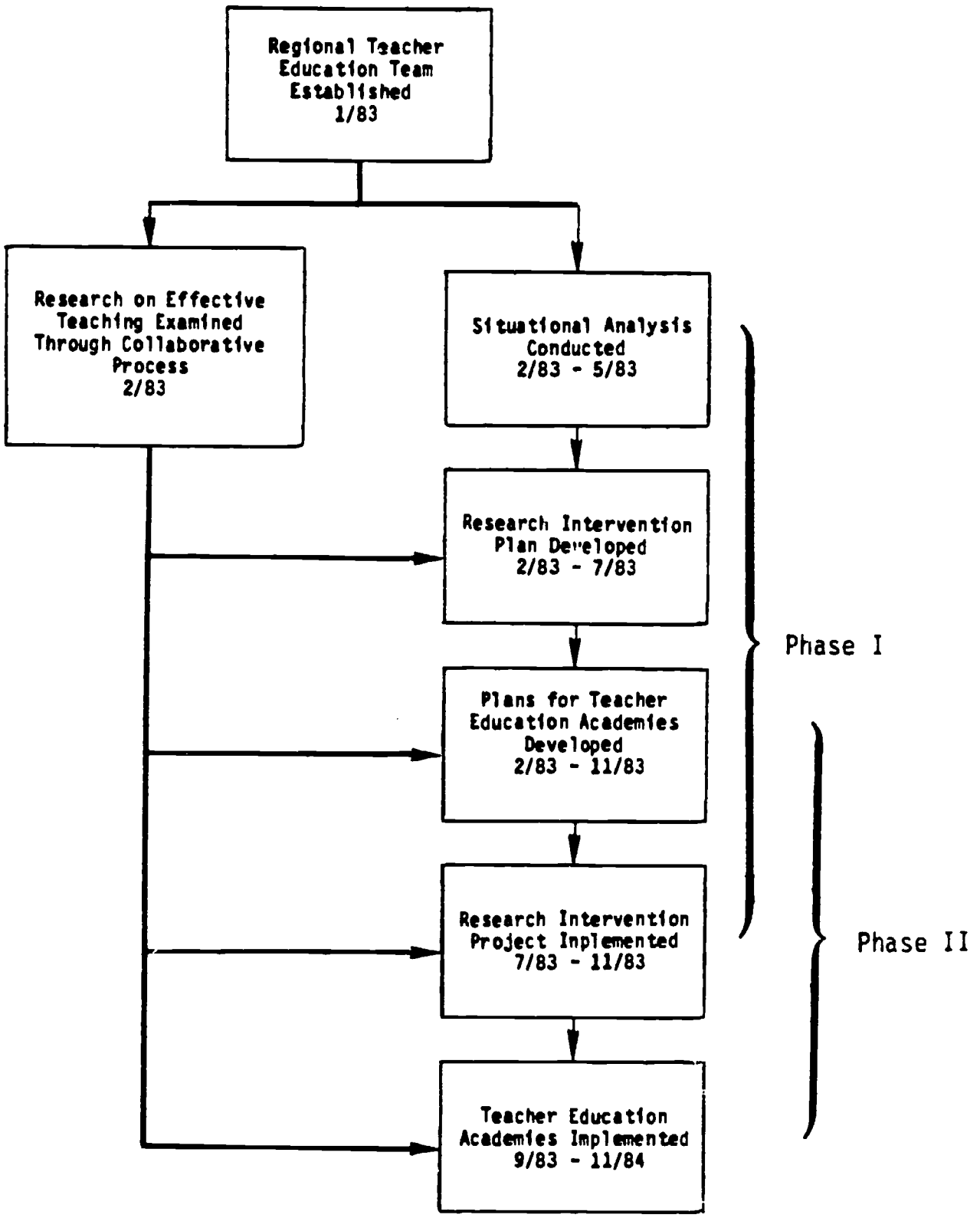
Introduction and Background

Since 1978 the Far West Laboratory for Educational Research and Development has been involved in a number of efforts to improve the quality of classroom teaching by facilitating teachers' incorporation of the research on effective teaching practices into their regular classroom activities. In December 1982 the Laboratory continued this tradition by initiating a project to improve the preservice educational experience of classroom teachers. As with earlier efforts, this project was premised on the assumption that there is a relatively substantial body of recent research findings on effective instruction that could be rapidly and usefully incorporated into classroom practice. Specifically, the project was based on the assumption that teacher education programs could incorporate research as an inquiry-based process for student teachers, cooperating teachers, and teacher education faculty. This paper analyzes the efforts of three different teacher preparation programs (Driscoll, 1984; Johns and Gee, 1984; Ponzio, 1984) to develop and implement plans to apply and use effective instructional research. Figure 1 presents a schematic chronological outline of the project.

In phase I, Far West Laboratory selected and convened a regional teacher education team consisting of the Far West Laboratory project director and experienced teacher educators from preservice teacher education programs in the Laboratory's region. The team collaboratively examined patterns of research findings about effective instruction and successful elementary schools. The team members

Figure 1

RUETE Chronological Outline



practiced observation strategies for the application of this research to their own preservice teacher education programs. The activities enabled each member to generate a document which synthesized their experiences and provided baseline data for developing plans to use research in their own teacher education programs. This situational analyses included information about their institutions' teacher education program, the cooperating school district, and the community in terms of teacher education preservice teacher characteristics, and state certification requirements. In collaboration with Far West Laboratory staff, plans integrated relevant research findings and classroom instructional analysis techniques in an attempt to enhance the quality of teachers entering the local school teaching force as well as to impact upon those already in the teaching force.

During this same period, each regional teacher education team member began to develop plans for the creation of a Teacher Education Academy (TEA). TEA's are currently being implemented as part of Phase II of this project. The TEA serves as a forum for furthering the incorporation of research-based knowledge into the teacher education process.

