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Teacher Training: A Research Review

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The purpose of the literature search was to analyze the research on teacher training in industrialized countries in so far as the literature has implications for research, development and policy on teacher training in Third World Countries. The focus of the review is on the question, "Can existing research provide guidance and direction to policy and decision makers in Third World Countries to help them with teacher training programs in their overall efforts to improve education in a cost effective manner?"

In this regard the review focused on teacher training programs, particularly on the evaluations of the training, and on the lack of evaluations in order to arrive at an analysis of what teacher education purports to do.

Teacher Training in the U.S.: Pre-service: In a report describing teacher education in the United States, Richard Egbert (1984) indicates that more than 1,200 colleges and universities offer pre-service teacher training programs and currently prepare approximately 140,000 students to become teachers each year in contrast with 300,000 students in the early 1970's. Of these, over 60% are private institutions. The baccalaureate degree is the highest degree offered in more than 40% of the colleges and universities offering teacher training programs. Teacher education, usually seen by most

colleges and universities as a low cost program (Peseau and Orr, 1980), does not require large expenditures of funds for equipment or capital outlay as do high technology programs, and other professions that require extensive laboratory and training facilities. Teacher education programs do not even require a specific specialized curriculum. As a matter fact, teacher training is often the support of the liberal arts curricula in most institutions. From 60% to 80% of a teacher training program consists of liberal arts classes.

State departments of education normally prescribe both the courses and the course content of teacher education programs, and specify the knowledge and competencies that teachers must have in order to be certified to teach in the public schools of the state. Whereas the makeup of teacher education varies from state to state, significant similarities exist. Every teacher training program includes three major parts: (1) a general liberal arts education component; (2) a specialization area or major and minor areas; and (3) a professional education component which includes field experience.

The liberal arts education, which makes up about 40% of the total elementary and secondary teacher education programs (Kluender and Egbert, 1983), includes courses in mathematics and natural science, social science, humanities and fine arts, composition and speech communications, and physical education. The liberal arts courses are not designed specifically for education students. They are general college course requirements for all students in the university regardless of the concentration area.

The remaining coursework is different for secondary and elementary teachers. Students in secondary education specialize in a subject matter

area which they will teach. Secondary schools are departmentalized, therefore secondary school teachers are prepared to become subject matter specialists. Their course work includes an academic major in a teaching field and a core of professional education courses. The teaching specialization area requirements usually vary from 25% to 60% of the entire training program depending on the teaching area, on the institution, and on state requirements.

Elementary schools in the United States generally operate self contained classrooms where teachers are expected to teach the full range of subjects offered in elementary schools, i.e.arithmetic, reading, writing, spelling, social studies, science, art, music, and physical education. Viewed as subject matter generalists, prospective elementary teachers usually take courses in content and methodology of elementary reading, mathematics, science, social studies, and others. The methods courses, as they are commonly known, generally outline the curriculum content and focus on appropriate methodology for teaching the content.

The professional education area is often divided into three components:

(1) foundations,

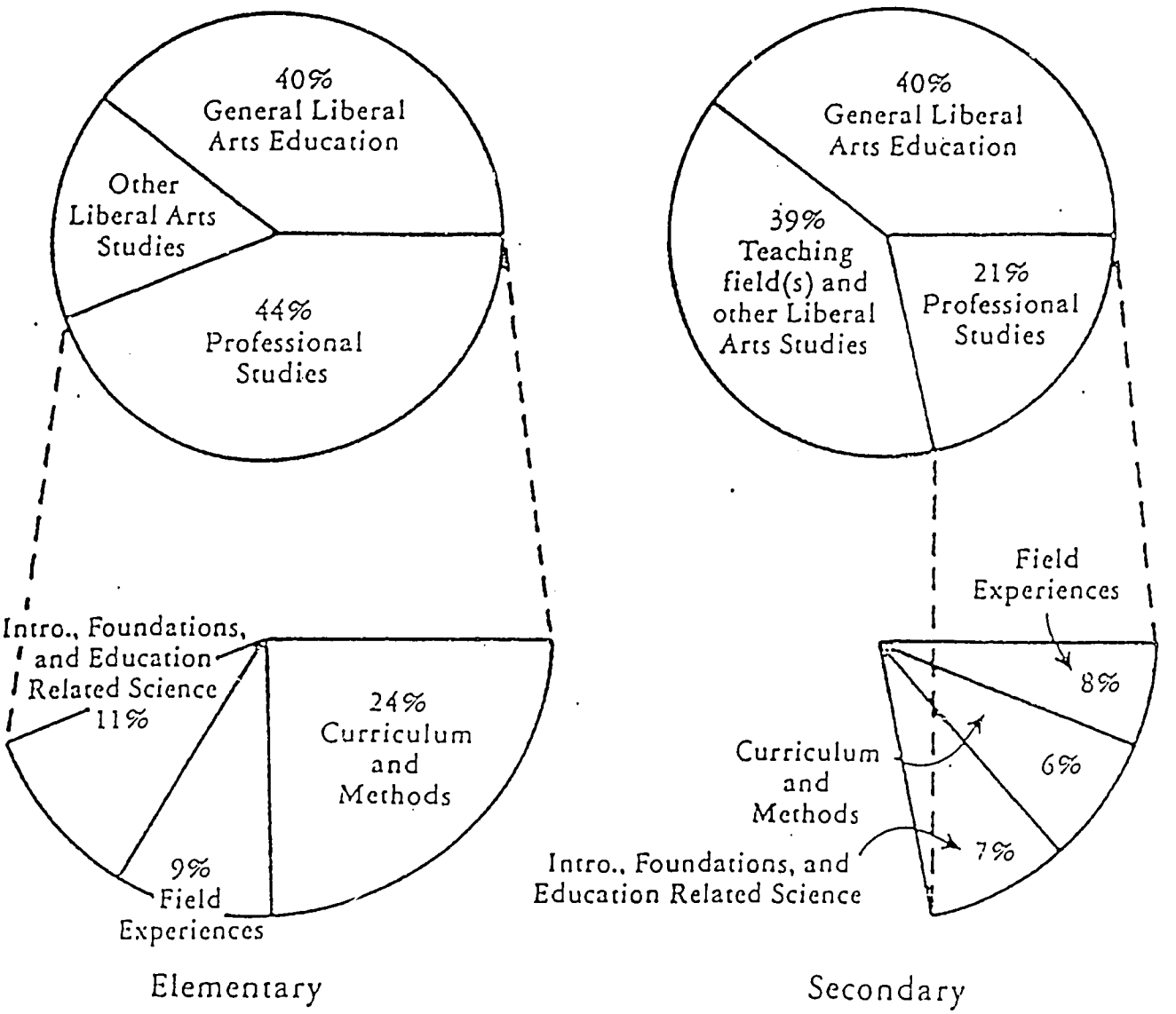
(2) curriculum and instruction, and

(3) field experience, including student teaching.

Kluender and Egbert reported that the foundations component, encompassing about 11% of the total elementary teacher training program, and about 7% of the secondary, includes courses in educational philosophy, educational

psychology, and human development. The curriculum and methods component which includes general courses in curriculum and instruction, covers about one-fourth of the total program for students in elementary education, and about 6% for students in secondary. Field experiences, consisting of student teaching and other activities for which students receive academic credit, covers just about one tenth of the total preparation program for both elementary and secondary students. Figure 1 displays a graphic representation of teacher training pre-service programs.

Figure 1. College Preservice Programs for Elementary and Secondary Teachers (Egbert, 1985)
Teacher Training: A Research Review
TSU/Harvard BRIDGES Project
M.R. Mazon, 1986



Heald (1983) found different field-work requirements for both elementary and secondary teacher training students. He shows that students generally complete about 30 hours of clinical experience prior to admission into teacher education, and they must complete about 50 to 100 additional hours in student teaching. A brief summary of Egbert's review of the critics within the past 20 years will help to place the current status of teacher education in the U.S. in perspective for this report.

Changes in Teacher Education: Response to critiques:

Criticisms from outside the profession in the late 1950s and well into the 1960s include two well known publications. The Miseducation of American Teachers by James Koehner (1963), and The Education of American Teachers by J.B. Conant (1963). Statements such as: "The inferior intellectual quality of the education faculty...(p.17)"; "Coursework in education is ill-repute. It is most often puerile, repetitious, dull, and ambiguous...Two factors make it this way: the limitations of the instructor, and the limitations of subject-matter that has been remorselessly fragmented...(p.18)", reflect the seriousness of the outside critics. Even the news media had attacks on teacher training; Newsweek (1984) reported that "Teacher training is perhaps the biggest running joke in higher education" (p.64); "While the course work may be easy, it is also too often irrelevant" (p.65).

Conant was much more constructive in his critiques, making

recommendations and offering positive suggestions for teacher training. He recommended that supervisors of practice teachers from the college should themselves have had practical classroom teaching experiences, suggesting that their status should be analogous to that of a clinical professor in certain medical schools" (p. 143). Egbert's review indicates that most of the current critics of teacher education, like Conant, have suggestions for teacher education, but unlike Conant, many of the current reports reflect that those who prepared the reports seem to be unfamiliar with teacher education. A Nation at Risk reports that "the teacher preparation curriculum is weighted heavily with courses in `educational methods' at the expense of courses in subjects to be taught." Since the report is directed at secondary schools it must be assumed that this comment concerns secondary education programs, yet teacher training programs for secondary education average less than 5 credit hours in general and special methodology courses. When courses in curriculum, reading methods for secondary teachers, media, and special education are added to general and special methods courses, secondary education programs still average less than 8 semester hours of the traditional 125-hour program.

Several outside critics make recommendations and suggestions that agree with those made by critics from within the profession, such as requiring high school teachers to have an academic major (Boyer, 1983), placing teacher education programs at the graduate level (Adler, 1982), strengthening pedagogic skills (Sanders, 1983), and establishing 5-year

teacher education programs (Boyer).

