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ABSTRACT

A report is presented on the progress of the Applying Research to Teacher Education (ARTE) Research Utilization in Elementary Teacher Education (RUETE) study. The purpose of the study is to develop preservice instruction incorporating current research findings on effective instruction and effective schools and to assess the impact of the preservice instruction. The report focuses on the first year of the study and the strategies developed for effecting preservice teacher education with the research findings on effective instruction and preliminary assessment of those strategies. The initial research intervention at the University of Utah is described with comprehensive data on the methodology and findings, as well as plans for replication. The collaborative nature of the research intervention promoted a link among an external research and development agency, a teacher preparation program, and a public school system. A discussion is offered on the implications for teacher education in such a collaborative effort with parity for varied professional constituencies. It is suggested that while such a process is successful in meeting the goals of decision-making and designing of preservice instruction, it may not be feasible in other settings because of time and cost constraints. (JD)

CASE STUDY OF A RESEARCH INTERVENTION: THE UNIVERSITY OF UTAH'S COLLABORATIVE APPROACH

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INTRODUCTION

In 1983 the National Institute of Education (NIE) funded the Far West Laboratory for Educational Research and Development (FWLERD) to conduct a study, Applying Research to Teacher Education (ARTE). Research Utilization in Elementary Teacher Education (RUETE). The purpose of the ARTE:RUETE study is to develop preservice instruction incorporating current research findings on effective instruction and effective schools and to assess the impact of the preservice instruction.

The Research Utilization in Elementary Teacher Education facet of the ARTE study draws upon existing findings from the research on effective instruction to inform teacher education practice. The design and implementation of this two-year study integrates: (1) the application of research on effective instruction, (2) the utilization of processes of adult learning in a systematic manner, and (3) the development of teacher education academies.

FWLERD, in conjunction with the staffs of preservice elementary teacher education programs at three regional institutions of higher education, is applying some ten years of research on teaching in elementary schools to build preservice teacher trainees' knowledge and skills in the areas of effective classroom instruction. The application of research is occurring through a process of collaborative inquiry, using the Interactive Research and Development on Teaching (IR&DT) developed at FWLERD. The IR&DT central theme of collaborative inquiry provides knowledge about and experience in solving problems in concrete and directly relevant professional situations. Study participants are involved at two major levels: the Regional Teacher Education Team (RTET) level and the Teacher Education Academies (TEA) level. Experiences at these two levels include two years of field activities.

Engaging teacher education personnel in a RTET for collaborative research purposes provides a forum of multiple perspectives. It is expected that the academy network system will facilitate communication and result in long-term collaboration for effective instruction and school investment.

The study consists of two major phases: Phase I, from December 1982 to November 1983, and Phase II, from December 1983 to November 1984. The first year is designed to establish a RTET, to incorporate recent research findings from elementary school effectiveness studies into the preservice elementary school teacher education process, and to initiate the teacher education academies. The second year's plan proposes to concentrate on more fully developing the academies, which are the cornerstone of both phases. This paper reports the progress of the first year, that is, strategies developed for impacting preservice teacher education with the research findings on effective instruction and preliminary assessment of those strategies. The initial research intervention will be described in this case study with comprehensive data on the methodology and findings, as well as plans for replication.

In its first year, the study selected and convened a Regional Teacher Education Team (RTET), consisting of experienced teacher educators from these institutions:

- University of Utah, Salt Lake City (Amy Driscoll, Regional Research Fellow), in collaboration with the Salt Lake City School District;
- University of Nevada, Reno (Kenneth Johns, Regional Research Fellow), in collaboration with the Washoe County School District; and

- Mills College, Oakland, California (Richard Ponzio, Regional Research Fellow), in collaboration with Vallejo City Unified School District.

The team collaboratively examined the consistent patterns of research findings about effective instruction and successful elementary schools and employed those findings in analyses of classroom situations. The examination of research findings included reviewing, discussing, elaborating, and interpreting major aspects of instructional effectiveness research at the elementary school level.

Each RTET member then developed a situational analysis of his/her teacher education site which described university setting, program, practicum, student population, cooperating school districts, certification requirements, faculty population and current knowledge and use of research findings on effective instruction. The situational analysis informed both the research design and the teacher education academy plans.

Gee (1984) refers to six factors which influence the application of research on effective instruction to elementary teacher education programs. These include state level factors, structure of the teacher education program, teacher education faculty, student teachers, cooperating teachers and school district characteristics. These influences have been identified and described in the situational analysis which follows in summary form. These descriptive accounts were developed for each of the three sites according to criteria provided by FWLERD.

SITUATIONAL ANALYSIS

Contextual variations in community-at-large, school district, student population, state and local education agencies, all impact a teacher education program. Therefore, research and development efforts within a teacher education program must initiate a situational analysis. Planning without contextual considerations can result in temporary and/or ineffective programs. Improvements in teacher education have, as an ultimate goal, increased learning from students. Students live in socio-cultural contexts which influence instruction, and those preparing to teach must understand those considerations in order to plan instruction. Similarly those preparing teachers in a university setting have a set of contexts to recognize and understand.

The University of Utah has had a long and rich tradition in the preparation of teachers and other school personnel. At the time the University was founded in 1850, provisions were made for the creation of a "Normal Department" to offer a two-year program for teacher preparation. The Department of Education eventually became the State College of Education and in 1963 was renamed the Graduate School of Education, with both graduate level study and some undergraduate programs.

The Department of Educational Studies is accountable for the certification and degree programs in early chlidhood education and elementary education and for certification only in secondary education.

Broadly speaking, all of the basic teacher education programs are predicated on the assumption that the preparation of teachers must include a strong background in general/liberal education coupled with a rich and varied experience in educational pedagogy. A further assumption is that

the preparation of a teacher is a life-long process and consequently preservice education is only the beginning of a preparation continuum which should extend throughout the career of any educator.

The teacher role is viewed as a dynamic one, and the person prepared for that role must be capable of identifying, organizing, and managing intra- and interindividual learning differences and subsequent prescriptions. It is further believed that every teacher must be aware of the differing social contexts in which she/he may assume a teaching role.