Framework

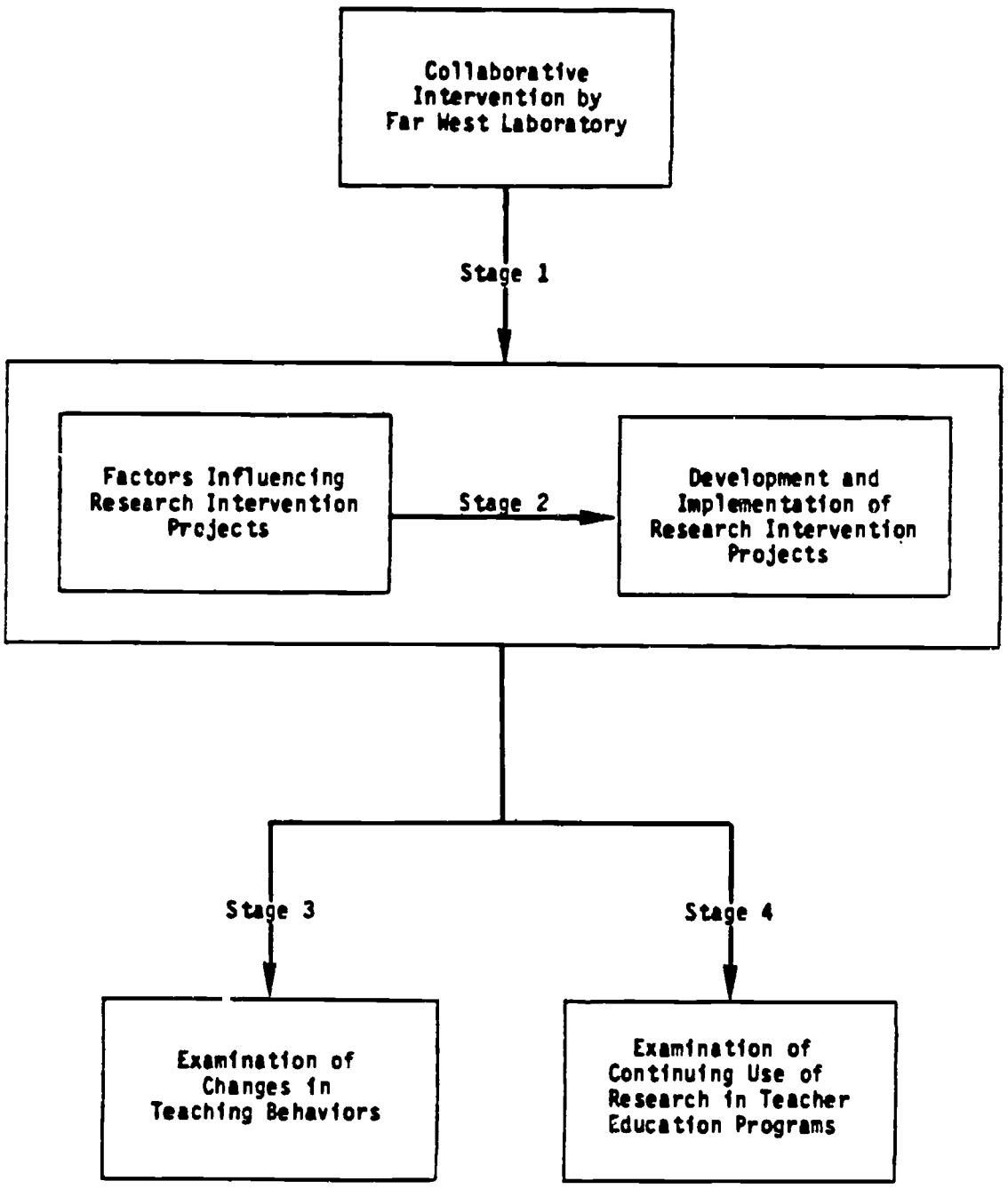
This paper limits itself to a cross-site analysis of the development and implementation of the three projects. Conceptually, there are four distinct stages (see Figure 2).

Stage 1

Far West Laboratory actions constituted the first step in the process. The Laboratory selected participating teacher education

Figure 2

RUETE Conceptual Framework



faculty, brought them together as a regional teacher education team, structured and facilitated their meetings, selected the relevant research for examination, and remained, throughout the project, the central organizing force. All sites received the same technical information and support, providing a constant in the process. A central concern of the project was the successful application of research in teacher education programs; therefore, it is important to examine the collaborative strategy that Far West Laboratory used. Our research question here is: How effective was the collaborative model in applying research on effective teaching techniques in pre-service teacher education programs?

Stage 2

In spite of being brought together by Far West Laboratory and accessing the same technical assistance, each teacher education faculty team member developed and implemented a different intervention project. A central focus of this analysis is the identification and description of the commonalities and variations among the three site projects. The research question is: What variables are associated with the development and implementation of the three projects and what are the interrelations among the variables?

Stage 3

Also relevant to this study is the effect of the various strategies for applying research in teacher education programs on the behavior of teachers in the classroom. An examination of the relative effectiveness of the three strategies for changing classroom teacher behavior responds to the question: What factors in the three

research intervention strategies can be associated with the varying outcomes in teacher behaviors?

Stage 4

Finally, the effects of the collaboration of the three teacher education programs and their local school districts on the continued relationship focuses on the central question: How has the Far West Laboratory intervention changed the approaches that these teacher education programs and local school districts use to apply effective instruction research in teacher preparation? This stage is dependent on the continuing effort to establish and promote the teacher education academies and has not yet been synthesized for reporting. The ultimate success of the project depends on continued quality teacher education programs after Far West Laboratory is no longer involved.

In the remaining sections of the report we examine each of the first two conceptual stages outlined above and attempt to respond to the associated research questions. It should be noted that the three other papers in this series (Driscoll, Johns and Gee, and Ponzio) examine in detail factors in Stage 3, effect on teacher behavior, and that Stage 4, the ongoing relationship between the teacher education programs and their local school districts, is currently being implemented.