Teacher Education Models

Egbert summarizes four proposals for teacher education reforms made by critics from within the profession by comparing them along six dimensions dealing with program level, program length, number of institutions, funding level, certification, and curriculum. The four proposals include the report of the Bicentennial Commission on Education for the Profession of Teaching (Howsam, Corrigan, Denemark and Nash, 1976), the 19th Annual Charles W. Hunt Lecture (Cremin, 1977), A Design for a School of Pedagogy (Smith, 1980), and a recent paper by Joyce and Clift (1984). Egbert's summary of the positions taken by the four reports along Egbert's six dimensions are displayed on Table 2.

Figure 2. Each Proposals for Teacher Education Reform (Egbert, 1985)

Teacher Training: A Research Review
TSU/Harvard Bridges Project
M.R. Mazon, 1986

Proposals

Dimension	Howsam, et al. (1976)	Cremin (1978)	Smith (1980)	Joyce & Clift (1984)
Program level	Undergraduate/ Graduate	Undergraduate/ Graduate	Graduate	Graduate
Program length	5 years	6 years	2 years	2 years
Number of institutions	Only those willing to provide adequate support		Reduce radically	200-300
Funding level	Equal to other professions		Faculty/ student ratio 1:10	
Certification	Not permanent		Examination	Never permanent
Curriculum	Principles	General description	Detailed description	9 propositions

All four reports recommend a program that extends beyond the bachelors degree. Howsam, et al. and Cremin recommend a combined undergraduate/ graduate program, both Smith and the Joyce and Clift reports recommend a 2-year graduate program of teacher education. Cremin suggests that students begin their teacher education program during their undergraduate years and then add two years of graduate work leading to both the bachelor of arts degree and the education degree at the completion of the sixth year, comparable to the B.S./M.D. programs offered at Northwestern University and at Boston University.

All four of the reports have significant comments to make concerning institutions that should offer teacher training programs. Joyce and Clift would limit teacher training to some 200 to 300 colleges that have active research programs and can transmit both research information and the research ethic to teacher candidates. Smith advocates reducing the number of schools offering teacher training on the grounds that "many of them have neither the resources nor the staff to meet the requirements of existing programs let alone an effective clinical program" (p.111). Howsam would limit teacher training to those institutions willing to provide adequate support for teacher education.

With regard to funding, Howsam maintains that teacher education should be funded at a level comparable to other professions. Smith argues for a faculty/student ratio of no less than 1:10 as essential to support the

clinical training programs that he outlines.

Concerning certification Howsam, Joyce and Clift argue that certification should not be permanent, Smith maintains that certification should be based on tests and performance.

All four reports have a great deal to say about the curriculum. Cremin advocates a modification of James Earl Russell's four components: general culture, special scholarship, professional knowledge, and technical skill. Howsam, et al. make seven recommendations related to "the major components in the education of teachers". Joyce and Clift describe nine curricular perspectives. Smith outlines preprofessional education and a program of pedagogical education. He gives an extensive description of pedagogical knowledge.

Egbert describes two developing models of teacher education based on recommendations and ideas formulated by the Bicentennial Commission that merit mentioning, the University of New Hampshire and the University of Kansas. Although different in design, both programs have certain common characteristics. Each program was preceded by extensive planning involving teacher educators, teachers, administrators, students, and lay people. Each program attempts to integrate the classroom and field experience portions. Each program is five years in duration, and both programs have high standards and high expectations. Both programs report some initial decrease in enrollment, and both programs indicate positive reactions from persons involved.

The University of New Hampshire Model

The University of New Hampshire program, operating since 1974, is a 5-year program that begins in the undergraduate years and continues through one year of graduate work. Three central objectives characterize it: (1) "to develop cooperative and parity relationships between professionals in the field and college based teacher educators; (2) to prepare teachers with effective personal teaching styles; and (3) to prepare teachers who could act as leaders in the school and classroom, exhibiting self-improvement skills, helping colleagues improve, and initiating appropriate curriculum change" (Andrew, 1981, p. 40). The program begins in the sophomore year. It combines coursework with early participation in classroom related experiences rather than just mere observation. Relying heavily on the service of experienced teachers, the program is flexible. It is adapted to the needs and interests of the individual and is very selective. Approximately one half of the students choose to continue or are advised against continuing beyond phase one. Students who have entered the graduate phase show grade point averages of 3.1 on a 4.0 scale. The combined average of verbal and quantitative score on the GRE has been 1029, about 40% of those admitted to the 5 year program have been honor students. Over 90% of the graduates have obtained teaching jobs in their first year which seems to indicate their outstanding preparation and their strong commitment to teaching (Andrew, 1983).

The New Hampshire program is costly for both students and the institution. Classes are kept at an average size of about 15, and the number of teacher education graduates has dropped nearly 60% which lowers the demand for faculty (Andrew, 1983).

The University of Kansas Model

The University of Kansas program has been in operation since 1980 after having undergone extensive planning since the late 1970s. Initially Kansas identified a committee of interested faculty members. This nucleus of faculty members generated general faculty support to determine placement and salary opportunities for graduates, to gain support from off-campus professional colleagues and university administration, and to assess the reaction of statewide bodies having control over teacher education. By the time the program enrolled its first students all the necessary support was in place.

Of significance to planners is that early in the development process, the development committee at Kansas began to focus on the scope and sequence of field experiences suggested by the program objectives. This facilitated a natural departure from the traditional program, as specific field experiences were identified for each stage of the program. Having described the scope and sequence of the field experiences, the group focused on the content and activities for the on-campus phase based on the field experiences (Scannell and Guenther, 1981).

The Kansas program consists of 60 semester hours of general education, 40 hours in the subject matter specialization, and 62 hours in professional education. Upon completion of the program, students qualify for certification in two of the three levels granted by the state of Kansas: elementary, middle, and secondary education.

No conclusive evaluations are available for the Kansas program. Egbert's report indicates that the program does appear to have some negative impact on enrollment. On the other hand, it appears that a larger percent of students completing the program will enter the teaching profession. A 5-year review of teacher education report at Kansas recommends that the program be nurtured and evaluated for possible extension to other institutions in the state (Scannell, 1984).

Cruickshank (1985), contending that the lack of laboratory and clinical experiences are major shortcomings in both pre-service and inservice teacher training programs, discusses reflective teaching as a form of laboratory and clinical experience that is suitable for use in both pre-service reflective teaching as a procedure which permits participants 1) to teach one or more of 36 specially designed, 15-minute lessons to a group of four to six peers; 2) to determine the extent to which these learners learn; and 3) to give careful consideration to the teaching/learning experience. The main goal is to help participants to learn how to evaluate their own teaching behaviors and thus become more effective teachers.

In pre-service, reflective teaching is used in introductory courses to

introduce students to the role of the teacher and to the tasks of teaching. It is used even more generally in methods courses, which focus on helping prospective teachers to gainknowledge of theory and then to learn to apply this knowledge under controlled, laboratory conditions. Educational psychologists using reflective teaching, will teach students about motivation or human learning and then apply Reflective Teaching techniques to enable students to apply this knowledge in the act of teaching. In seminars for student teachers, Reflective Teaching can provide common experiences that can lead student teachers to share and explore their own classroom experiences and to probe the deeper, personal meanings of teaching.

One of the most important benefits of Reflective Teaching is in the opportunities that it affords student teachers to participate and to experience actual practice teaching behaviors. It allows students to teach, but it also encourages them to try out their personal teaching styles and to learn about teaching by immediately reflecting on their own teaching behaviors and on student outcomes. Cruickshank emphatically distinguishes Reflective Teaching as "real teaching;" it is role taking, not role playing, stating that the students engaged in Reflective Teaching actually prepare lesson plans, teach them, and evaluate the learning outcomes. Moreover, they analyze the teaching/learning experience.

Other programs worth mentioning here, but due to time and space limitations will not be described, include Grambling State University

(Mills, 1984), and Doane College (Dudley, 1983). These two programs offer some of the characteristics mentioned in the New Hampshire and the Kansas models, and offer great promise for possible replication in other institutions.

In California (Marsh, 1985) about 60% of the teachers are certified under the Fisher Legislation which was passed in the 1960s. The Fisher Bill perceived teacher education primarily as an undergraduate program for education majors emphasizing methodology and foundations courses followed by practice teaching in cooperating schools. During the 1970s the Ryan Legislation was passed which introduced a new concept in teacher education. The Ryan Credential, as the Legislation is called, requires prospective teachers to pursue a liberal arts major during the four years of undergraduate study and return as beginning teachers on the fifth year to take courses in professional education and subject matter areas required for the Ryan Credential. Intended as continuing advance training for beginning teachers, the Ryan Credential, in reality, became the initial training for most teachers. The flexibility built intothe Credential requirements which enable teachers and training institutions to tailor training programs around individual needs and interest, resulted in the lack of rigorous and on-going training for most teachers.

State of the Art in Teacher Education: Training Effectiveness

The research literature on teacher education consists of descriptions

of models, programs and practices, but analyses of effectiveness is conspicuously lacking.

With regard to the question of training effectiveness, Evertson and others (1985) found two types of studies that attempt to examine this. One type compares the effectiveness of teachers who undergo pre-service with those who have little or no formal pre-service training. The other type of studies involves teaching pre-service teachers particular ways of improving instructional techniques. They found that most of the studies on determining the effects of teacher preparation programs on teacher performance compared the performance of certified teachers with the performance of teachers with provisional certification. In most states provisionally certified teachers will have little or no formal training, and/or may be on aspecial training program to satisfy regular certification requirements. Only a few studies even consider the significant differences in experience and training among the two groups.

Of the thirteen studies comparing regularly and provisionally certified teachers, four studies examined student achievement (Hall, 1962; Denton & Lacina, 1984; Taylor, 1957; Shim, 1965). The other studies focused on teacher performance, employing a variety of rating systems "administered by principals and/or trained observers." (Gray, 1962; LuPone, 1961; Gerlock, 1964; Copley, 1974; Bledsoe, Cox, & Burnham, 1967; Beery, 1960; Massey & Vineyard, 1958; and two studies by Cornett, 1984).

Certified teachers ranked higher than provisionally certified teachers

in all but two of the studies. A study of 89 elementary school teachers indicated that students of the uncertified teachers scored higher on academic achievement tests than did students of certified teachers. Also, the students of teachers who had lower grade point averages scored higher than students of teachers with higher grade point averages. Cornett (1984) found no difference in his comparison of principals' ranking of provisionally and regularly certified teachers in North Carolina.