Within the broad philosophical framework each basic program has described explicit objectives that characterize the role of a teacher in that given area of specialization. The teacher should have a broad and well-developed knowledge of those areas of human endeavor and learning fundamental to humankind. This knowledge is to be supported by skills and personality traits which permit a teacher to organize that knowledge into forms communicable to children and appropriate for special and individual needs. The skills, knowledge and attitudes are also to be demonstrated by evidence of self-growth and professional development. Student teaching is designed to be the culminating professional laboratory experience for students seeking elementary and early childhood certification. It provides the opportunity for student teachers to test and reconstruct the theories which they have learned, and to further develop their own teaching styles. Since student teaching provides the opportunity for the student to translate theoretical principles of methodology into sound, effective educational practices, it is essential that the major portion of professional preparation be completed before the student is considered for a student teaching placement.

While specific program prerequisites for student teaching vary, each requires that the student have completed courses in methods of teaching, proven competency in metrics, and maintained a minimum cumulative grade point average of 2.7 on a 4.0 scale.

The Divisions of Elementary Education and Early Childhood Education have organized an intense, collaborative system of student teaching supervision with seven local elementary schools in three immediate school districts: Granite, Jordan and Salt Lake. These schools are known as Professional Development Centers (PDC's). They are chosen with consideration of quality of school, representation of SES and cultural diversity in student population, location and commitment to working with student teachers expressed by faculty and principals. All student teaching occurs in these schools. This long-term arrangement allows for continuity of contact between university and school district personnel, and continual growth of all participants. The teachers within the schools are selected for their interest in supervising student teachers and their excellence as classroom teachers. Cooperating teachers are called "associates" and hold clinical faculty appointments in the Department of Educational Studies with accompanying benefits and privileges. These associates often assist in teaching undergraduate classes, serve on department committees and participate in research studies. A large proportion of the associates are pursuing or have completed graduate degrees. The division appoints a faculty member to each school as a coordinator to work with both teachers and student teachers. The coordinator provides continuing inservice work with the teachers, especially around matters affecting student teaching and toward continuing professional development. The principal in a PDC is referred to as a "director" and

is actively involved in seminars for both student teachers and associates, as well as in university functions which parallel those of the associates.

During the practicum, the director, the coordinator and the associate are all actively involved in observation, supervision and guidance of the student teachers. At the end of the practicum, all formally evaluate the student teacher's performance on standard rating forms. In addition, the Department of Educational Studies conducts ongoing evaluation of the PCD's in general and of each of the participants (director, coordinator and associate).

During 1981 and 1982, efforts to better collaborate in the teacher education process brought together elementary and early childhood education faculty, PDC principals, cooperating teachers and student teachers for quarterly forums. These meetings alternated the focus from "needs not being met in education courses" to "needs not being met in the student teaching experience." Each meeting concluded with lists of recommendations for both the public school faculty (PDC) and the teacher education faculty. Current course syllabi and several course additions reflect many of these recommendations. Plans for 1983-84 are focused on the integration of the teacher education academies with the PDC's, and promotion of the research findings on effective instruction.

Elementary and early childhood teacher education students generally have had a wide variety of travel and work experiences, approximately 16 percent of the students seeking certification in elementary and early childhood already have a bachelor's degree and are seeking a second degree or certification. Approximately 10 percent of the students are working toward dual certification. At the present time, there are 190 students

enrolled in elementary education and 70 in early childhood for a total of 260 students. The age range of students is from 18 to 55 years of age. Of the total student population, 145 are over 25 years of age. Autobiographical sketches reveal a large percentage of married students with families (58 percent). The cumulative grade point average for elementary students is 3.26 and for early childhood is 2.99.

Certification requirements specified by the Utah State Board of Education are followed by the Graduate School of Education, University of Utah. The basic professional certificate may be acquired upon completion of an approved baccalaureate program in early childhood education/elementary education from an accredited institution. Student teaching is a requirement. The prescribed elements of professional studies have integrated basic guidelines from the National Council for Accreditation of Teacher Recommended Standards, Utah State Office of Education and specific materials from various professional organizations. Of the total 41 faculty in the Department of Educational Studies, 15 faculty teach courses for the Elementary and Early Childhood Divisions of the teacher preparation program. These faculty represent a range of two to twenty-eight years of experience at the University of Utah, and one-third received doctoral degrees from the Utah institution. In contrast to the "typical teacher educator" described by Carter and Griffin (1981) as much younger and having earned an undergraduate degree with a major outside of a college of education, the typical University of Utah educator is over 45 years of age and earned an undergraduate degree in education. Other demographics fit Carter and Griffin's picture; that is, most are at the Associate Professor level, are Anglo and come from

a limited work experience background, specifically teaching. Eight of the Utah teacher educators are female while seven are male.

The Regional Teacher Education Team identified five general areas of research findings that would be of interest and value to include in the preparation of elementary student teachers. The five topics were gleaned from research on effective instruction and were identified as being well adaped to elementary teacher preparation at both the theoretical and practical levels. The five topics include:

1. General student participation styles.
2. Activity structures including grouping, task demands.
3. Academic learning time (ALT) including allocated time, student engagement, student success.
4. Active teaching behaviors including lesson planning, explanation and demonstration, supervised practice, review, monitoring and feedback.
5. Classroom management including "withitness," overlapping, smoothness, momentum, group alerting, accountability, valence, challenge arousal, variety challenge.

The Regional Teacher Education Team in collaboration with the FWLERD staff developed survey guides appropriate for obtaining a situational analysis from student teachers, cooperating teachers, and teacher education faculty. The dimensions assessed related to levels of existing knowledge and use in applications of the research related to the five topics. The surveys were administered in an interview situation to student teachers, cooperating experienced teachers, and college faculty working with the elementary credential program. Each was asked to identify their levels

of knowledge and level of application of the research findings appropriate to their role. The questioners probed to see if the interviewee had gained the knowledge/skill from primary sources identified in the research topics, or from other sources who just happened to use the topic terms in their lexicon.

At the University of Utah site, ten student teachers, ten cooperating teachers and ten teacher education faculty members were randomly selected to be interviewed. The interviews for faculty and for students from this site revealed little or no knowledge of research on effective instruction as defined by this study. Neither faculty nor students were able to identify major researchers in this field. Furthermore, the teacher education faculty reported limited use of effective instruction research in their coursework.