Far West Laboratory's Collaborative Intervention

Over the past decade, research has identified a coherent body of knowledge concerning effective teaching practices (Brophy, 1979). Unfortunately, much useful research never is applied at the classroom level (Huling, 1982; Griffin et al., 1983). The interactive

research and development on teaching (IR&DT) model (Tikunoff, Ward, & Griffin, 1979) discovered that because much research is carried out in the lexicon and according to the agenda of professional researchers and their funding agencies, classroom teachers generally find it incomprehensible or irrelevant to their everyday tasks (Tikunoff & Mergendoller, 1983:2). As teachers generally are excluded from the research process, they are relegated to the role of consumers of research. It is argued that the exclusion of teachers from the research process accounts for the underutilization of research findings in classroom instruction.

The interactive research and development on teaching (IR&DT) model incorporated teachers into the research process along with professional researchers and individuals responsible for staff development. Researchers, teachers, and staff developers work as equal members of a team to develop a research project and, concurrently, a staff training program in a local school district. Tikunoff and Mergendoller (1983) found positive results of collaborative research efforts in two different sites. Besides producing tangible and relevant research findings, the participants developed a more critical, reflective eye toward their own work and institutions, developed collaborative and discussion skills, and grew professionally. In addition, teachers, researchers, and staff developers came to understand and respect one anothers' work. In another study at the Texas Tech University Teacher Corps, teachers who participated in a collaborative research project became more comfortable with the research intervention and more creative in their application of the innovation than teachers in a control group (Huling, 1982).

Additionally, teachers in this study who took part in the collaborative process noted that they would be much more willing to use research after their experience than they had before. Finally, in another study which examined the contextual variables affecting the success of the IR&DT models, the researchers found a common outcome of all participants across sites was a "powerful, unmatched opportunity for growth" (Lieberman & Noto, 1983:18).

The IR&DT model seemed appropriate for work with teacher education faculty for the same reasons that it was first developed for work with classroom teachers. Research has shown that teacher educators, like classroom teachers, do not generally apply research in their own teaching in any systematic way. Carter (1981:54-55) found that the knowledge base of teacher educators is extremely diffuse, that there is little agreement regarding either a central core of information or the procedures for teaching it. In fact, most teacher educators learned to teach either by "doing it" or by "modeling others" (Carter, 1981:48). Few faculty actually used relevant research to inform their own methods. In another study, Feiman-Nemser and Ball (1984) argue that the lack of the use of research by classroom teachers can be explained by misleading and confusing views about the proper use of formal knowledge propagated by teacher educators.

Findings in the three teacher education programs in this study reflected a similar lack of systematic and effective use of the research on effective instruction. Teacher education faculties were not accustomed to applying research systematically in their teacher education programs. The IR&DT model is especially suited to this type of situation as it does not simply impose research findings on

the participants, but rather allows them to determine the type of research relevant to their own programs.

More important, a primary goal of the project is the ongoing application of research findings in both the teacher education programs and the local educational agencies inservice training. To this end, the final outcome of our activities will be the establishment of continuing teacher education academies (TEA) at each of the three sites. Although the three academies will differ somewhat depending on local needs, all three will be collaborative processes between the teacher education program and the local education agency.

The interactive research and development on teaching model provided Far West Laboratory with a catalyst for encouraging professionals who are not systematically using research in their work to do so. More important, a by-product of the IR&DT model, the development of collaborative inquiry skills, was a central goal of the research intervention. The IR&DT model, then, appeared appropriate for our work with the regional teacher education team.

A central assumption underlying our choice of the collaborative process for the application of research in teacher education programs was that the teacher education faculty would choose relevant research and apply it in the programs at their own institutions. At the same time, our review of the literature on the collaborative process made it clear that the research on effective teaching strategies at each of the institutions of higher education take place concurrently with attempts to apply the research in the student teachers' classrooms to ensure its applicability to the teacher training programs, that the teacher education team members work together as a team in which all

members had an equal voice, and that the intervention process respect the integrity of each of the three teacher education programs so as not to force irrelevant research on the programs (Tikunoff & Mergendoller, 1983:8-10).

All three teacher education faculty participants agreed that they never would have undertaken a research project the scope of this one without the intervention of Far West Laboratory. Affiliation with a national by known research laboratory provided the research project with a certain amount of credibility at the institutions and with the local school districts. Finally, participation in the laboratory-sponsored project held the potential for professional growth and advancement for each of the faculty members. As one member put it, "an important criterion for my participation was the opportunity for promotion in my department". In essence, the project, as an organized and on-going vehicle for research, provided the necessary catalyst to teacher educators from three separate institutions to begin systematic application of the research on effective teaching in their own programs.

The second important feature of the collaborative process is the provision of relevant information to the participants. Throughout this project, the laboratory has been a major source of information and guidance for the team members. In the first two team meetings the laboratory introduced the members to relevant literature on the IR&DT model and to the research on effective teaching practices. The team was provided with a series of scholarly articles and experts from various fields briefed them on the intricacies of the research findings. Additionally, the laboratory trained the members in appro-

priate research techniques including the development and use of instruments to monitor teacher activities in the classroom.

Finally, throughout the development and the implementation of the individual research projects, the laboratory has continued to provide relevant technical support (for example, the training of research assistants in observation techniques) as well as additional literature on specific research chosen for use.

While the original catalyst and structure for the regional teacher education team came from Far West Laboratory, the collaborative process required that subsequent activities be developed by the team as a whole. Thus, once the background on the collaborative process and the research on effective teaching were presented, the team members began to take an equal role with laboratory staff in developing activities. From the survey of research on effective teaching strategies, the team chose two specific strategies, Academic Learning Time (ALT) (Fisher, et al., 1980) and Active Teaching Behaviors (ATB) (Good, 1983) to study indepth. Together with laboratory staff, the team adapted specific instruments to measure the amount of ALT and ATB taking place in a particular classroom.

In addition, from the very first meeting of the team, the teacher education faculty members were asked to share relevant information concerning their home sites. At that initial meeting they developed an outline for their situational analyses, an indepth report on the existing content and process of the teacher education program at each site. While the individual team members collected the data for and wrote the analyses of their own institution, these analyses were extensively reviewed by the team, the faculty at the home institution,

a representative from the local school district, and laboratory staff.