It should be pointed out Evertson et al.'s review suggests that the literature on teacher education effects does not represent a strong body of research. Too many important variables are not even addressed in the majority of the studies. For instance most of the studies that compare regularly certified teachers with provisional teachers do not even take into account the differences in the intelligence or general academic capability of the teachers. Although, it is doubtful that the better perceived effectiveness of teachers who have undergone pre-service training could be attributed to their intelligence, considering the generally low academic test scores of prospective teachers. Koehler (1985) examined pre-service teacher education under six categories:

(1) studies of the skills, competencies, and attitudes of practicing teachers attributed to pre service training;

(2) studies of the skills, competencies, and attitudes of teacher education students attributed to their present or past education or on the future quality of the

teaching work force;

(3) evaluations of teacher education courses, of methods within courses, or of complete programs;

(4) studies of teacher educators;

(5) studies of institutions; and

(6) studies of various research reviews.

She briefly reviews the research in each category, making observations regarding policy and decision making. Studies on practicing teachers generally concluded that pre-service education did not provide enough training in the areas of teaching (Cheek, 1982; Ayers, 1982). Most of the studies concluded that teachers lacked preparation in classroom management and in instructional strategies which should be included in pre-service training (Sometz & McLaughlin, 1983; Hegvedt Wilson, 1982). Most studies reported by Koehler indicated that students "needed more work in whatever knowledge, skills, attitudes, or competencies were investigated" (Wheeler and Feghali, 1983; Diem, 1982; Silverman and Cresswell, 1982; Beasley, 1981).

The course-program-method Evaluations category was the most largely developed in the Koehler review. The largest number of these studies involved one course method evaluated with pre/post or post testing only, using no comparative methods (Conen andAlroi, 1981; Martin, 1981). The next largest group of studies involved comparative groups of students with a

number of groups receiving somewhat different treatments (Henry, 1982). Several studies used control groups (Hay, 1983). Such topics as science content for elementary pre service students to reduce anxiety; science inquiry methods; teaching models; early vs. later field experiences; history and philosophy of science courses for developing understanding of science; and sex stereotyping models were included among the courses and methods investigated using the control groups. All but one of the studies limited their search to changes in pre-service teachers' skills, attitudes, competencies etc. One study also examined student classroom achievement among students taught by pre-service students (Miller, 1981). Most of the studies in the Koehler Review found treatment effects. However, no long-term follow-up of students into their classrooms was involved in any of the studies, and descriptive research on the treatments themselves was not provided.

Koehler reported earlier studies of program effect that were much more comprehensive in scope which showed significant treatment effects on such items as self-disclosure with students which held as long as five years after the teacher training.

On the <u>evaluation of teacher education programs</u> Koelher reported that the Tennessee School of Technology developed an extensive data base on its teacher education students and followed them into classrooms (Ayers, 1982). Ohio State University followed 450 graduates (Carter and DiBella, 1982) and Indiana followed 95 of the graduates of its Block program (Buffie, 1982) but

unfortunately the reports on these studies focus more on the practicing teachers themselves rather than on the effect of their pre-service training.

Few studies of teacher educators were found in the Koehler Review. Raths and Rucklin (1984) found a relationship between methods, professors' approaches, and the university in which they were trained rather than the institution in which they were teaching. Rath and Katz (1982) found that professors in social studies methods who were surveyed used a limited range of instructional techniques and that their descriptions of the attributes of successful classroom teaching were not in agreement with their own goals for the class.

Of interest to teacher training institutions with regard to pre-service training should be the research on supervising and cooperating teacher according to Koehler. Griffin, et al. (1983) found little in clinical feedback sessions that could be directly attributed to the students' formal education training, nor to research on teaching and learning. Zimpher, DeVoss and Nott (1980), and Koehler (1984), found that supervisors in teacher training institutions are comparatively clear about their supervising tasks and can define the nature of their roles quite clearly, only one of which relates to clinical feedback. Other studies found that the cooperating teacher is the primary influence on the student teachers' teaching style (Zeichner,1980; Johnson, 1969; Seperson and Joyce, 1973; Yee, 1969). Koehler (1984) found that teachers' views about teaching techniques and strategies, research usage and practice, and formal education for pre-

service teachers reflected those of their university supervisors.

Most of the studies of institutions found by Khoeler consisted of surveys of curriculum offerings dealing with special interests, such as sex education, mathematics, social studies,etc. (Farmer, 1983). Others dealt with surveys on selection procedures or selection criteria for special populations of students (Dejnozka, and Smiley, 1983). A comprehensive survey (Feistritzer, 1984) examined the number of teacher training institutions, their selection criteria, student makeup, how many graduates become teachers, and state regulations for teacher training.

In the category dealing with Research and Studies of Studies Koehler reported on a number of encouraging research reviews and syntheses. One involved faculty members and graduate students participating in a seminar at the University of Oregon which investigated the question of transferring skills from college courses to field experiences and published a research synthesis that concludes with twelve points of interest to teacher training, such as:

- o CBTE has demonstrated the capability for, and achieving transfer of, specific techniques. Questions remain regarding stability of training effect and value of discrete skills in satisfying multidimensional classroom demands.

- o The research into teacher characteristics and attitude sets indicates that there are "global qualities" readily recognizable, if rarely defined. These qualities identify potentially successful teachers and earmark a few people whose intrinsic abilities match the prerequisites for effective transfer of training. (pp. 47 and 48)

Sweitzer, 1982 conducted a meta-analysis of science inquiry methods; and Katz, Raths, Mohanty, Kurachi, and Irving (1981) conducted a study of

follow up studies. Koehler suggests that inspite of the small body of reports available, the findings reported on teacher training should be taken seriously; that they can be useful in reaching tentative conclusions about the state of the art in teacher education, and in determining directions for future research. Refering to teacher training research as a "bootstrap operation", Koehler points out that very little financial support is provided for teacher education research". Most of the studies, if funded at all, are small university grants supporting one graduate student, some computer funding,and some clerical assistance. Others were dissertations. The research on teacher training in most institutions is generally conducted over a full teaching load by education faculty who usually carry a heavier teaching load than their colleagues in more research oriented departments. Evertson, et al. (1984).

point out that much of the teacher education research is political in nature, addressing special institutional needs, special program goals, or special interest groups to satisfy accreditation requirements, or requirements imposed by funding sources.

For the most part, teacher education research embraces a broad scope of teacher behaviors. Effectiveness measures on particular behaviors are not even attempted in most studies, making it impossible to account for differences in teachers'capabilities and in their performance.

The questions that have to be asked then are: Can teacher training programs teach teachers how to teach? Or can teacher preparation programs

do more than merely get teachers to qualify for certification?

A number of studies do show that particular efforts by teacher training institutions to improve their teacher education program produce desired effects (Murphy, 1972; Francke, 1971; Collins, 1976; Gabrys, 1978; Joyce & Weill, 1972). There is no agreement among educators and researchers on whether or not what prospective teachers learn in their pre-service training is taken into their classrooms and sustained. Some teacher training programs have been found to be successful in that regard (Adams,1982; Hord & Hall, 1978) others have not (Fullen, 1982).

Evertson, et al. (1984) review indicates that teachers who participate in pre-service training programs appear to be more effective or were seen by supervisors or other trained observers to be more effective in their classrooms than were teachers who have little or no formal training before they start to teach. "And, efforts to teach pre-service teachers specific capabilities and knowledge invariably appear to be effective, at least in the short run." The Review shows that available research suggests that identifying the characteristics of effective pre-service college or university based teacher training programs could be expected to lead to improvements in the quality of teaching in the nations's schools.

Sweeping reforms to improve the quality of teaching in U.S.schools by raising teacher education standards for admission and for certification as measured by scores on standardized tests, grade point averages, or faculty evaluations of student teachers are not compatible with the available

research. Evertson, et al.'s review indicates that evaluations of teachers by principals or supervisors are not generally related to scores on conventional measures of academic aptitude such as the American College Testing (ACT) examinations, the Scholastic Aptitude Test (SAT) (Baker, 1970; Ducharme, 1970; Maguire, 1966), the Miller Analogies Test (MAT) or standardized achievement tests (Baker,1970). Piper and O'Sullivan (1981) found that National Teacher Examination (NTE) scores correlated positively with student teachers' ratings by university supervisors.

The relationship between teacher performance on the job as evaluated by principals' and trained observers', and college grade point averages is mixed. Ducharme (1970); Druva & Anderson, (1983) found evidence of a small positive relationship. Older studies found no association at all (Baker, 1970), or founda negative relationship (Shim, 1965). No relationship was found between the grades of either education majors or noneducation majors and the cognitive attainment of the students that they taught (Denton and Smith, 1984).

Ducharme (1970) found that student teachers' supervising faculty seem to be able to identify prospective teachers who will receive high evaluations by their on-the-job supervisors. At least one study cited in the Evertson, et al. (1984) review found that the teacher training programs contributed to students'performance on the NTE (Galluzzo, 1983). A study of new elementary teachers in Louisiana found that regularly certified teachers scored significantly higher on the NTE area examination, testing knowledge

of children and the process of teaching at the elementary level than did provisionally certified teachers, who had taken fewer education courses. On the other hand, provisionally certified teachers scored significantly higher onthe Weighted Common Examination of the NTE, even though forty percent of this test deals with professional knowledge (Cornett,1984). In comparing the scores of regularly and provisionally certified teachers in North Carolina on the Weighted Common Examination of the NTE, Cornett found no difference.

Some studies reported by Evertson, et al. (1984) found that supervisor's or principals' ratings of teacher or student performance are positively related to a student's score on the NTE (Piper & Sullivan, 1981). However, earlier studies found no such relationships (Thacker, 1965; Ducharme, 1970). Sheehand and Marcus (1978) found a significant positive relationship between NTE scores and student achievement. However, later studies show no relationship between NTE scores and student achievement (Summers and Wolfe, 1977; Pugach and Raths, 1983; and Darling-Hammond and Wise, 1983).