Responses from cooperating teachers, on the other hand, reflected knowledge of the research on effective instruction; sixty percent of those interviewed reported knowledge of research on effective instruction. These responses were supported by the identification of major researchers associated with the effectiveness literature. This knowledge may have been due in part to the significant number of cooperating teachers who had completed or were currently enrolled in graduate programs. Further investigation revealed that these teachers had participated in coursework with the RTEP member from the Utah site, which then explains their reported knowledge of the research findings. Only one topic, activity structures, appeared to be unknown to this group of respondents. It is interesting to note that, although effective instruction research had impacted the knowledge base of cooperating teachers, it had little influence on the tea ing required of their student teachers.

The contextual parameters and influences of the University of Utah/Salt Lake School District teacher education site were critical considerations for the implementation of the ARTE:RUETE study. Characteristics of the teacher education program affected the posing of research questions, the design of intervention strategies and the conclusions drawn from the data.

II. FORMULATION OF THE COLLABORATIVE TEAM

As previously reported in the introduction, the Regional Teacher Education Team collaboratively examined the research findings on effective instruction. This process took the form of presentations by Far West staff and several of the major research investigators, intensive reading of the research literature, and discussions toward clarity and common understanding.

During this first session, the work scope and project objectives were not delineated for the team. The RTET members including the author experienced an uneasiness, a lack of direction and doubts about Far West's expectations. As the week proceeded, a general enthusiasm and high level of energy carried the team through a series of decision-making and planning stages. In retrospect, that same lack of defined objectives and strategies which caused member uneasiness may have contributed to team cohesiveness. The session served as both review and renewal for team members' awareness and knowledge of the research on effective instruction. Shared experiences and competencies of the team members served to further the collaborative process as team members approached the demand for research intervention plans. At the end of the first session, the original research design, formulated in haste and without necessary reflection, became a springboard

for each site's research intervention plan. In the months following RTET Meeting #1, team members contemplated individual plans and interacted via telephone and mail with each other. This interaction took the form of advising, reviewing, editing and confirming each other's work. There was a shared ownership in the three research intervention designs between the team members, again enhancing the collaborative aspect of the project. Throughout the initial formulation of the collaborative team, Far West Lab remained a constant resource providing support and assistance.

III. UTAH RESEARCH INTERVENTION PROJECT

The situational analysis directed the development of a research design characterized by collaboration. The nature of the Professional Development Centers together with the signficant working relationships which the Graduate School of Education enjoys with local school districts and the state agency reflect Howey and Gardner's concept of "the professions working together" toward the improvement of teacher education (1983).

It was important that the research and development efforts at the Utah site reflect that philosophy. The lack of both knowledge and use of the research findings on effective instruction among student teachers, teacher education faculty and some cooperating teachers further supports the focus of this research design, that is, the research findings on effective instruction. Studies of effective teachers have directed professional attention to clearly defined teaching behaviors which promote high levels of student participation, positive attitudes and increased achievement (Good, 1983; Fisher, et al, 1980). These findings have influenced inservice

programs with promising results. Current inservice experiments have demonstrated that teachers can change their behavior and student achievement can be affected (Gage and Giaconia, 1981). However, as Stallings states, "The spotlight for educational improvement in the 1980's is on preservice education (1983)." This leads to the major research question of this project: Can the research findings on effective instruction have an impact on the teacher education process?

With this research question in view, the Utah RTET member hoped to "not only alter the curriculum content of the preservice program" at the University of Utah, but to "also introduce the perspectives and skills of inquiry as part of a teacher's (and teacher educator's) professional repertoire." (Mason, 1983) In addition to the major goal of applying effective instruction research findings to teacher education, Mason's (1983) three aims were critical considerations for the development of the Utah research intervention design. The first aim was to engage prospective techers, from the beginning, in systematic examination of their practices and efforts to improve them. A second aim was to engage teacher educators in small scale but persistent inquiry of their own practice and its contributions to teacher quality. A third aim was to foster fruitful collaboration between districts and universities in the preparation of teachers.

The major research question and the described goals were pursued by means of the Interactive Research and Development on Teaching (IR&DT) model developed at Far West Laboratory. As described by Tickunoff and Mergendoller (1983), the IR&DT model is a team-centered research and development strategy characterized by collaboration. Th model engages teachers, researchers and trainer/developers in the conduct of both inquiry and

problem-solving. IR&DT team members have parity in the decision-making which involves research topics, methodology and training. Additionally, the IR&DT process respects the integrity of the classroom. The IR&DT process is one of intervention bringing about changes in the ways teachers, researchers and trainer/developers conceive and manage their professional roles. It is a responsive strategy which attends to implications of the University of Utah situational analysis as well as the national agenda for research on teacher education (Howey and Gardner, 1983; Hall and Hord, 1982). This research project placed preservice teachers, experienced teachers and teacher education faculty in a collaborative IR&DT mode for the purpose of responding to the major research question: Can the research findings on effective instruction have an impact on the teacher education process?

The following research design was developed in two phases. Phase I describes the hypotheses and methodology specific to the collaborative development of Phase II. Phase I consisted of collaborative decision-making to determine specific methodological components of Phase II. The nature of the collaborative process demanded that Phase I have broad parameters so that participants could collaboratively pose research questions and prescribe methodology and analysis. In this research project, Phase II evolved from Phase I.

The following definitions will serve as clarification of terms for both Phase I and II of the research design:

1. Preservice teachers or student teachers are elementary education students in a certification program, prior to and/or during student teaching.

2. Experienced teachers or cooperating teachers are elementary classroom teachers, with a minimum of five years of experience, who participate in the teacher education process in a supervisory role during field experiences.

3. Teacher education faculty refers to those faculty members who teach elementary education methods courses (language arts, social studies, science) courses in various content areas of teaching, which require both course work and field experience.

4. Effective instruction refers to teaching behaviors which promote high levels of student participation, positive attitudes and increased achievement; research in this area include findings on Academic Learning Time (ALT) (Fisher, et al, 1978, 1980), Active Teaching Behaviors (ATB) (Good, 1979, 1983) and Activity Structures (ASP) (Bossert, 1977, 1978, 1979).

Phase I - Hypotheses. The following hypotheses are posed:

1. Student teachers who participate in the collaborative development of preservice training using the research findings on effective instruction will not differ significantly in their ability to demonstrate the teaching behaviors identified in the preservice training from those student teachers who do not participate.