There were a number of purposes to this process. First, the analyses provided the baseline data from which to begin to develop research intervention plans. Second, the process of analyzing their own institutions allowed team members to begin a critical examination, in cooperation with their fellow faculty members and local school personnel, of their teacher education programs. Third, through reading and discussion of each other's analyses, they became acquainted with one another's settings. Fourth, the formal introduction of each members research context assured that the particulars of that context would be understood and respected by other members of the team as they worked toward developing research intervention strategies. Finally, and perhaps most importantly, this process of reviewing, criticizing, and rewriting marked the beginning of the formal collaborative process which was to continue throughout the duration of the project.

This same process took place as the members began to develop their intervention plans during the second team meeting. Based on the review of the research on effective teaching which took place in the first two meetings and on the baseline data specific to their home institutions which they developed in their situational analyses, and using instruments developed collaboratively by the team, the members returned to their home institutions and began to establish specific strategies for applying the research in their teacher education programs. These plans were reviewed by all members of the team, criticized, and discussed in a subsequent meeting. The members continued to rewrite the plans and resubmitted them to one another for further review. Similarly, as the members began to implement their research

plans, difficulties and promising strategies were communicated among members of the team, technical support was provided where needed, and the members revised their plans when input from other members appeared relevant.

Thus, while the original catalyst and structure for the activities of the team was provided by the laboratory, the actual development and implementation of the research plans resulted from a collaborative process among team members providing mutual support for one another as they worked as equals toward a common goal.

Variations Across Sites

An overview of the three projects shows that all three sought to improve the effectiveness of teachers through the application of the research on effective teaching to their teacher education programs. All three chose to work with the research on active teaching behaviors. All three developed quasi-experimental intervention plans which separated their samples into a variety of treatment groups. At all the sites, some degree of control was established either by the use of pre-intervention observation or by the use of control groups. Research assistants and the three teacher education members collected both qualitative and quantitative data on the use of active teaching behaviors, using the same ATB instrument developed at Far West Laboratory. Finally, all three team members measured the effect of their particular intervention by comparing frequencies of active teaching behaviors either pre- and post- intervention or between control and treatment groups.

Despite their similarities, however, the three projects re-

presented significantly different approaches in applying the same research. These differences are most marked in the goals of the three projects, the methods by which the intervention plans were developed, and the implementation of the project plans.

This report examines the specific differences among the three research intervention projects. The characteristics of each project are summarized in Table 1.

Goals

Although the general goal of the three projects was the same, the projects differed significantly in their more specific operationalized goals. Utah's was the most complex of the three plans. The team at Utah sought to engage both student teachers and teacher education faculty in a systematic examination of their own practices, in an effort to improve them. In addition, the plan hoped to foster a more collaborative relationship between the local school district and the teacher education program. The Mills project sought to improve the communication between student and cooperating teacher with the hope tnat, in combination with the use of effective teaching strategies, such communication would further improve student teacher performance. The goal of the Nevada plan was less complex than either of the other two. Here the plan focused on examining the utility of a simple intervention strategy in effecting changes in student teacher behaviors.

Methods

The method by which the research/intervention plans were developed at the three sites can be differentiated by their relative complexity, the number of parties involved, and the degree of

Table 1

Variation in Research/Intervention Projects

	SITES		
	Utah	**Mills**	**Nevada**
SAMPLE SIZE			
Student Teachers	12	5	21
Cooperating Teachers	12	5	21
Teacher Education Faculty	4	2	1
DATA COLLECTION TRAINING	<u>July 1983</u> One 4-day collaborative meeting of student teachers, cooperating teachers, teacher education faculty, and Far West Laboratory staff <u>August 1983</u> 4 two-hour Early Experience sessions for student teachers by teacher education faculty <u>October 1983</u> 2 days for research assistants by Far West Laboratory staff	<u>September 1983</u> 4 days for teacher education faculty and research assistants, by Far West Laboratory staff 3 days for student teachers and cooperating teachers by teacher education faculty and research assistants <u>On going</u> Student teacher/ cooperating teacher feedback with teacher education faculty	<u>September 1983</u> 2 days for research assistant and teacher education faculty by Far West Laboratory staff <u>On going</u> Cooperating teachers use of observation instrument
OBSERVATIONS	<u>October 1983</u> 4 student teachers Group A (Collaborative Session) 4 student teachers Group B (Early Experience) 4 student teachers Group C (Control) <u>December 1983</u> 4 student teachers Group A (Collaborative Session) 4 student teachers Group B (Early Experience) 4 student teachers Group C (Control)	<u>September 1983</u> 5 student teachers (pre) 5 cooperating teachers (pre) <u>December 1983</u> 5 student teachers (post) 5 cooperating teachers (post)	<u>September 1983</u> 28 cooperating teachers 21 student teachers <u>November 1983</u> 21 student teachers
SUBJECT/CLASS OBSERVED	Math, direct instruction	Math, direct instruction	Math, direct instruction

collaboration among the responsible parties.

The Utah plan stands at one end of the continuum. Here, the team member invited four student teachers, three members of the teacher education faculty, and four cooperating teachers were invited to plan the research intervention. The project underwrote University credit for the cooperating teachers. This team collaboratively examined the research on effective teaching, selected a specific topic most relevant to their work, active teaching behaviors, and developed an extensive preservice instruction plan. The research intervention, then, was the result of a collaborative effort on the part of representatives of all groups which were to take part in the intervention.

At Mills College, the initial planning was similar in as much as the research strategy was developed with the input of representatives from the relevant parties. An advisory group included the team member of the Mills College faculty, a visiting scholar, Far West Laboratory staff, and the staff development coordinator from the participating school district. The research team consisted of the team member, the visiting scholar, the school district staff development coordinator, and two research assistants, both certificated employees of the school district. This site research team, reviewed the literature on effective instruction and assisted in developing a research intervention plan. The Mills and Utah teams differed, however, in both the degree of collaboration and the composition of the teams. Through the first stages of the initial planning stage, the Mills teacher education team member made a number of important decisions (the school site, the focus on ALT and ATB, for example) without direct collaboration with all members of the research team. Once the team was established and

criticized, and then student teachers "taught" one another using ATB.