Several states are developing common tests of professional knowledge and skills. Because so little is known about the ability of these tests to predict teacher effectiveness caution in adaption is recommended by Evertson, et al. (1984). Cornett (1984) examined the relative performance of Georgia's teachers who were graduates of arts and science and teacher education programs on teacher certification tests. On a test of

individuals' knowledge of their teaching field, arts and science students with a bachelor's degree scored .7 of a point higher than their teacher education peers. On the same test, teacher education students with a master's degree out performed the master's degree arts and science educated teacher by 2.5 points.

With regard to the relationship between teacher intelligence and teaching effectiveness, earlier research found little evidence of this (Getzels and Jackson, 1965). Later studies did show some relationship between verbal ability of teachers and the effectiveness of teachers and the verbal test scores of students, particularly with low income minority students (Summer & Wolfe,1977; Winkler, 1972; McLaughlin & Marsh, 1978; Murnane & Phillips, 1978; Hanushek, 1977; Bruno & Doscher, 1981).

Although a few teacher training programs do reflect research-based conclusions about teaching and learning (Egbert & Kluender, 1984), the great majority of them do not. In view of this, Evertson et al.'s review suggests that it would seem reasonable to argue that the core of what teachers should learn in their teacher training could come from what is known about effective teaching, an assumption that is increasingly finding favor with teacher educators (Smith, 1983).

Research on Teaching Effectiveness:

Evertson, et al. (1984) discuss several generic behaviors of effective teachers that would likely increase teachers ability to affect student

achievement if they could be taught in their pre-service training. Referred to as core teaching skills (CTS) in the Review, the behaviors encompass a common body of professional practices that can be adapted to variations in context, learning objectives, and student needs. They are presented below.

CTS-1: Maximize Academic Learning Time.

The main intervening variable between teacher's teaching behavior and student achievement is academic learning time (ALT), or the amount of time that students spend in academic tasks that they can complete at high success rates. ALT includes three variables:

(1) Time allocation, time set aside for students to work on academic tasks, or time on task;
(2) engaged time, the amount of time in which students are actually engaged in those tasks; and
(3) student success successful completion of task, which is a measure of student success or failure in completion of task.

For students to learn, they must be engaged in meaningful activities that are at the appropriate level of difficulty, and teachers must monitor students progress along the way. Lessons must run smoothly with little, or no interruptions. Studies on optimal error rates and student achievement suggest that classroom questions should yield about 75% correct responses, seldom yield no response at all, and seatwork activities should be completed with a higher rate of success (90 100%) by most students (Brophy, 1979; Rosenshine, 1983).

The question of how time is spent appears to be more important than the

amount of time available. One study found that even when the length of the school day in follow-through classrooms varied as much as one and one-half hours the variations did not affect students' academic achievement (Stallings, 1975).

CTS-2: Manage and Organize the Classroom.

A growing body of literature on classroom management and organization suggests that some practices are not only more effective than others but they also affect students' engagement on tasks and their attention to academic tasks as well (Emmer, Evertson, and Anderson, 1980; Evertson and Emmer, 1982a). Good management skills optimize the time devoted to instruction. One view on effective classroom management focuses on techniques for dealing with disruptive and uncooperative students. A variety of programs and strategies have been developed to train teachers on how to deal with disruptive and uncooperative student behavior which threatens the classroom environment (Glasser: Reality Therapy; Gordon: Teacher Effectiveness Training; Cantor: Assertive Discipline). Although useful, these techniques are largely aimed at intervening once problems have occurred (Brophy, 1983).

Another view focuses on preventing problems before they occur in the classroom. This view includes careful planning; well pace lessons, adapted to students' abilities and interest; setting up appropriate routines for addressing tasks and procedures; and creating a task-oriented meaningful and

pleasant classroom learning environment. A study of classroom teachers found that successful classroom managers kept their studentsactively involved in productive classroom activities, there by minimizing the amount of trouble that they had to deal with. They were more successful because they reduced the frequency of trouble, not because they were somehow more skilled at dealing with it once it broke out, (Kounin, 1970).

Subsequent studies reported by Evertson, et al. (1984) investigated how teachers planned and presented their management strategies from the very first day of school (Evertson and Emmer, 1982). Of interest here are the findings by Evertson and Emmer (1982) and Emmer, Evertson, and Anderson (1980) that successful classroom managers:

- o Planned the classroom rules and procedures in detail prior to the beginning of school and taught these to students.
- o Made clear the consequences and rewards for appropriate and inappropriate behavior.
- o Carefully monitored student work and behavior, stopping inappropriate behavior quickly.
- o Kept students accountable for academic work.
- o Provided time for explanation, rehearsal, and feedback of academic content.

Studies on training programs indicate that these strategies can be taught to most teachers relatively efficiently and with good success (Borg & Ascione, 1982; Evertson, Emmer, Sanford, and Clements, 1983; Evertson, 1984; Fitzpatrick, 1982).

The Evertson, et al. (1984) review point to three aspects of classroom

management and organization that tend to be minimized.

(1) Structuring the physical space. Effective managers arrange their classroom space to accommodate different types of learning activities. Make sure that all students are visible and can readily be reached for individual help and minimize traffic flow problems and congested areas (Emmer, Evertson, and Anderson, 1980; Brophy, 1983; Evertson and Emmer, 1982b). Transitions between activities are accomplished with a minimum of time wasted (Arlin, 1979). Preplanning the use of physical space maximizes student access to an use of materials and participation in activities (Nash, 1981).

(2) Planning lessons. This is key to effective classroom teaching. Shavelson (1983) maintains that there is need for research on teaching to examine not only teachers' behavior but their judgments, plans, and decisions. Research which links teachers' intentions to their behavior can provide a basis for implementing educational innovations. Decisions made during planning influence teachers' classroom behavior.

These instructional plans, whether for the school year, semester, month, unit, or day, serve as scripts for carrying out interactive teaching (Shavelson, & Stern, 1981; Smith & Sendelbach, 1979). Joyce (1979) states that through proactive decisions teachers set up a series of conditions which powerfully influence the possibilities of decision making thereafter. Green and Smith (1983) also hold that even "if teachers plan lessons these become modified as teachers and students interact with materials and

materials and activities." Shavelson (1983) also points out that plans that are too detailed and inflexible can be counter productive, as the need arises to shift lessons according to student needs.

(3) Grouping. This is an essential characteristic of effective classroom management and organization to facilitate students' learning in highly heterogeneous classrooms. Grouping maybe based on achievement, language dominance, orability.

Traditional grouping practices place students in high,medium or low groups in order to facilitate teachers' teachingand monitoring activities. This grouping pattern, of course, has problems, in that each time that teachers shift focus from whole class to subgroups within the classes more complex planning and group management is needed. Evertson, Sanford, and Emmer (1981) found that even effective managers had difficulty at the beginning of the year until more complex routines were established. Ability grouping has raised negative concerns regarding the self images of children, children's motivation and perceptions, and its potential for labelling students. Green and Smith (1983) show that students in low groups received different input in terms of content and strategies for reading. Lessons for low groups consistently placed greater emphasis on pronunciation and single word decoding, whereas errors in high groups were often ignored in favor of "getting the meaning." Another study documents how children perceive the teachers' relationship to high and low achieving students (Weinstein, 1983).

After all of this, in highly heterogeneous classrooms, teachers may havel ittle choice but to group. Good grouping requires good classroom management techniques.

An alternative to traditional grouping is peer teaching or peer tutoring. Cohen, Kulik, and Kulik (1982) completed a meta-analysis of studies on peer tutoring and found an average effect size of peer tutoring on academic achievement of .40. Another review by Godwin (1982) supported the Cohen et al. study and added that both cross-age and same age tutoring increased achievement of the tutees in mathematics and reading, but noconsistent relationship was found between length and intensity of tutoring training and likelihood or gains in achievement. Greenwood, Whorton, and Delquadri (1984) concluded that peer tutoring increased the proportion of time that students were academically engaged compared to classrooms with conventional teacher-to-student assistance by as much as 20 to 40%. An alternate way of providing for peer interaction comes from Slavin's (1980) work. Commonly referred to as cooperative learning, three versions of the practice have been developed, Teams-Games-Tournaments (TGT), Student Teams Achievement Divisions (STAD), and the Jigsaw Method. In TGT students compete at three-member, mixed ability "tournament tables" with simple academic games. Individual student scores contribute to the total score of the team. STAD is similar except that games are replaced by individual quizzes. In the Jigsaw Method each student is given an essential piece of information needed by all group members to complete work.

Pre-service teachers can be trained in these alternate methods of grouping students for a variety of tasks, and they can be trained to train students on how to work in groups. It should be pointed out that students are not likely to know how to work in groups unless training is provided.

CTS-3: Utilize Interactive Teaching Strategies

Studies reported by Evertson, et al. (1984) show that students achieve more in classrooms where they are actively supervised and taught than in classrooms where they are left alone to work on their own for long periods of time (Brophy, 1983; Soar & Soar, 1983). Activities include frequent lessons in which the teacher presents information and develops concepts through lecture and demonstration, elaborates this in feedback to students, and prepares for seatwork with demonstrations and example to clarify instructions and tasks (Good, 1979; Good, Grouws; and Ebmeier, 1983; Rosenshine, 1983).

Rosenshine (1983) reviewed seven experimental studies in which teachers were trained to perform behaviors outlined in specially designed manuals (Anderson, Evertson, and Brophy, 1979; Good & Grouws, 1979; Evertson et al., 1983; Emmer, Evertson, Sanford, Clements, Worsham, 1984; Fitzpatrick, 1982; Reid, 1978-82; Becker, 1977). The results showed that the treatment teachers implemented many of the principles more frequently than the control teachers. The treatment teachers attended to inappropriate behavior more frequently, commanded the attention of all students, provided immediate

feedback and evaluation, set clear expectations, encouraged a warm and supportive classroom environment and allowed fewer interruptions. Rosenshine outlined six teaching functions extracted from these studies:

1. -Daily review, checking previous day's work, reteaching (if necessary).
2. -Presenting new content skills

   -Provide overview.

   -Proceed in small steps at a rapid pace.
3. -Initial student practice.

   -High frequency of questions and overt student practice.

   -Prompts provided during initial learning.