2. Student teachers who participate in the preservice training using the research findings on effective instruction will not differ significantly in their ability to demonstrate the teaching behaviors identified in the preservice training from those student teachers who do not participate in the preservice training.

Phase I - Methodology. The major elements of this phase of the project are:

1. sample selection and assignment to groups,
2. collaborative session to develop preservice instruction

1. The sample consisted of 12 preservice teachers in the elementary education certification program at the University of Utah, four teacher education faculty members from the same institution and four experienced cooperating teachers from the elementary schools in the Salt Lake School District. All members of the sample were volunteer and are further described in definitions (p. 16) and in Phase II.

The twelve preservice teachers were randomly assigned to three groups: Treatment A_{ST}, those who participate in the collaborative session; Treatment B_{ST}, those who receive the preservice instruction; and Treatment C_{ST}, the control group, with neither participation in the collaborative-session nor preservice instruction.

2. The collaborative session consisted of three phases:
   a. review and consideration of the research findings on effective instruction;
   b. decision on the area of research findings which participants consider most critical to the teacher education process; and
   c. design of preservice instruction based on selected area of research findings.

The one week collaborative session was documented through the use of pre- and post-tests, videotapes, journals and naturalistic observations

and recordings. Aspects of the collaborative session were described in evaluative summary sheets at the end of each day.

The preservice instruction was designed during the collaborative session and is described in Phase II - Methodology. It was implemented prior to the 1983 Fall Quarter of student teaching.

Further decisions affecting the research design were dependent upon decisions made at the collaborative session.

Phase I - Instruments and Materials. The materials used in the collaborative session include readings on the research of effective instruction, specifically in the areas of Academic Missing Structures. An agenda for the collaborative session, a reading list and observation forms can be found in Appendix A. Assessment materials including pre- and post-test tests, response/evaluation forms, and questions for directed journal writing have been developed by the primary investigator and used for the collaborative session (see Appendix B). Instrumentation for final data collection, that is observation of student teachers was determined by decisions made in the collaborative session.

Phase II - Introduction. A brief summary description of the proceedings of the collaborative session is appropriate as a preface to Phase II. As prescribed in Phase I, the session was held in July 1983 for four days. The primary objectives of the session were: (1) to review major topics in the research on effective instruction; (2) to determine one focus from the major topics for Phase II research; and (3) to develop preservice instruction using the determined focus.

Session participants were four student teachers, four cooperating teachers, and four teacher education faculty members. The four student

teachers were seniors in the elementary education teacher certification program, registered to student teach during Fall Quarter 1983. All student teachers were female, with a mean age of 30.5 representative of the undergraduate teacher education population of the Graduate School of Education, University of Utah (see Situational Analysis, Driscoll and Gee, 1983). Two of the student teachers were to student teach in fourth grade and two were to student teach in the sixth grade. The four cooperating teachers in attendance were female, had an average of 10.2 years of teaching experience with a range of 6 to 19 years, and taught elementary grades second, fourth and sixth. The cooperating teachers had a minimum of two years experience working with student teachers and a maximum of six years experience. The teacher education faculty participants all taught elementary education "methods" coursework in the teacher certification program and represented the content preparation areas of reading/language arts, aesthetics, science and social studies. All faculty members were female and had an average of 5.2 years of teaching at the University level and 9.7 years of elementary classroom teaching.

The agenda for the collaborative session consisted of a review of major topics in the research on effective instruction, selection of one topic for a research and development focus and the development of a preservice instruction plan. Specific activities and scheduling can be found in the agenda, Appendix A.

The participants followed the agenda and on the third day collaboratively selected the research findings on Active Teaching Behaviors (ATB) as most salient to preservice teacher education. Following this decision, participants then developed a preservice instruction plan consisting of review of research

on Active Teaching Behaviors, extensive observation of videotapes for identification and recording of ATB, assessment of lesson plans for ATB and role-playing ATB with peers. Additionally ATB observation forms were to be used in self-observation, observations of peers and of cooperating teachers and by University coordinators in supervision of student teachers.

During the collaborative session, responses were collected daily through directed journal writing and end of session evaluations. Pre- and post-tests were administered at the beginning and end of the collaborative session to determine participants' general knowledge of the research on effective instruction. Naturalistic observations of the collaborative process were recorded for use in this case study.

The pretests revealed that the student teachers, cooperating teachers and university faculty were generally unaware of the research on effective instruction which includes academic learning time (ALT), active teaching behaviors (ATB's) and activity structures. However, after four days of exposure through lectures, videotapes, readings and discussion sessions, participants scored significantly higher on the post-test with almost all scores in the 80 to 100 percent range.

Journal entries before and after each daily session and daily evaluation forms provided a continuous flow of information on the effect of individual as well as overall sessions presented. For purposes of reporting journal information, CT refers to cooperating teachers, ST refers to student teachers.

Journals for the first morning indicated a sense of excitement, anticipation with some expectations by the participants: "I would hope to be able to make some worthwhile contribution, however small it may be and to experience some personal and professional growth," (CT) "This week

will help me to be a better teacher," (CT) "I will have a better experience student teaching," (ST) "My expectations are to get to know the people I am working with." (ST)

Following the first day's session with an introduction to the research project and videotapes and lectures on ALT, the participant's evaluations were positive about presentation of material and ideas. Some felt the pace was too slow, others wanted the overheads in handout form, and a few felt there was too much information to digest.

The afternoon journal entries focused on the group interaction, "I am basically pleased with the dynamics of the group" (U. faculty), and comments on specific instruction during the day - "I believe my students can do whatever the assignment is" (CT); and "It (ALT) is a much better description of the learning environment." (ST)

The second morning's participants wrote about their reactions to ALT from their readings. Many found the concept useful, "helpful," and easy to understand.

The day's proceedings started with videotapes on ALT plus introduction and observation of ATB's. The day's evaluation forms indicated a very positive reaction to pacing and content during the day as well as appreciation for the increase of group interaction. Journals at the end of the day supported the research: "the necessity of stating goals and outlining the lesson when you are teaching," (CT) "experiences and exercises in influential questioning" (ST), "Being a prospective student teacher, I find that collaboration in this group will benefit me greatly" (ST), "I am anxious about the items you listed as low achievement - a couple of those were of value to me...humm.." (U. faculty).