Five student teachers and their five cooperating teachers took part in the Mills preservice training. The training took place over a three day period during the first month of the student teaching experience. In order to allow the cooperating teachers to attend the training, the project paid for substitute teachers for their classes. The teacher education team member, two faculty members from Mills, and two research assistants presented the literature on active teaching behaviors. The student and cooperating teachers viewed videotapes, observed actual classes, and practiced coding using the active teaching behaviors instrument designed at Far West Laboratory.

Importantly, the intervention at Mills continued throughout the student teaching semester. The cooperating teachers were asked to hold weekly meetings with the student teacher during which they were to provide one another with feedback on their use of ATB.

The Nevada research intervention plan was designed to be much less complex than either the Mills or Utah plans. In November of the fall semester, the teacher education team member visited the classes of the two treatment groups of cooperating teachers and provided them with the ATB observation instrument. He requested that the cooperating teachers use the instrument to observe the student teachers. Furthermore, the cooperating teachers were asked to share the observation sheet with the student teacher and to provide both definitions and examples of the behaviors. There was, however, no formal training for the cooperating teachers in the use of the instrument.

working collaboratively, neither cooperating teachers nor student teachers took part in planning sessions.

The development of the research intervention plan at the Nevada site stands in contrast to the two others. Here, the teacher education team member basically developed the intervention. While he did consult with both the superintendent and the staff development officer in the local school district, he took sole responsibility for its development. No other faculty members, student teachers, cooperating teachers, or local district personnel played an active role in the creation of the intervention strategy.

Implementation

The way in which the research on active teaching behaviors was introduced into the teacher education program at the three sites can be differentiated by the: 1) complexity of the intervention; 2) its place in the preservice experience; 3) who took part in the training; and, 4) the degree of control over the introduction.

At the Utah site, the training took place during the voluntary four-week, pre-student teaching program. Eight student teachers took part in the preservice training. Four of these had been involved in the collaborative team that designed the training sessions, and were already familiar with the concepts of active teaching behaviors. The preservice training consisted of two-hour sessions, one day a week, over the four-week period. The teacher education team member and other teacher education faculty introduced the student teachers to the literature on active teaching behaviors (ATB); the student teachers then observed videotapes of teachers using ATB methods and wrote lesson plans based in the ATB methodology. These plans were

Factors Influencing Variation Across Sites

A central facet of the design of Far West Laboratory project was the provision of latitude to the teacher education team member to develop intervention strategies relevant to their respective teacher education programs. The result of this freedom was the creation of different intervention plans in the three sites. While it may be inevitable that three teacher education faculty from three separate institutions would develop differing plans even given the same information and technical support, it is informative to explore this variation. As federal, state, and local educational agencies search for innovative ways to improve the education of tomorrow's teaching force, policy decisions should be informed by an understanding of the structural factors that influence attempts to apply research findings in teacher education programs.

Clearly, the differences we found in the plans are a function of the specific goals. However, the variation in the manner in which the research plans were developed, in the specific goals of the interventions, and in the interventions themselves is a function of variation in particular contextual factors. Specifically, variation across the three sites was along the following dimensions: 1) the characteristics of the teacher education program; 2) the characteristics of the cooperating local school district; 3) the historic relationship between the teacher education program and the local school district; and 4) teacher education team members. Figure 3 schematically portrays the interaction among these various factors.