   -All students have a chance to respond and receive feedback.

   -Teacher checks for understanding.

   -Practice continues until students are firm.

   -Success rate of 80% or higher during initial learning.
4. -Feedback and correctives (recycling of information if necessary).

   -Feedback to students particularly when they are hesitant.

   -Student errors provide feedback to teacher that corrections are necessary.

   -Correcting by simplifying question, giving clues,

   -Explaining or reviewing steps, or reteaching last steps.

   -Reteach using smaller steps if necessary.
5. -Independent practice so that student learning is firm and secure.

   -Seatwork.

-Unitization and automaticity (practice to over learning).

-Need for procedure to ensure student engagement during seatwork is 95% correct or higher.

6. -Weekly and monthly reviews: reteaching if necessary.

-Rosenshine notes that independent investigators have come up with similar conclusions about effective teaching and are guided by student achievement data. The fact that these programs are more alike than different helps validate the research (Hawley & Rosenholtz, 1984). Bennett (1982) states that these programs make teachers aware of these teaching functions, bring them to a conscious level and enable them to develop strategies for consistent, systematic implementation. One would expect that these teaching functions most definitely could provide a basis for training teachers in pre service programs.

CTS-4 Communicate High Expectations for Student Performance.

Several studies on teacher training reported by Evertson et al. (1984) dealing with teacher expectation effects confirm the fact that some teachers behave differently toward low achievers in ways that communicate that they expect less of them (Brophy, 1982; Brophy and Good, 1974; Cooper, 1979; Braun, 1976). Good (1983) notes several ways in which teachers have been found to differentiate their behavior toward students whom they perceived to be high or low achievers. Some of these include: seating slow students farther from the teacher; calling on lows less often to answer questions; waiting less time for lows to answer; criticizing lows more for incorrect responses; praising lows less frequently than highs for correct responses; demanding less work and effort from lows and interrupting the performance of low achievers more frequently than that of high achievers. Evertson, et al. (1984) pointed out that although most of the research in the early

seventies dealing with teacher expectations left the possible argument open that teachers held high expectations for high achievers because they were indeed high achievers, some research does indeed show that positive teacher expectations are associated with student achievement gains (McDonald and Elias, 1976; Brophy and Evertson, 1976).

Martin (1973) conducted a study in Los Angeles where innercity teachers were sensitized to ways that low expectations could be communicated. Results after training showed that the treatment teachers elicited higher student achievement and better attitudes.

CTS-5: Reward Student Performance.

The use of rewards and incentives to reinforce skill mastery and to motivate students is one of the most studied aspects of classroom teaching. Behavioral analysis procedures have been used extensively to modify classroom behavior. These reinforcement techniques also are useful for shaping student behaviors that relate to academic achievement such as attending, task engagement, and independent study skills (Glip and Jung, 1971). The teacher's knowledge and use of these skills can be a major determinant in increasing behaviors which can facilitate academic achievement.

Lysakowski and Walbert (1982), in a synthesis of the relationship between teacher reinforcement and learning, concluded that the effects of instructional reinforcement were constant across the contexts of grade level, type of school, socio-economic status, and community types.

Evertson, et al. (1984) discussed three ways that reinforcement techniques can be used in classrooms.

1. Survival skills training

Based on the work of Cobb (1972), Cobb and Hops (1972), it is supposed that students require certain skills in order to be effective learners, i.e. attending, volunteering, complying with directions. The reinforcement of these skills and other behaviors, e.g. talking with teacher, interaction with peers, approval, increased the reading achievement of low achieving students in first, second and third grades.

2. Praise.

Findings on the use of praise as a reinforcer have been mixed and even negative in many studies (Brophy and Evertson, 1976; Soar and Soar, 1983). Brophy's (1981) review of the functions of praise has illuminated some ways in which praise can be effective, such as focusing on specific achievements that make the relationship between praise and the behavior explicit. Evertson, et al. (1984) point out that praise seems most effective when used with young children in the early grades and students of low ability or low socio economic backgrounds, but it is seldom effective with upper grade students or with high achievers.

3. Structure of rewards.

The reward structures refer to the rules and arrangements of student groupings which set ground rules for the rewarding of academic performance. These can be classified as individual or group, competitive or cooperative. Competitive structures, such as grading on a curve, mean that the receipt of a reward by one student diminishes the chances of rewards for others. Cooperative structures function in such a way that the good performance of one student can increase the likelihood of rewards for the other students. Individual reward structures are most effective when there are fixed criteria for reinforcement and the probability of one receiving an award is unrelated to the probability of another's receiving a reward. Slavin (1977) found no real difference in the efficacy of different reward structures with high achieving students. However, low achieving students did decidedly better with the cooperative arrangement. This is also supported in research reviews by Sharan (1980), Ames (1981), and Johnson et al. (1981).

Summarizing their section on "Deriving the Content of Teacher Preparation Programs from Research on Effective Teaching," Evertson, et al. (1984) drew on several already existing reviews to provide "as comprehensive a picture as possible of the major core teaching skills which can be identified that promote student achievement. The generic core skills identified by the researchers are presented here almost as discussed in the Evertson et al. (1984) review because they highlight those basic areas that research has shown are significant to student academic achievement. However, the researchers caution should also be echoed here that while it seems reasonable to assume that teacher training programs which provide student teachers with the knowledge and basic skills to perform these core teaching skills will consistently produce effective teachers, there is no evidence in research that demonstrates that the assumption is correct.

Regarding the question of how much teachers must know about their subject in order to be effective in the classroom, Evertson, et al. (1984) say "it seems clear that teachers ought to know what they teach in order to be effective teachers." "The policy issue is" they say "how much teachers must know and how that expertise can be determined." Their literature review on the effects of subject matter knowledge on teaching effectiveness indicates that these issues seem more difficult to resolve for elementary teachers than for secondary teachers."

A recent study cited by Evertson et al. (1984) consists of a meta-analysis of 65 studies of science education (Druva and Anderson, 1983) offer

the following conclusions that have bearing on this.

1. "There is a relationship between teacher preparation programs and what their graduates do as teachers. Science courses, education courses, and overall academic performance are positively associated with successful teaching."

2. "The relationship between teacher training in scienceand cognitive student outcome is progressively higherin higher level science courses."

3. "The most striking overall characteristic of thersults...is the pattern of low correlations across alarge number of variables involved." (p. 478)

Regarding the teaching of other subjects, Evertson's et al. (1984) review indicates a mixed relationship between teacher expertise and teacher performance. Massey and Vineyard (1958) found positive but small relationships as did Begle (1972). Maguire (1966), Siegel (1969), and Eisenberg (1977) found no or negative relationships between teacher knowledge, based on results of standardized tests, and grade point average and student achievement. These earlier studies are reinforced by a report from the General Accounting Office (1984) quoting from a 1983 research synthesis by Colin Byrne to indicate that there is "no consistent relationship between the knowledge of teachers and the achievement of their students" (p.33).

Evertson, et al. (1984) summarized this theme by stating that to know the subject one teaches does not necessarily make one an effective teacher, however, they suggest that teachers who have good teaching strategies would be more effective teachers if they also had good knowledge of the subjects

that they teach, particularly teachers who teach advance courses. They conclude that the research does not provide a basis for establishing the minimum level of knowledge that teachers should have in order to teach a given topic effectively and therefore offers little direction in the design of teacher training programs.

The scarcity of research on evaluations of teacher training and teaching effectiveness should not deter from examining some of the strategies, models and/or processes for preparing teachers that have been developed and implemented, in one form or another,with some degree of success. Evertson, et al. (1984) discuss three general approaches that are of interest here as possible strategies that could be adapted for use in Third World countries, competency based education (CBTE), microteaching, and practice teaching.

CBTE promotes the training of teachers to acquire specified competencies deemed to result in effective classroom teaching. CBTE reached its peak in the early 1970's when The Teacher Corps in the U.S. Office of Education funded a number of selected centers (some of which included: Teachers College at Columbia University, University of Florida, University of Houston, University of Oregon, Washington State, University of Wisconsin, the Far West Laboratory) to develop and refine competency based teacher education strategies with cooperating teacher corps projects. The CBTE approach, which provided the basis for teaching the basic skills in elementary schools seen today, basically involves the following pedagogy:

1. Specification of what is to be learned in the form of clearly articulated, measurable objectives.
2. Strategies, and/or activities that will lead to the achievement of the objectives.
3. Teaching the strategies, and/or activities.
4. Testing to determine if the objectives have been learned.
5. Providing feedback.
6. Redesigning and reteaching the lesson.

Seen as a shining ray of hope by many teacher educators for improving teacher training, CBTE was attacked by some as being too technical, to regimented, encouraging the delineation of skills to be learned that had no direct link to student learning (Sarason, 1978-79); Hamilton, 1973, as cited in Bush and Enemark, 1975). Although the enthusiasm of the early 1970's had faded, it is estimated that in the early 1980s about 13% of the 1200 teacher training institutions used some form of CBTE in their teacher preparation programs (Kerr, 1983).

Evertson, et al. (1984) point out that the criticism contending that CBTE lacked validation for its knowledge basis is not ascreditable today as it was in the 70's. This, together with the increasing interest seen among states and school systems nationally to develop competency based teacher evaluation programs specifying teaching behaviors, suggest that CBTE is on the upswing once again.

Certainly the research on the effects of CBTE shows positive results on

teacher attitudes and behavior (Adams, 1982; Joyce, Wald, and Weil, 1981; Piper and O'Sullivan, 1981; Borg, 1972)

Microteaching as reported by Evertson et al. (1984) is a simulation technique that focuses on particular learning objectives for the teacher candidate and through which evaluation and feedback isprovided. Microteaching essentially involves prospective teachers in organizing and delivering a short lesson. Specific competencies are to be demonstrated in the lesson, such as planning, interactive questioning, etc., and the lesson is evaluated accordingly.

Research on microteaching as reported by Evertson, et al. (1984) review indicates that microteaching or mini-courses as some versions are called, generally appear to be an effective teaching strategy (Copeland, 1975; Boeck, 1972; Borg, 1972; Blankenship, 1970; Kocylowski, 1970), however the acquisition of the particular teaching competence does not always occur (Kallenbach and Gall, 1969).