On the third morning, participants wrote positively about their impressions so far of the collaborative aspect of the workshop.

Following the day's session on activity structures a review of the topics presented thus far, the journals of the third afternoon addressed the issue of what was the most critical aspect of preservice instruction: "My choice is ALT" (CT); "Good points brought out and discussed (U. faculty)"; "I would not choose ALT, since I feel it is very basic. I can't decide" (CT); "I'm delighted ATB's were selected" (CT); "I think I'll go with ATB's!...it's important to value the total child, the total environment" (CT); "I feel we have reached the best decision" (ST); "The discussion was conducted in a very professional manner. I still feel that it (ATB) is the most useful tool as a guide to teaching."

On the same day, evaluations all agreed that the material was presented well. The collaborative process was viewed as the msot positive aspect of the day's session. Participants agreed that it was good to have that quality of interaction with the other members of the group.

The group spent the final day designing preservice education following their collaborative decision on Thursday afternoon to focus on ATB's. The morning journals indicated enthusiasm and excitement: "I am so excited and can barely wait. I feel so comfortable with the group as they are warm and open with their ideas" (ST); "I feel good about all the efforts of this group" (ST); "When today is over...I hope, I know, that it will be what so many of my friends in the program are looking for in terms of "How to Teach" (ST); "Oh, what a wonderful feeling! Everything's delightful today!" (CT)

The positive reactions and feelings continued through the day into the final journal entries and evaluations; "Loved the collaborative session" (U. faculty); "...feel grateful for being asked to participate...so pleased about the knowledge about effective instruction" (U. faculty); "Enjoyed the sharing with a more varied group" (CT); "The collaborative session was incredibly exciting and challenging and rewarding" (CT); "...very dynamic" (CT); and "whole week was wonderful, some of the best time I've spent...very productive and beneficial for me...". (ST).

Evaluation of the workshop as a whole indicated a clear understanding of collaborative research, a very positive feeling about the collaborative process as well as a positive reaction about the scope and content of the workshop.

The participants in the July collaborative session were interviewed nine months after the session for their perspectives of the session and for its impact on their professional lives. These impressions will be included in the Findings section which follows.

Phase II - Hypotheses. The hypotheses developed for Phase I will be tested as part of Phase II. In lieu of general terms such as "teaching behaviors," specific labeling "active teaching behaviors (Good, 1979, 1983)" is substituted. "Research findings on effective instruction" can now be interpreted as "research findings on active teaching behaviors (Good, 1979, 1983)."

Phase N - Methodology. Three procedural elements are the methodological focus of Phase II. These include:

1. preservice instruction,
2. observation/data collection,
3. data analysis.

The time line on the following page reflects the sequence of procedures for Phase I and Phase II.

1. The preservice instruction as developed in the collaborative session uses the research on Active Teaching Behaviors as the content focus and is designed as part of the "Early Experience" session for Fall Quarter student teaching. The "Early Experience" session is a four-week pre-student teaching program consisting of half-day attendance in classrooms, observations, mini-teaching lessons and seminars with teacher education faculty. The "Early Experience" session is not mandatory at this time but is offered to enrich the student teaching experience. The preservice instruction on Active Teaching Behaviors consisted of four sessions, two hours each, in the following format:

   a. Session One (first week) - Introduction to the research on Active Teaching Behaviors; observation via videotapes.

   b. Session Two (second week) - Extensive observation via videotapes; discussion of peer observations focused on Active Teaching Behaviors; T. Good's Active Teaching videotape (A.S.C.D., 1983).

   c. Session Three (third week) - Review of lesson plans for inclusion of Active Teaching Behaviors; observations via videotapes; discussion of Missouri Mathematics Effectiveness Project.

   d. Session Four (fourth week) - Role playing of lesson plans to demonstrate and critique use of Active Teaching Behaviors; summary discussion and evaluation.

TIMELINE

Procedures	1983 MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	1984 JAN.	FEB.
1. Sample Selection and Assignment										
2. Collaborative Session										
3. Implementation of Preservice Instruction										
4. Observation/ Assessment										
5. Data Analysis										

2. Data collection was primarily conducted through observation of student teachers. The sample groups of student teachers consisting of Treatment A_{ST}, Treatment B_{ST} and Treatment C_{ST} were observed during mathematics instruction for three one-hour sessions. Observations recorded the incidence of Active Teaching Behaviors using the Teacher Instructional Behavior Record (TIBR) developed by Far West Lab (1983). The TIBR contains 20 teacher behavior items (see Figure 1) in four teaching categories (Introduction, Instruction, Closure and Management). Recordings are made every 60 seconds, and include notation of incidence, additional behaviors observed, and a narrative description for each teacher behavior recorded. Observations and recordings were done by two trained observers, graduate assistants with the ARTE:RUETE project. Training of the observers was conducted according to the TIBR Manual (Gee, 1983) during October 1983. Training proceeded until observers reached 90% reliability of observations.

3. Data analysis focused on the comparisons described in Phase I. Major findings consist of comparisons of behavior categories of the TIBR. The treatment groups are compared for differences in the frequency of individual behavior items and within behavior categories (see Figure 1). These differences have been analyzed for statistical significance using a chi square.

IV. FINDINGS

For purposes of this case study, only preliminary analysis of the data has been completed. This report considers only the frequency of occurrence of the Active Teaching Behaviors and compares the frequency data across the three treatment groups. Additional analysis to be conducted

includes profile descriptions of the individual Active Teaching Behaviors through summary synthesis of teacher communications and actions recorded in the narrative sections of the TIBR and statistical analysis of relationships between the main behavior recorded each sixty seconds and the additional behaviors occurring during that time frame.

Table I displays the frequency of behaviors within each category of Active Teaching Behaviors. The categories include: Introduction, Instruction, Closure and Management. Figure 1 illustrates the individual teaching behaviors within each category.

The chi square statistic for an overall comparison of student teacher groups across categories of teaching behaviors indicates significant differences ($X_2 = 29.2$ ([illegible]$p < .0001$). It appears that the category of considerable difference for treatment and control groups is Introduction. Within the Introduction category, differences in Behaviors 1, 3, and 4 are resonsible for the differentiation between treatment and control groups in their use of introductory behaviors.