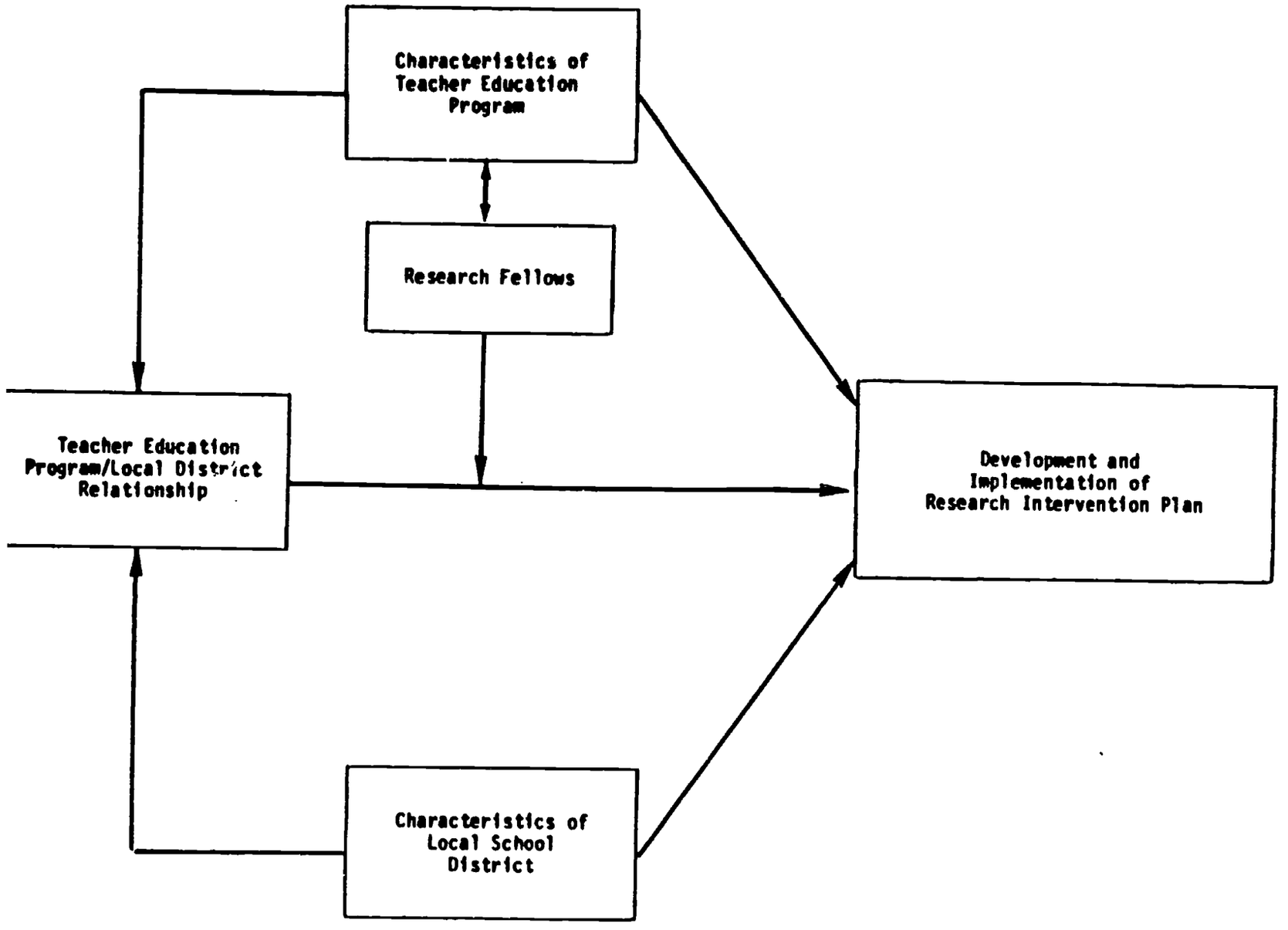


Figure 3

Factors Influencing Variation Across Sites

Characteristics of the Teacher Education Program

The existing degree of collaboration among teacher education faculty, the size of the program, and the existence of latitude in the program for the interjection of an innovative research project influenced both the development and the implementation of the research intervention plans.

At the Mills site, the small number of faculty in the education department work as a team, coordinating activities and instruction in all program areas. Collaborative planning and evaluation are the key components of the Mills program design. The elementary and early childhood program at Utah is much larger, 15 full-time faculty versus three at Mills, and such regular coordination is not feasible. The newer faculty at Utah, however, have established an informal network to support one another's professional efforts. The teacher education team member at the Utah site, a third year assistant professor, turned to members of this group for support to develop an intervention plan. In contrast, the Nevada teacher education team member, an experienced associate professor, noted that the faculty in his department work independently of one another.

The effects of the tradition of interaction among the teacher education faculty in the three sites had consequences for the research intervention plans. At both Mills and Utah, the teacher education team members invited other faculty to participate in both the planning and the implementation of the intervention strategies. At Mills, where the interaction among the three faculty members in a small department is regular and frequently informal, the collaboration occurred in a much less structured manner than was the case in

Utah. At Nevada, the teacher education team member worked with a sole research assistant (a teacher at a local community college).

The teacher education programs at both Mills and Utah are structured in such a way as to provide faculty with sufficient latitude to interject innovative plans. At Utah, there is a four-week "Early Experience" session prior to the beginning or regular classes during which preservice teachers attend half-day classes, develop mini-lesson plans, observe classrooms, and take part in seminars headed by teacher education faculty. The Utah teacher education team member was able to use this less formally structured period to carry out a rather extensive four-day training period in active teaching behaviors for student teachers.

While Mills College has no structured period analogous to the "Early Experience," it has eliminated traditional departmentalized course schedules. The Mills program is organized to permit flexibility in the time students spend receiving formal instruction as classroom observation and participation in the classroom gradually increase. This more flexible schedule allowed the Mills teacher education team member to conduct a three-day training period early on in the student teaching experience.

The Nevada teacher education program, while continuing to develop innovative course programs, maintains a traditional departmentalized course program. In addition, no organized period is provided when student teachers and faculty come together outside of regular classes. The Nevada teacher education team member, had no "natural" or easily created period in which students could be trained as part of the research innovation plan. As the Nevada team member noted, if such a

structured period existed, the research strategy would have been more similar to Utah's and Mills.

Characteristics of Local School District

In all three sites, the research intervention plan was implemented in cooperation with a local school district. The commitment of the district to the ongoing training of teachers, especially the extent to which this commitment is reflected in specific staff development programs affected the intervention strategies in all three cases.

The Vallejo district, site of the Mills College intervention, has developed a strong staff training program over the past seven years, manifested in the establishment of a department of staff development. There is a Professional Development Center (PDC) where instructional teams, composed of teachers and administrators from a single school, come for assistance in developing better instructional programs. After these teams return to their schools, the PDC's staff provides follow-up assistance. The Vallejo district also has worked with a number of colleges and universities besides Mills on improving their staff training program. Finally, in a number of the Vallejo schools, teachers have formed support groups in which they provide one another feedback on the effectiveness of their teaching.

The Salt Lake City Unified School District, site of the Utah plan, has also developed a number of organized, innovative programs for staff development. Among these innovations are: The Master Teacher program, a Teacher Support Center, a Peer Advisor Group (15 experienced teachers serve as mentors to first year teachers), and

a Teacher Remediation Team (colleagues provide assistance to teachers who are in "professional trouble"). In addition, there are a number of PDCs based in individual schools which serve as the loci of both preservice and inservice training in the district.

The Washoe County School District, site of Nevada intervention, like the other two districts, traditionally has been committed to a strong staff development program. The Washoe program is unlike Vallejo's and Salt Lake City's, however, in two fundamental ways. First, the district has not developed the series of organized structures like development centers and peer advisory groups. Second, whereas Salt Lake and Vallejo have worked collaboratively with local teacher education programs in the development of their staff training programs, Washoe county has maintained a program with relatively minimal university collaboration.