One of the real strengths of microteaching and therefore of great appeal to us is that it can facilitate immediate feedbackabout analysis of teaching performance. In Gage's words, "Evidence for the efficacy of feedback about teaching performanceis fairly consistent. When the information is explicit, clear, and keyed to specific aspects of teaching behavior, feedback results in improvement in the trainees' ability to perform according to a model of teaching" (Gage and Winne, 1975).

Student Teaching or practice teaching as reported by Evertson, et al.

(1984) is usually identified by new teachers as the most rewarding and useful aspect of their pre service training (Griffin et al., 1983; Nemser, 1983). Evertson, et al. (1984) suggest that these teacher claims coupled with the global skepticism concerning the rigor and scientific basis of many teacher training courses, have led to the increasing interest today to establish apprenticeship at the heart of teacher training. The review offers reasons from existing research to indicate that supervised practical experience, in itself and as it is practiced in most student teaching situations, is not a very effective way to train teachers. The Review reports that Peck and Tucker's (1973) review on teacher education indicated that "...by the end of student teaching, there are some almost universally reported decrements in attitude and in teaching behavior, as compared with the starting position of students prior to their field experience" (p. 967). Of interest to us in examining the utilization of student teachers for use in Third World countries is the study by Griffin et al. (1983) cited by Evertson et al. (1984) as "what may be the most intensive study of practice teaching yet conducted". Griffin (1983) and his colleagues found little change in students after their student teaching experience. Evertson et al. (1984) suggests that the study's description of the characteristics of the student teaching experience offer significant possible implications for the organization of student teacher training programs. These are itemized as reported in the Evertson et al. (1984) review below.

1. Support participants such as supervising teachers and university superiors seemed very adequate on a personal

level, yet insufficient in terms of helping student teachers to understand performance standards for professional practice.

2. Student teacher participants received exposure primarily to situation specific teaching strategies rather than to options from which they might select appropriate modes of instruction.
3. Participants lacked an awareness of policies, expectations, purposes, and desirable practices involved in the student teacher experience.

4. Only minimal evidence surfaced suggesting that students received exposure to any sort of integrated instruction linking their inservice coursework to the actual student teaching situation either substantively or ideologically.
5. Few instances existed of demonstrated policy, practice, or personal linkages between the university and the public school settings.
6. Student teacher participants appeared to be isolated from other participants.
7. An absence of public and enforced standards of performance probably contributed to the fact that few of the student teachers in this study were deemed to be less than satisfying.

Evertson et al. (1984) found that neither Griffin's nor any other study "linked specific characteristics of the student teaching experience to teacher performance, and that perhaps the role of practice teaching in teacher preparations programs may be overrated.

Regarding the induction phase of teacher learning, Evertson, et al. (1984) "caution consumers not to treat what we have called core teaching skills as fundamentalist dogma." It is a common belief among educators that instructional techniques must be adapted to meet the needs of the students taking into account different learning objectives and social factors. Citing from Brophy and Evertson (1976):

"...effective teaching is not simply a matter ofimplementing a small

number of basic teaching skills. Instead effective teaching requires the ability toimplement a very large number of diagnostic instructional, managerial, and therapeutic skills, tailoring behavior in specific contexts and situations to the specific needs of the moment. (p. 139)"

Evertson, et al. (1984) state that "the need for flexibility and judgement on the part of teachers poses a serious problem" for teacher trainers, plagued by society's pressures to strengthen the knowledge base and specific skills of teachers, at the same time that they are urged to be more practical, less theoretical, with emphasis on performance as measured by standardized testing.

Given the findings on teacher training programs, one has to agree with Evertson et al. (1984) that most teacher training programs in the U.S. do virtually nothing to encourage teachers to be innovative and adaptive in their teaching (Joyce and Clift, 1984). And considering Griffin's (1983) findings, practice teaching "more often narrows than expands the range of instructional strategies teachers feel they can employ." Joyce and Clift state that "The current process of learning to teach socializes teachers to a`practicality ethic'...where survival concerns dominate" rather than concerns for student achievement. Most teachers examined by Joyce, Bush, and McKibbin, (1981) feel that they received nosupport once they started to teach. Evertson, et al. (1984) refer to the entry period into the profession as being often sudden, with the beginning teacher being thrown into the teaching responsibilities right along with the experienced teacher,

referred to as the "sink or swim" approach by Lortie (1966). Several researchers have documented the "sink or swim" approach problems encountered by first year teachers (Ryan, 1980, 1982; McDonald and Elias, 1982). More and more educators are beginning to look at the"induction" period, as the first year teaching right after graduation is called, as a possible "professional continuum from pre-service to in-service (Hall, 1982; Tisher, Fyfield, and Taylor, 1979), suggesting that at least the knowledge of the problems faced by beginning teachers offers significant information for designing and for evaluating pre service teacher training programs.

There are several recent studies that attest to the problems faced by beginning teachers as they start their first year teaching. Veenman (1984) reports on perceptions of problems, such as pressures, complaints about work load; changes of behavior due to external pressures; changes in attitudes about teaching methods; changes of personality, and even decisions to leave the profession. Doyle (1980) finds persistent features of the classroom environment which leave the new teacher with little time to reflect before having to act. These include multi-dimensionality, simultaneity, immediacy, unpredictability and history, terms that are designed to suggest that classrooms are crowded with people, activities and interruptions; events take place at the same time; and there is little time for the teacher to anticipate the direction of events.

Stating that even though considerable agreement exists concerning the kinds of problems that first year teacher experience, Veenman (1984)

proposes three general frameworks to examine the process of becoming a teacher.

Developmental Stages of Concern theory of teacher development is based on the work of Fuller (1969) and Fuller and Brown (1975) which advocates three stages in teacher development: stage one, survival concerns, i.e. adequacy, surviving as a teacher, classroom control; stage two teaching situation concerns related to mastery of material, skills in the teaching learning process; and stage three, concerns about students, their learning and the impact on students' needs. Fuller holds that other concerns do not occur until students are freed from these earlier concerns. Later studies on concern theory indicate that stage one concerns, that is concerns for oneself, did decrease between student teaching and the fifth year of teaching. (Adams, Hutchinson, and Martray, 1980; Adams and Martray (1981).

The Cognitive Developmental Framework views the teacher as an adult learner, assuming that development results from changes in cognitive stages which are organized in a constant hierarchy from less to more complex (Sprinthall and Thies-Sprinthall, 1983). At the higher level of development persons are more complex, possess a wider range of skills, perceive problems more broadly, and can respond more accurately and empathetically to the needs of others. Some education programs have attempted to develop cognitive skills along these lines (Glassberg and Sprinthall, 1980; Oja, 1981). Glassberg (1980) studied 13 first year teachers who participated in student teaching experiences designed to promote psychological maturity and

found that beginning teachers at the lower levels saw themselves as being defensive, unable to motivate students, and felt that discipline should be controlled by school administration. Teachers at higher levels emphasized the importance of respect, the need to be flexible and tolerant, and the desire to facilitate the academic and personal growth of students.

The Teacher Socialization Framework focuses on the interplay between individuals' needs capabilities, intentions, and institutional constraints as reported in the Everson, et al. (1984) review, giving attention to changes in "contexts of institutional settings." Gehrke (1976, 1981) attempted to understand how beginning teachers adapted to the teacher role in order to meet their needs and to adapt to the role demanded by others. Four needs emerged in the early role transition: (1) the need for respect, (2) the need for liking, (3) the need for belonging, and (4) the need for a sense of competence. Tabachnick, Zeichner, Densmore, and Hudak (1983) examined ways teachers think about their work and ways that they give meaning to their beliefs. From Lacey's (1977) work they identified three social strategies used to conform to institutional demands:

(1) internalized adjustment, the period in which the individual complies with the constraints and believes they are there for the best;

(2) strategic compliance, the individual complies with the authority figure's definition of the situation with reservations; and

(3) strategic redefinition, implying that change is occurring, not because those in power are causing the authority figures to redefine the situation.

As pointed out by Evertson et al. (1984) review, these studies "suggest that beginning teachers can give direction to the quality of their socialization into teaching."

Evertson, et al. (1984) point out that the message from all this is that unless teacher training programs consider the nature of the experience teachers will have during their first two to three years of teaching, much of the teacher training activities will be viewed by teachers as being irrelevant and will not be implemented. Evertson, et al. (1984) make several recommendations regarding the implications this has for teacher training. First, curriculum design can consider the types of concerns teachers are likely to have and provide information to them about these with analytical and problem solving skills designed to help them deal with the conditions.

Second, students need to become familiar with the research on teaching focusing on their understanding the various options opened to them, the contingencies that mediate the use of specific practices, and the theory which clarifies the efficacy of the practices. Every effort should be made in training programs to increase teachers' conceptual understanding of teaching by emphasizing awareness of proven models and practices (Joyce and Showers, 1981; Joyce and Showers, 1982) and providing training that includes

theory, demonstration, practice, feedback, and classroom application (Showers, 1983).

Third, teacher training programs should place greater emphasis on developing teachers abilities to gather, analyze and utilize information that will enable them to solve complex problems such as the ones that they will encounter in their classrooms (Stalling, 1984).

Evertson, et al. (1984) conclude that although it is not possible to identify research-based or, for that matter, widely agreed upon criteria for sorting out effective and ineffective training programs, the available research seems to suggest that students who enroll in formal pre-service training programs are more likely to be effective teachers than students who do not, and that almost all attempts in teacher training programs to teach students specific knowledge or skills seem to be successful, at least in the short run. Evertson, et al. (1984) state that research does suggest that pre-service teacher training programs can contribute to effective teaching and offer the following guidelines for designing a teacher training program based on the research reviewed. Designers of a model for teacher preparation must deal with the following concerns:

a. Standards for admission;

b. the proportion of coursework that will be allocated to general studies, the field of concentration and education course, including student teaching;

c. what content and learning processes to embody in the

education curriculum;

d. what criteria might be used in certifying that prospective teachers are ready to teach; and

e. whether and how the program's obligation should continue into the induction period.