Trends in categories Instruction and Closure are mixed and difficult to interpret. The difference between Treatment A student teachers and the control group in use of Instruction behaviors could be explained by the lapse of time between the collaborative session (July 1983) and student teaching (September-December 1983). However, differences within the Closure category reflect a trend of another direction as Treatment B student teachers demonstrate Closure behaviors least often. Their treatment immediately preceded student teaching so the time lapse issues do not maintain across categories. Within the Instruction category, there is relatively even distribution of behaviors across groups; both Behaviors 13 and 14 contribute

significant differences across student teacher groups to the Closure category. The treatment groups review the lessons with greater frequency while the control group collects homework more often.

Within the Management category, there are less considerable differences between the three groups of student teachers. The control group does use more management behaviors than the treatment groups. Behavior 19 does account for a major difference in the student teacher groups' use of management strategies (see Table 2). It may be that differences in the other categories of teacher behavior may precipitate the need for more management behaviors. For all of the trends and possible relationships, further study is recommended.

The Utah regional research fellow acknowledges the need for extended analysis of the observed frequencies and consideration of the rich descriptive data available. The limitations of a small sample, singular teacher education site, restricted observations, and untested instrumentation preclude the presentation of direct findings. There is a hesitance at this writing to draw implications for teacher education until further study is conducted.

The most salient product of this investigation is the process implemented at the Utah site. Consequently, interviews of the collaborative session participants are a valuable inclusion in the findings of the research intervention. As previously reported, those participants were interviewed for their perspectives of the session and its impact on their professional lives using an interview protocol developed by the RTET members and FWLERD.

Only three of the four student teachers (STA) were available for inerviewing in April 1984. The general tone of the student teacher interviews was positive and enthusiastic. The feeling was that introduction to the

research on effective instruction filled a gap of information and strategies that had been missed in the undergraduate program. There were echoes of "this is what I've wanted to know about teaching" which had been first voiced during the July 1983 session. Two of the respondents, who incidentally received excellent evaluations and strong recommendations for their student teaching, were able to discuss and describe with specificity a number of the Active Teaching Behaviors. They also reported sharing the information with their cooperating teachers and other faculty in their PDC. Both also referred to a new awareness of ALT as they observed a variety of schools and classrooms. The third resondent was vague in her responses, "I can't remember exactly what they were (referring to ATB's)", "I hoped that I absorbed something indirectly," and "it was never explained to me clearly exactly how I was supposed to use the workshop." She referred several times to her need for follow-up and wished "she had been checked off and expected to display those particular behaviors." The other two student teachers made frequent references to how they put the ATB's in action for various course content, at different times of day and for varying grade levels.

All three student teachers voiced appreciation of the intensity of the July 1983 session, of the collaborative format and the opportunity to interact with faculty and classroom teachers. They responded with "I valued the verbal exchange and I did a lot of thinking that week," "everybody contributed and everybody's ideas were accepted and talked over" and "everyone was willing to risk and stand up for what they believed in and were willing to discuss." The sense of parity among particpants

was well-expressed, "I felt like an equal even though I was a student...I felt like they would listen to me."

The value of research was expressed by all three student teachers as "providing reasons for teaching a certain way," "enhancing preservice coursework," "giving confidence to beginning teaching" and "easing some frustrations with gaps in the preservice program." Only one of the student teachers mentioned a conflict between ATB's and ALT and her basic philosophy of education. She described her Montessori background, a creative orientation and a discomfort with "back to basics and more discipline in the classroom." It is noteworthy that this student teacher received such low evaluations that she repeated the student teaching quarter.

Of the four cooperating teachers, only three were available for interviews due to scheduling difficulties. However, the fourth cooperating teacher did pursue continued study of the research on effective instruction through the Teacher Education Academy. This could be interpreted as a high level of interest and a positive perspective. Within the three interviewees, two cooperating teachers could be specific with respect to the research on ALT and ATB. The third teacher was vague throughout the interview. It is noteworthy that she has the least years of experience (5 years) and didn't have a student teacher in her classroom until Spring 1984.

None of the three reported a conflict between the concept of effective instruction presented in the research and their own teaching style and philosophy. Instead they found the research findings reinforcing of their teaching, "none of the teaching behaviors were new, maybe just a good reminder," "it strengthened my beliefs" and "it was kind of nice, it was

reinforcing what you have been doing for years and years and somebody's putting a stamp of approval on it."

On the subject of collaboration, there was again overwhelming enthusiasm and approval:

> "I liked the collaborative nature of what we went through together. That was different for me. I'm used to doing things by myself and it was nice to have the different groups representing both the university and experienced teachers and beginning teachers, all kind of working together and getting equal input from everybody."
>
> "I guess what I experienced was a group of people together sharing goals and values...working on things together...there was a lot of bantering around of ideas and dialogue and arguing...sometimes a lot of agreement and thought, sometimes a lot of dissent about issues which then allowed people to collaborate."
>
> "For me, the significant feature was probably that whole—the collaborative effort, coming up with things, sharing ideas and listening to ideas, and probably for those who were becoming student teachers... that would have been really helpful."

The teacher education faculty from the collaborative session and graduate assistants involved in the ARTE/RUETE project were also interviewed using the same protocol. Generally the levels of enthusiasm for and commitment to the use of research on effective instruction were high for the graduate assistants and low for the faculty members. Faculty members' responses were characterized by disinterest and lack of impact. The only exception was the faculty member involved in student teaching experiences, who did use the TIBR in her work with student teachers. She was most involved in the collaborative session in July and saw potential use of the research in the field experience. She later worked on the "Early Experience" program with the Utah RTET. Her responses reflected these experiences. The topic

of collaboration and the July experience brought positive responses similar to those of the student teachers and cooperating teachers.

VI. EPILOGUE

The Applying Research in Teacher Education: Research Utilization in Elementary Teacher Education (ARTE/RUETE) project as developed at the University of Utah with Far West Laboratory for Educational Research and Development represents an important response to Howey and Gardner's (1983) description of the gaps and problems in current preservice teacher education practices. They report: few formal relationships between teacher education programs and research and development organizations; minimal collaboration between those resonsible for preparing teachers and teachers themselves; lack of stringent criteria for selection and development of cooperating teachers; and a paucity of studies of how teachers can best be educated (Joyce, Yarger and Howey, 1977). The situational analysis which preceded the development of the research design addresses the concern for studying the process of teacher education within its contextual parameters. Utah is a unique teacher education arena with its cultural influences, a value system which prizes children and education, expanding schools and abundant teacher positions. The teacher education program at the University of Utah is significantly progressive and innovative with its Professional Development Centers.