These differences among the three districts are reflected in the three sites' intervention strategies. Both the Mills and Utah team members had formal structures available to them in their school districts. In the Utah case, the team member used the PDCs as the sites of her intervention, as these are located in individual schools. The Mills team member worked with the head of the staff development department in choosing a school suitable to his intervention strategy. The school which was selected was one in which the teachers had come together in informal groups to critique one another's methods. Because of this manifest openness to constructive criticism, the research/intervention project in Vallejo included frequent sessions between student and cooperating teachers in which they provided one another with feedback on their use of active teaching behaviors. Such

cooperating teachers and administrators work with the Utah teacher education program in the placement and training of student teachers over time.

The relationship between the Mills College teacher education program and the Vallejo school district is not as structured as that in the Utah case. In Vallejo, the PDC is based in the central district rather than in the schools. Still, the teacher education faculty at Mills has worked with the district staff development department in selecting a group of schools in which to place student teachers. Over time, this group of schools has stablized somewhat, providing the Mills program with a cadre of experienced teachers and administrators with whom to work year after year.

The University of Nevada, Reno, has a formalized relationship with the Washoe school district through the Professional Advisory Board. The board, composed of school administrators, classroom teachers, and College of Education faculty, maintains open lines of communication between the schools and the college. It also participates in a yearly recognition of outstanding student teachers and cooperating teachers. Yet, while this formal advisory board exists to oversee the relationship between the teacher education program and the school district, the method of placing student teachers in the district's schools has mitigated against the establishment of formal cooperation among a continuing corps of district teachers, administrators and college faculty. The college and the district have worked to distribute student teachers among as many schools as possible, and within those schools, among as many teachers as possible. The resulting relationship of this practice is the exact opposite of that in Utah and Mills where specialized cadres of administrators and cooperating

meetings were not a large part of either of the other two projects. In the Nevada case, the Washoe school district, committed as it was to improving its teaching corps, welcomed the teacher education team member. There was, however, no organized structure into which to fit the research intervention project. The resultant project was one in which communication flowed between the teacher education team member and the cooperating teachers without the aid of an established structure.

Relationship Between Teacher Education Program and Local School District

The most important factor in explaining the variation among the development and intervention of the three research intervention projects is the traditional relationship between the teacher education program and the cooperating school district. While all three teacher education team members enjoyed excellent professional relationships with district staff responsible for the placement and training of student teachers, the formal relationships between the teacher education programs and the school districts varied widely.

In Utah, the school-based Professional Development Centers had been developed through a collaborative effort between the school district and the university. In fact, the PDCs serve as bona fide extensions of the university in the schools. The principals of the schools in which the PDC's are located serve as adjunct assistant professors in the university's teacher education program. Moreover, an explicit function of the PDCs is to assist in the training of preservice teachers. All of the University of Utah's student teachers are placed in one of the PDCs (there are PDCs in other school districts as well). Generally, the same group of

teachers have been developed over the years. In Nevada, from one semester to the next, the college faculty generally are dealing with different schools, different administrators, and different teachers.

In attempting to interject an innovative research plan into the student teaching experience, the three teacher education team members were confronted with somewhat different circumstances. The Utah team member had a structured collaborative preservice training effort already in place with the school district. She was able to convene a team of cooperating teachers in the middle of the summer to help in the development of the research plan. Moreover, she had a structured program in which to implement the project. The Mills team member did not enjoy such a structured relationship. Yet, he had worked with district staff in selecting certain schools as the regular sites for student teacher placement. He was then able to bring the district's staff development director into the collaborative development of his research strategy. At the same time, he had a regular cadre of experienced cooperating teachers whom he could bring into the implementation of the plan. The Nevada teacher education team member was faced with a very different situation. He had neither a structured program nor an on going of experienced cooperating teachers. The Nevada research strategy with its minimal interaction between college faculty and cooperating teachers reflects this situation.

Regional Teacher Education Team Members

The final set of explanatory factors examined here are the characteristics of the regional teacher education team members themselves. A major contention of this section of the study has been

that the variance in contextual factors across the three sites accounts for much of the difference among the three research/ intervention plans. We are not arguing, however, that differences among the three individuals who spearheaded the research efforts at the three site did not effect some of the variation in those efforts. As one of the team members said, "We are three different people and you could not expect that we would all go out and do the same things."

The preferred style or personality of the team members seems to have had some effect on the research strategy. The Nevada member noted that he "tends to work alone, quietly, on a one-to-one basis." Both the Mills and Utah members describe themselves as outgoing, social types who are more comfortable working with others. The effect of these personality and style types on the research plans is clear, both the Mills and Utah team members involved a number of people, while the Nevada team member worked alone.

All three of the team members enjoyed excellent relations with the administrators in their local school districts responsible for student teachers. The Mills team member has authored a number of articles with the staff development officer from Vallejo. The Utah team member has worked closely with district personnel in the Professional Development Centers. The Nevada team member, as Director of Student Placement for the university, has been working with the Washoe school district for years and has developed a close working relationship with both the superintendent and the administrator in charge of preservice placement. The relationships of the three team members with their districts differ, however, regarding

school district, the characteristics of the teacher education program, and the relationship between the two--had the greatest impact on the development and implementation of the research intervention plans than did the individual differences among the three regional teacher education team members.

Summary

The report identifies factors influencing variations across sites. The overall intervention strategy for the three intervention projects was conceived, developed, and implemented by Far West Laboratory for Educational Research and Development. The primary result of the intervention strategy was that faculty in three teacher training programs began to systematically apply in their preservice programs the existing research on effective teaching strategies.

The specific nature of the development and implementation of a strategy for each site, however, was tied to the Far West Laboratory's collaborative intervention approach. In this case, Far West Laboratory worked with three teacher education faculty members from three institutions of higher education and their respective cooperating school districts. This was an attempt to apply the research on effective instruction. The three different research intervention projects, therefore, were functions of the differing characteristics of the various sites.

In Nevada, the research intervention plan was developed partly in response to the plans for the other two sites. Both the Utah and Mills regional teacher education team members developed complex plans for introducing student teachers to the relevant research which

cooperating teachers and school site administrators. As we noted in the previous section, the Mills and Utah team members worked with the same cadre of teachers and administrators and semester after semester, enabling them to develop a network of trusting personal relationships. Because the Nevada team member worked with different teachers and administrators each semester, he could not maintain similar relationships. The resulting ability of the Mills and Utah team members to involve cooperating teachers in their research strategies is the apparent consequence of these differing relationships.