Teacher Training in Other Countries:

As in the United States, the history and characteristics of research on teacher training in other countries consists of program descriptions, discussions of approaches, techniques, and models, with little focus, if any, on effectiveness of training.

An ERIC search of 1900 documents by Gilman (1985) on international education practices, yielded a total of 154 studies dealing with teacher education programs since 1980. Gilman's review includes studies from both industrialized and developing nations. Only a brief description of some of the studies dealing with research in developed countries will be mentioned in this report.

Dueck (1984) discusses early exploratory field experiences in teacher education programs in the U.S. and Canada, including giving a rationale, structure, personnel and reactions to the program at the University of Calgary no evaluations are discussed. An interesting experience using post graduate certificates in education courses for primary/secondary school training is discussed. However, there is no mention of how the experience is evaluated nor how it relates to the trainees' teaching behavior in the classroom.

A document by Green (1983) discusses official government priorities established in the 1970s as they are compared with what actually happened in teacher education in England and Wales in the past

decade. The description of the priorities does not address teaching effectiveness.

In a journal article Van Der Cingel 1983) the training of biology teachers at seven universities in the Netherlands is reviewed, indicating that differences in the organization of courses offered at these universities reflect differences in facilities, development of programs, and educational philosophies. Effectiveness of the training is not discussed.

Van Laatum (1983), in a journal article reports on the development of a teaching-learning package about information technology for teachers by North-East London Polytechnic Institute in Great Britain and the University of Gronigen in the Netherlands. Modules included in the package are described.

In a journal article the current organization and structure of teacher education institutions in the Netherlands is described, and the content of programs to train teachers of modern languages is outlined, (Willems, 1982).

Teacher education in China has been significantly impacted as a result of the broader education emphasis in recent years which gives education a priority almost equal to that of modern industrialization (Ren-Mei, Mingsui, and Wendel, 1985). Modern developments in teacher

education promise to have some significant implications for use in Third World Countries.

A 1978 World Bank report on teacher training and student achievement summarizes the research literature in developed countries for the purposes of finding ways to mediate the teacher training problems. This research helps to place teacher training in proper perspective for arriving at recommendations that can be made to Third World Countries.

In a discussion paper for the World Bank, dealing with school quality in developing countries, Fuller (1985) discusses teacher quality pointing out that many studies have examined teachers' qualifications in terms of length of schooling, courses taken in post-secondary teacher training, or amount of post-secondary training. How these variables are related to teachers' effectiveness in organizing and managing teaching activities, and in motivating students remain unanswered.

Haddad (1985) on a discussion paper on Teacher Training for the World Bank discusses the role of the teacher as central to the delivery as well as to the quality of education. He reviews the research on teacher training as it effects teacher performance and student achievement, and finds no indication that increasing the level of qualifications beyond a certain point produces better teachers. He

suggests that education of teachers, beyond a given "bracket" of knowledge and skills that teachers must have for different subjects at different levels, below which they cannot teach effectively, is not cost-effective.

In a journal article, Ferguson (1985) describes the historical development of teacher education in Japan and analyzes selected similarities and differences between past and present Japanese and American teacher preparation practices. No evaluation of teacher training is discussed. According to the article 86% of Japan's 989 institutions of higher education offer teacher training programs. Programs in Japan are much more selective than in the U.S., admitting only 25% of the applicants and enrolling a higher percentage of the total college student population--about 10%. More than 30% of the college graduates in Japan receive teaching certificates but only 25% enter the classroom.

The Ministry of Education designates the course of study which is segmented into three categories: liberal arts, professional education, and teaching field specialization. The typical course sequence includes principles of education, educational psychology, methods courses, and two to four weeks of student teaching. Western pedagogical concepts, particularly American, are extensively introduced in these courses. Like U.S. teacher education programs, the emphasis

is on theoretical and philosophical considerations more than on specific techniques of instruction. Competency-based education is virtually absent. The author speculates that this may be because little pressure exists on Japanese teacher educators to certify the competence of their graduates, and most Japanese teacher educators are not persuaded that such highly analytical approaches to the training of teachers are effective and appropriate methods for training japanese teachers. Teacher education programs in Japan are not subject to periodic reviews by state or other public accrediting agencies. The institutions are required to follow the course of study prescribed by the Ministry of Education, and there is no monitored control over the quality of programs as there is in the U.S., and there is no felt need to maintain minimum standards through the use of "watchdog" committees or agencies.

Japanese teachers receive less formal preparation than do teachers in the U.S. Fifty percent of the elementary, 28% of the junior high school, and 12% of the high school teachers hold junior college degrees and less than one percent of the teachers at all levels hold graduate degrees. The author points out that although students in Japan receive a more rigorous and comprehensive education in the elementary and secondary schools and require less extensive preparation at the college level than American teachers, nevertheless it seems clear that the

Japanese attach less importance to the need for intensive formal preparation than do American educators.

According to a journal report (Ren-Mei, Mingshui, and Wendel, 1985) in China, formal teacher education is only about 85 years old. As a matter of fact, the authors point out that prior to the founding of the People's Republic of China in 1949, education was largely ignored. However, in recent years education has been given almost equal importance to that of modern industrialization. Teacher education has been significantly impacted as a result of that broader emphasis. Teacher education reforms in China include focus on building respect for teachers, revising the curriculum content and admission and exit standards of teacher education, providing inservice training for eight million teachers, and establishing an extensive network of educational research societies.

The results of a comparative study on policies of inservice education of educational personnel in five European countries, Austria, Czechoslovakia, the Federal Republic of Germany, Finland, and the Netherlands (Hoeben, 1986) pretty much summarize the state of the art in inservice education in other industrialized countries with regard to evaluation of effectiveness. Evaluation was limited to administrative and informal procedures at the individual courses level and focused on improving courses. Degree of participation and satisfaction on the

part of the participants were the most often used criteria in evaluating the training. Goal-achievement was seldom ever measured.

Of interest here is the research cited by Hoeben (1986) in her discussion on how inservice is being evaluated. She reports on Wade's (1984) meta-analysis study which attempted to estimate effectiveness of inservice training in terms of its effect on teachers and on their students, and found 91 out of 300 reports meeting her criteria for meta-analysis. Hoeben (1986) contends that the fact that almost a third of the studies could be used in the analysis, indicates that some progress is being made in research on inservice teacher training. As reported by Hoeben (1986), Wade distinguished four categories of effect levels: reaction, learning, behavior, and results. Reaction measured participants' reactions to the training. Learning measured the amount of learning that occurred among participants. Behavior measured behavioral changes in participants as the result of the training. Results measured impact of training on the classroom, particularly on students. Wade (1984) further calculated a mean effect size of .52 over all the studies analyzed. She calculated a mean effect size of .90 of the studies measuring the amount of learning; .60 of studies measuring participants' behavioral changes; .42 of studies dealing with how participants felt about the training; and .37 of studies that examined classroom impact by focusing on students' of participants. As

reported by Hoeben (1986), although Wade examined "the effects of training as a function of duration of training, training group characteristics, location and scheduling, sponsorship, incentives for participation, training group structure, and instructional techniques," no information is given on how the effects were measured in the various studies.

Hoeben (1986) pointed further that impact in the classroom is the most relevant effect level of inservice training, whether it is being measured as teaching performance or as teaching effectiveness. Impact in the classroom justifies the growing budgets being allocated for inservice training. She assumes that the very low effectiveness which Wade (1984) found in this regard is also based on a low among analyzed studies. This effect level is seldom used in evaluating inservice training, particularly in European countries.

Inservice Training:

Projecting teacher training programs for Third World countries essentially entails thinking in terms of manpower, or on-the-job training. Teachers in the Third World, for the most part, are tenured and have been teaching from ten to fifteen years. Many of them have had no formal pre-service training. The questions to be examined then are what kinds of training do teachers in Third World countries need? How does one train them? Who trains them, and under what conditions?

Without question, a key to quality education both in Third World countries and in industrialized countries is to concentrate more time and resources on training teachers who are already in the classrooms. Two articles aimed at the Universal Primary Education (UPE) movement reinforce this: Thompson and Greenland's (1983) overview of Teacher Education drawing from their research into Inservice Education and Training in Africa; and Linda Dove's (1983) case study on Bangladesh, reporting on her experience in helping plan and train personnel for the gigantic UPE project there. Although the articles are different in scope and treatment, they both have significant implications for teacher training in Third World countries that merit attention. Thompson and Greenland show that the increasing demands for qualified teachers brought on by the universal primary education movement is encouraging many countries to examine alternatives to conventional initial training, particularly "distance" training programs and the use of head teachers as trainers of their staff. Not only is the process of training under question but also the content and training curricula itself is being carefully scrutinized.

The suggested changes have profound implications for classroom teachers and for teacher education. Three major implications for teachers were projected:

1. Curriculum reform: out of the following: New orientations or new, often integrated, structures for familiar subjects may evolve. New subjects may be introduced. It may involve the introduction of vernacular languages as subjects or as media of instruction, for which teachers may not have the necessary linguistic competence.

2. New clientele: The movement in many areas will attract a wider range of abilities, cultural backgrounds, and achievement motivations, and the mix within single classrooms may well be significantly new. The education of women and of the handicapped will receive greater attention in some countries. Education in scattered, remote, and migrant population areas, such as the Hill People of Southeast Asia or the nomadic Fulani of northern Nigeria, for example, will make new and unconventional demands on teachers. Teachers may be required to teach adults for which they will need a range of new skills, particularly if they themselves are not members of the adult community.

3. New roles: In addition to the new roles imposed by the new curriculum and students, teachers may be required to serve as communicators of national policies, as community animateurs, and as catalytic agents of change, innovation, and problem solving. They may have to carefully coordinate with field officers of other

government departments seeking to generate greater capacity for self-development among local communities. They may have to serve as field tutors in supporting programs of adult education transmitted by the mass media or through self-instructional packages. At the same time, in creating a more genuinely community based school, teachers may need to work more closely with community leaders and parents both in teaching and management. Senior teachers may be more involved in training and supporting fellow teachers. The more remote teachers are from central administration units, the more they will be expected to improvise and innovate.