As noted in the situational analysis, the University of Utah teacher education faculty differ demographically from the "typical teacher educator" described by Carter and Griffin (1981). This project's attempt to impact the teacher education program complements the input which the public schools

have into the program, coursework and field experiences. It also projects a major variation from the "typical teacher educator's decision-making regarding courses and programs based on personal experience...with a lack of well conceived plans." (Carter and Griffin, p. 109)

The Utah education context and the ARTE/RUETE objectives have been blended into a dynamic research design with encouraging results. The collaborative nature of the research intervention promotes a linkage between an external research and development agency, a teacher preparation program and a public school system. This collaborative effort, with parity for varied professional constituencies, has resulted in a conscientious study with significant implications for the process of teacher education.

In reflection, the collaborative process which brought together teacher education faculty, cooperating teachers and student teachers in July 1983 was an intensive and costly (in terms of time and resources) endeavor. The process was successful in meeting the goals of decision-making and designing of preservice instruction. It is not a process to be repeated because of time and cost restraints, whereas the preservice instruction will be provided to student teachers during Fall 1984 to replicate the results of that particular treatment.

There is a strong sense of confirmation of this researcher's educational beliefs in the data produced by the research intervention. There is also a caution against concluding beyond the results and a recognition of the need for replication. It is the hope of this researcher that further intervention studies will have more far reaching effects on the teacher education program. Ultimately, improving the quality of future teachers

and the education received by students may be an outcome of continued efforts such as the ARTE:RUETE project.

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FIGURE 1

ACTIVE TEACHING BEHAVIORS

Behavior 1	Stated Goals/Objectives	
Behavior 2	Outlines Lesson	
Behavior 3	Explained Concepts/Definitions	INTRODUCTION
Behavior 4	Reviewed Goals/Previous Instruction	
Behavior 5	Gave Directions	
Behavior 6	Didactic/Lectured	
Behavior 7	Illustrated, Modeled, Demonstrated	
Behavior 8	Questioned: Open/Concepts/Understanding	INSTRUCTION
Behavior 9	Questioned: Closed/Facts	
Behavior 10	Answered: Content/Questions	
Behavior 11	Answered: Procedural Questions	
Behavior 12	Provided Feedback	
Behavior 13	Summarized Lesson/Work	
Behavior 14	Collected Work	CLOSURE
Behavior 15	Restated Class Rules	
Behavior 16	Told to Attend	
Behavior 17	Roamed Room	MANAGEMENT
Behavior 18	Signalled (Non-verbal)	
Behavior 19	Scanned Room	
Behavior 20	Disciplined/Reinforced	

TABLE 1

U N I V E R S I T Y O F U T A H

COMPARISONS OF FREQUENCIES WITHIN CATEGORIES OF ACTIVE TEACHING BEHAVIORS

	CATEGORIES	INTRODUCTION	INSTRUCTION	CLOSURE	MANAGEMENT
TREATMENT A	Frequency	49	247	27	63
	% of Behavior within categories	46.2	29.7	38.6	27.0
TREATMENT B	Frequency	42	271	10	76
	% of Behavior within categoreis	39.6	32.6	22.7	32.6
CONTROL	Frequency	15	314	17	94
	% of Behavior within categories	14.2	37.7	38.6	40.3

TABLE 2

UNIVERSITY OF UTAH

COMPARISONS OF FREQUENCIES OF INDIVIDUAL TEACHING BEHAVIORS

GROUPS OF STUDENT-TEACHERS

	BEHAVIOR	1	2	3	4	5	6	7	8	9	10
TREATMENT A	Frequency	3	5	7	54	61	2	37	56	40	26
	% of behavior within categories	33.3	27.8	35.0	57.6	26.8	20.0	48.1	40.3	21.1	37.7
TREATMENT B	Frequency	6	6	10	20	68	3	24	59	70	9
	% of behavior within categories	66.7	33.3	50.0	33.9	29.8	30.0	31.2	42.4	36.8	13.0
CONTROL	Frequency	0	7	3	5	99	5	16	24	80	34
	% of behavior within categories	0	38.9	15.0	8.5	43.4	50.0	20.8	17.3	42.1	49.3

TABLE 2 (Continued)

GROUPS OF STUDENT TEACHERS

	BEHAVIOR	11	12	13	14	15	16	17	18	19	20
TREATMENT A	Frequency	9	26	6	11	5	24	22	1	2	9
	% of behavior within categories	17.0	24.2	66.7	31.4	33.3	34.3	31.9	100.	5.4	22.0
TREATMENT B	Frequency	19	19	3	7	3	13	32	0	6	22
	% of behavior within categories	35.8	28.8	33.3	20.0	20.0	18.6	46.4	0	16.2	53.7
CONTROL	Frequency	25	31	0	17	7	33	15	0	29	10
	% of behavior within categories	47.2	47.0	0	48.6	46.7	47.1	21.7	0	78.4	24.4

Appendix A

Collaborative Session Materials

COLLABORATIVE RESEARCH AND DEVELOPMENT SESSION - AGENDA
University of Utah - Regional Teacher Education Site - July 1983

Tuesday, July 5, 1983

8:45 a.m.	Journal writing
9:00 a.m.	Introductions and welcome
9:30 a.m.	Description of the Far West Lab and the ARTE:RUETE (Active Research on Teacher Education: Research Utilization in Elementary Teacher Education) - Elsie Gee, Project Director
10:30 a.m.	Description of the University of Utah site and research design - Amy Driscoll, Regional Research Fellow
11:00 a.m.	Break
11:15 a.m.	Presentation on EFFECTIVE INSTRUCTION - discussion.
11:45 a.m.	Presentation of the ACADEMIC LEARNING TIME concept, description of its elements, research findings.
12:30 p.m.	Lunch
1:15 p.m.	Discussion of the implications of ACADEMIC LEARNING TIME and the associated teaching behaviors.
1:50 p.m.	Observations of ALT in pupils via videotapes in group with discussion, then in individual observations - Diane Shirey, Research assistant.
3:00 p.m.	Evaluation of session.
3:15 p.m.	Journal writing.