Another important variable appears to be the opportunity for professional rewards and incentives that participation in the project afforded the teacher education team members. Both the Utah and Mills team members are assistant professors, in the process of extending their professional portfolios toward tenure. The Nevada team member already has tenure, although he viewed the project as an opportunity to be promoted to full professor. It appears as though the Mills and Utah team members had more incentive to seek research experience and publications than the Nevada team member. Their larger stakes were reflected in both the complexity of their research intervention projects and in their attempts to apply the same research strategies in other sites.

It is clear, then, that individual differences in personality styles, personal relations with relevant actors, and perceived rewards and incentives through the project, all affected how the research/intervention projects differed. It is, however, just as clear that the contextual factors--the characteristics of the local

included the participation of other teaching faculty, student teachers, and cooperating teachers. Exposed to these planning models, the Nevada regional teacher education team member decided to use a less elaborate method of introducing the research. His purpose was to examine the relative efficacy of expending significant efforts on applying research in teacher education programs.

At Mills College in California, where the faculty was accustomed to using the research from the child development literature in its teacher training program, the regional teacher education team member noted that the intensity of the collaborative process led to a more systematic application of the research in his particular plan than he or his colleagues had experienced previously.

At the Utah site, the regional teacher education team member pointed out that the extensive collaborative nature of her research intervention plan, wherein the project was developed and implemented by a team of teacher education faculty, cooperating teachers, and student teachers, was a direct result of the collaborative process she had experienced.

The interaction among the characteristics of the three sites that affected the development and implementation are depicted in Figure 3. Specific aspects of the structure of the teacher education program, its size, the traditional collaboration among faculty members, and the existence of latitude in the program for the interjection of an innovative project, combined to affect the research strategy. Similarly, the commitment of the local educational agency to the ongoing training of teachers affected the various research plans. However, in all three sites, the traditional relationship

between the teacher education program and the cooperating school district played a most important role in affecting the varying outcomes. This relationship was, naturally, itself a function of the characteristics of the teacher education program and the cooperating school districts. Finally, the three regional teacher education team members themselves played a pivotal role in defining the different plans. Our analysis of the variation among the three research strategies leads us to conclude, however, that individual differences were of secondary importance in relation to the structural characteristics.

Outcomes

While the short term goal of the collaborative process of research intervention was the application of research where it had not been used extensively before, the long term goal was the development of professionals who would continue to utilize research skills and findings in their work beyond the specific project at hand. The overall intervention strategy calls for this second goal to be achieved through the formation of Teacher Education Academies that will continue even after Far West Laboratory is no longer directly involved in the projects. Through interviews with the regional teacher education team members and examination of their activities outside of the Far West Laboratory project, we find evidence tnat this secondary goal is being realized.

Prior to his participation in this project, the team member in Nevada felt that he was isolated from his peers. In fact, there was little structured support for collegial interaction and support among faculty members in his department. As a result of his intensive

efforts to apply research in the teacher education program and the visible support he received in doing so from both Far West Laboratory and the regional teacher education team members, he reported, "I am no longer an island in my institution. Now there is dialogue among the faculty members." The Nevada team member has begun to use some of the techniques from the effective teaching literature in his own teaching. Moreover, he is planning further research projects with a number of the other faculty members who are interested in applying the research on teacher effectiveness in their courses. As a result of his participation in this project, the Nevada team member expanded his leadership role in his department. He is now coordinating an attempt to establish a Teacher Education Academy at a local elementary school in which approximately five teacher education faculty members, 10 student teachers, and various school personnel will work regularly in a collaborative endeavor.

At Mills, the results of the Far West Laboratory intervention are perhaps even more tangible. Here the team member found himself in an environment where there was already a great deal of mutual support and interaction among faculty members. Working from this supportive base, the team member, in collaboration with a department colleague and a visiting scholar, developed two research intervention plans in addition to the one established in work with the Far West Laboratory Regional Teacher Education Team. In one study (Russel, 1984), three faculty members examined the transferability of the research on academic learning time and active teaching behaviors which the team member had used in his Far West Laboratory project to the teaching of high school science. In the second study, the team

member and his colleagues at Mills plan to use the same research strategy developed as part of work at Far West Laboratory in a second school district that was not part of the Far West Laboratory study. Again, we see the effects of the intensive collaborative mode of intervention used by Far West Laboratory on the professional activities of a researcher beyond the limits of the intervention itself. Of considerable interest is the Mills effort that brought approximately 15 separate teacher education programs and their cooperating school districts together to explore collaborative and innovative research applications. This effort has been partially supported by private foundation funding.

At the Utah site, too, the team member has begun to incorporate active teaching behaviors into her own teaching. Furthermore, she will train the cooperating teachers who supervise student teachers on how to observe active teaching behaviors. In short, she is incorporating the research findings from her study with Far West Laboratory into the institution's regular teacher training and inservice training. In addition, the research strategy is being extended to other school districts. This is most promising for the continued use and application of recent research findings.

Summary

There were no clear results regarding change in classroom teaching behavior. However, the perspectives of student and cooperating teachers toward the value of research became increasingly positive across all three sites. Achievement of the project goal of a continuing and expanding network among teacher education programs and local education agencies seems promising at this time.

Our analysis of the three research intervention projects reaffirmed the belief that the process by which teachers are educated is a complex, interactive one involving numerous organizations and individuals. Teacher education programs, their faculty, school districts and their staff development officers, schools and their principals, classrooms and their teachers all interact to define the education of a single student teacher. Change in such a complex interactive process can never be linear; that is, an outside agency cannot simply cause specific changes to occur. Rather change is a joint product of outside factors and specific situational characteristics. Attempts to effect change in the preparation of teachers must begin with an understanding of the influence of contextual factors. The variation among the three research intervention projects is evidence of the validity of this contention.

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