Wednesday, July 6, 1983

8:45 a.m.	Journal writing
9:00 a.m.	Task analysis of teaching behaviors associated with ALT; development of observation form.
9:45 a.m.	Observation of teaching behaviors associated with ALT via videotapes.
10:30 a.m.	Break
10:45 a.m.	Introduction of the ACTIVE TEACHING BEHAVIORS description, research findings, etc.
12:00 p.m.	Review instrumentation for observing ACTIVE TEACHING BEHAVIORS.
12:30 p.m.	Lunch
1:15 p.m.	Continued observation of ATB via videotapes.
2:00 p.m.	Summary discussion of ACTIVE TEACHING BEHAVIORS.
2:30 p.m.	Presentation of collaborative research and development.
3:00 p.m.	Evaluation of session.
3:15 p.m.	Journal writing

Thursday, July 7, 1983

8:45 a.m.	Journal writing
9:00 a.m.	Introduction of Activity Structures, description and research findings.
10:30 a.m.	Break
10:45 a.m.	Instrumentation on Activity Structures, observation via daily lesson plans.
12:00 p.m.	Summary discussion of Activity Structures.
12:30 p.m.	Lunch

Thursday, July 7, 1983 con't.

1:15 p.m. Journal writing
1:30 p.m. Review and clarification session - research on effective instruction
- project tasks
1:50 p.m. Group work on persuasive presentation of topics.
2:20 p.m. Group presentations of topics.
2:40 p.m. Total group decision making session - selection of topic most critical to preservice education.
3:10 p.m. Evaluation of session
3:20 p.m. Journal writing

Friday, July 8, 1983

8:45 a.m. Journal writing
9:00 a.m. Discussion of adult learning processes; developmental levels of teachers.
9:45 a.m. Review of considerations for preservice teachers' development.
10:00 a.m. Collaborative development of preservice training (break - optional)
12:30 p.m. Lunch
1:15 p.m. Continued collaboration on development of preservice training.
2:15 p.m. Evaluation considerations for preservice training.
2:45 p.m. Description of the Teacher Education Academies; planning for development and implementation.
3:15 p.m. Evaluation of session
3:30 p.m. Journal writing

READING LIST

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Appendix B

Collaborative Session Assessment Materials

JOURNAL QUESTIONS:

Tuesday a.m. - As you begin this collaborative session, what are your expectations of the day? of the week?

Tuesday p.m. - Reflect on effective instruction and relate it to your teaching or your future teaching.

Wednesday a.m. - After reading and contemplating the ALT concept, what are your thoughts this morning?

Wednesday p.m. - Are any of the Active Teaching Behaviors of significant interest to you? Why?

Thursday a.m. - We are beginning the collaborative aspect of the session today - What are your impressions of collaboration? How do you feel about being a member of a collaborative team?

Thursday p.m. - Given the responsibility of choosing the most critical aspect of the research on effective instruction (covered in this session) for preservice teacher education, which area would you choose? Why?

Thursday p.m. - What is your choice now of the most critical aspect of effective instruction research for preservice teacher education? Why?

Friday a.m. - How do you feel about the task for the day, that is, designing preservice training?

Friday p.m. - Share your general perceptions on the tasks accomplished, collaboration, research on effective instruction, the Teacher Education Academies and your own teaching. How will this session impact your teaching?

Pre-Post Test

Knowledge of Research Findings on Effective Instruction

1. Define ALT (Academic Learning Time). _____

_____

_____

2. List the name(s) of the major researcher(s) associated with work on ALT.

_____

3. Studies on ALT have been conducted in every elementary grade level and in most subject matter content areas. T or F or ?

4. Increases in ALT have produced considerable gains in student learning as measured by achievement tests, classroom tests and other evaluations. T or F or ?

5. Increases in ALT have been associated with negative attitudes towards school and learning on the part of students. T or F or ?

6. List some teacher behaviors associated with high levels of ALT

_____

_____

_____

7. Define Active Teaching Behaviors. _____

_____

8. List the name(s) of the major researcher(s) associated with work on Active Teaching Behaviors. _____

_____

9. Active Teaching Behaviors are those which are easily observed in classrooms. T or F or ?

10. Active Teaching Behaviors have been developed and described from a direct instruction model of teaching. T or F or ?

11. Active Teaching Behaviors take into consideration student response, classroom context, and schedules. T or F or ?

12. List some Active Teaching Behaviors. _____

_____

_____

13. Define Activity Structures. _____

_____

_____

14. List the name(s) of the major researcher(s) associated with work on Activity Structures. _____

_____

15. The work on Activity Structures has identified patterns of teacher authority associated with various types of task structure. T or F or ?

16. Organizational differences (activity structures) have been shown to be related to student behavior, pacing of instruction and self-perception of students. T or F or ?

17. Recitation has been found to be the most common instructional structure in most elementary classrooms. T or F or ?

18. List some types of Activity Structures. _____

_____

_____

EVALUATION

(Thursday, July 7, 1983)

1. Do you think today's presentation provided you with a clear understanding of activity structures? If not, what additional information would have been helpful?

2. Was the material presented at an appropriate pace? If not, what could have been done to improve the presentation?

3. What did you like <u>most</u> about today's session?

4. What did you like <u>least</u> about today's session?

THANK YOU

EVALUATION

(Friday, July 8, 1983)

1. Did you have a clear understanding of collaborative research and what you were expected to do? If not, what additional information would have been helpful?

2. Were the reading materials helpful? Are there any readings which you feel should have been excluded? If so, which ones?

3. Are there any areas for which additional reading material would have been beneficial? If so, which ones?

4. What did you like <u>most</u> about this week's sessions?

5. What did you like <u>least</u> about this week's sessions?

6. What suggestions would you make for future sessions?

THANK YOU

EVALUATION

(Friday, July 8, 1983)

1. Did you have a clear understanding of collaborative research and what you were expected to do? If not, what additional information would have been helpful?

2. Were the reading materials helpful? Are there any readings which you feel should have been excluded? If so, which ones?

3. Are there any areas for which additional reading material would have been beneficial? If so, which ones?

4. What did you like <u>most</u> about this week's sessions?

5. What did you like <u>least</u> about this week's sessions?

6. What suggestions would you make for future sessions?

THANK YOU