The response of governments faced with these challenges has ranged from energetic to hesitant. Making use of the master teacher approach seems to be consistent. The master teacher is utilized to support curriculum change by training a core of key staff who in turn train the teacher masses. The approach has been experimental, as in the development of self-learning materials for teachers. Much more common is the practice of providing short, inservice courses on an "ad hoc, fire-fighting basis" with very limited outreach and effectiveness.

According to the researchers, as would be expected, initial training programs proved highly resistant to change, though there has been much writing and some use of competency based approaches and

micro-teaching techniques. Some experimental adaptations have been reported, in colleges in India, Thailand, and the Solomon Islands where curriculum change has been enhanced by off-campus programs which provide teachers with experience in the realities of rural life. In the National Development Service of Nepal and the Student Rural Development Corps in the Philippines, there is more emphasis on supplementing training by involving students and their tutors in rural development activities.

Thompson and Greenland (1983) point out that "education will need to become a far more diverse and specialized process, no longer simply concerned with equipping teachers for currently conventional classroom teaching in a process of systems maintenance, but rather a process of preparing a wider range of categories of educationist to serve as agents of change. Integrated teacher education programs need to encompass and focus on: initial training for the new classroom, both for new teachers and for serving untrained teachers; upgrading of categories of serving staff whose qualifications have become inadequate for new purposes; retraining for the increasing range of education achievement and demands; and updating to enable teachers to cope with changing concepts in education and the roles of teachers.

Dove (1983) reported that improving teacher quality was key to the sweeping education reforms undertaken by the government of Bangladesh

which were to be implemented between 1981 and 1986. The aim of the Bangladesh project was to enroll up to 70% of the 12 million five- to nine-year-olds in primary school. Two thousand new schools had to be built and 10,000 existing schools needed remodeling. School furniture, text-books, and uniforms for girls had to be supplied and distributed, and 156,000 teachers had to be retrained.

The improvement of teacher quality basically involved regenerating the Primary Training Institutes, and creating a new category of supervisor officers, the Assistant Thana Education Officer (ATEO) in the schools. The ATEO's essentially would supervise a small number of schools and would be key figures in the organization of school-based inservice training and supervision.

A cascade approach was utilized in the enormous training effort. This approach provides intensive training to top level personnel who in turn train the next level of personnel, and on down the ladder until all levels of personnel have been trained by the levels above them. This model assumes that "top-to-down" training disseminates good educational concepts and techniques to successively larger numbers of personnel in a relatively short time. An advantage of the model, as utilized in Bangladesh, is that the "top-down" approach gives authority and prestige to the training. Respect is given to high status, and authority tends to flow from senior ranks to lower ones.

Training for the Academe staff took place at the University of London. This provided top level personnel with an opportunity to experience a variety of models dealing with good primary educational practice, not readily available in Bangladesh. It enabled them to examine the Bangladesh situation away from the day to day situation at home. The Director and staff were encouraged to develop their own knowledge and skills in primary education curriculum, pedagogy, and teacher training. More than all, the overseas training was designed to provide the motivation, enthusiasm, and confidence with which they would assume their heavy responsibilities for developing a training program. The training was intensive and focused on the objectives of the training task at home.

To allow for the possibility that the training through the ranks might be weakened due to the gaps in professional expertise in the primary teacher training within the system, the program provided for a short phased sequence of training and orientation at each level of personnel. This would facilitate an early start of the project followed by additional inservice workshops and on-the-job supervision and support on an on-going basis as needed. This inservice and on-the-job supervision and support was seen as key to insuring that the quality of the teaching force would gradually improve.

Key factors in the training plan are the new ATEO's as they become accepted and respected advisory and supervisory officers in the system. It is significant to note that the ATEOs themselves were primary head teachers and that they were based at school-cluster levels. This placed them in a good position to work closely with head teachers, with individual teachers, with the teachers in one school as a team, and with groups of teachers brought together from different schools in the cluster for a variety of professional and social activities. Special attention was given to the integration of female teachers into the teaching force. It was considered that traditional conditions in local environments might disapprove of women working alongside men in modern occupations. In addition, hostility was anticipated in some parts of the teaching force to the notion that female teachers should be given preference to unemployed male candidates.

Other anticipated problems for teachers which needed to be addressed by the ATEO's included: adjusting to an increased teaching schedule in terms of hours, i.e. working 18.5 hours per week; coping with sixty and more pupils in each class; and children would not be just from the privileged and educated families but also from families of landless peasants with no tradition of schooling at all. The projected training, advising and supervising expectations for the ATEO's are demanding and far-reaching. ATEO's would have to develop

and demonstrate a constant cooperative and tactful interest in the welfare and work of the teachers under the new conditions to improve their morale. This would be accomplished by organizing school-level and cluster-level activities to enable teachers to share problems and discuss ways of addressing them. Other projected tasks for ATEO's included: enhancing the teachers' self-confidence, skills and professionalism by helping at classroom, school and cluster levels, to develop an understanding of the concepts imposed by the new curriculum, and to devise simple techniques and materials for teaching the curriculum to large classes, particularly developing low-cost teaching materials which can be used over and over again.

Teachers, used to more formal, authoritarian teaching methodology would need assistance from ATEO's in modifying their teaching behavior. The ATEO's would play a key role in helping teachers interface with the community. They would be expected to encourage the teachers not to isolate themselves from the life of the community, but to establish good working relationships. Female teachers, who might be local village girls, would more than likely have problems in defining working relationships with communities in which they were raised, they in turn would serve as local resources to the ATEO's.

By now an examination of the Bangladesh training design should show some effects. If things went according to plans and expectations,

teacher training in Bangladesh may no longer consist of short, one-time, college-based workshops, isolated from the culture and the realities of the schools and communities in which the teachers work. Instead, the training of teachers is taking place at school levels as an on-going, supporting function, providing on-the-job support and training from supervisors as teachers face the problems of teaching the new students and implementing the new curriculum. The Bangladesh approach is certainly worth examining for implementation elsewhere in the Third World.

A review of the results of multi-variate studies of the effects of school, teacher, and student characteristics (Schiefelbein and Simmons, 1981), highlights important issues for policy makers in teacher training in third world countries. Comparisons are made across the African, Asian, and Latin American regions and conclusions are examined. Twenty-six studies, using multi-variate analysis, reported in the Review include: 5 for Africa, 6 for Asia, and 15 for Latin America. In addition all multi-variate studies covered in recent topical reviews are included.

The review focused on the results of system studies dealing with issues, such as: the effects of different curricula on student learning; student and teacher interaction; what happens in the classroom and during homework; and issues dealing with the

understanding of the learning process itself as a complex system of factors affecting student achievement which includes the influence of family, the characteristics of the student, other non-school experiences, and the role of the school.

The possible determinants of student achievement identified in the study are divided into three categories; 1) school resources and process; 2) teacher attributes; and 3) student traits.

Concerning teacher characteristics, pertinent to this report, the most significant variables included teacher certification, experience, and training. Under certification, the review indicated that 19 out of the 32 studies showed that students with uncertified teachers performed as well in achievement tests as did students with certified teachers. In 6 studies focusing on the impact of the amount of training on student achievement, only one yielded significant results. In the four studies concerning the upgrading of teachers, none of them showed that teacher upgrading improves students achievement scores. The researchers concluded that although more research is needed to draw more meaningful conclusions from these studies, these findings suggest that teacher certification should be reviewed with caution as a way to increase student achievement.

Avalos and Haddod (1981) discussed teacher training in light of research on teacher effectiveness. They point out that in theory,

teachers performance can be influenced by the amount and kind of training that they receive. They raise the profound questions of how should teachers be trained to perform in different situations and for different groups? Is there a minimum level of training? Of what kind? To what end?

In examining the relationship between training and teaching behavior, Avalos and Haddod (1981) found that, generally speaking, training does seem to make a difference in some aspects of teacher behavior. Teacher attitudes seemed to be influenced in a number of Indian studies (Mehrotra, 1973; Mehta, 1971; Mathew, 1976; and Debnath, 1971; Malhotra, 1976; Patel, 1974). The use of more authoritarian pupil control methods was found for untrained teachers in Iraq (Touhafi, 1974); and training was found to be related to indirect styles of teaching, better preparation of lessons, and better professional relationships in Sierra Leone (Johnson, 1970; Agard, 1975).

What was not clear was the effect of higher levels of training or qualifications, i.e. university vs. teacher college training, more years of study, or higher achievement during the training. A group of studies seemed to relate higher qualification to positive attitudes toward teaching (Jordan, Qutami, 1977; Thailand, Thunthanagul, 1975) and toward the profession (India, Mehrotra, 1973); higher

qualifications were also related to the use of various classroom techniques characterized as indirect, participatory, and employing modern aids and inquiry strategies (Chile, Shiefelbein, et al. (1976); Thailand, Fuengivivat, 1976, Pudpong, 1973). Other studies, although acknowledging the effect of training, could not suggest that higher qualifications or graduate training were better than lower levels of training. Indications seemed to show that less qualified teachers felt happier in the profession (Iraq, Touhafi, 1971; Thailand, Lasorojana, 1964, Yuktabut, 1967, Pongchai, 1967, Radom, 1963, Meekanon, 1973, Thong-Ngok, 1974). A few studies even pointed to no relationship at all between training and classroom performance (Nigeria, Nwana, 1971; Jordan, Muslamani, 1976; India, Arora, 1975). This finding was particularly significant since two of the studies supporting it were considered by the reviewers to be exceptionally good (Jordan, Muslamani, 1976).

Avalos, et al. (1981) indicated that most of the studies relating qualifications and training to teacher behavior and attitudes were conducted at the secondary level. They reported some work on the effect of various methods used in pre-service teacher training. A number dealt with the impact of microteaching on student teacher behavior, type of questioning, use of participatory methods, and use of visual aids. All but one reported positive relationships between this

type of training and classroom performance of student teachers (India, Parmeswaran, 1977, Rai, S.N., 1977, Vaze, N.A., 1976, Singh, L., 1973; Thailand, Fac. Ed., Usaha, 1974; Malaysia, McGregor, 1974, Sim, 1972). They indicated that one of these studies reported an interaction between experience and microteaching; student teachers who had more than one year of previous experience profited most from a sequence of microteaching followed by macroteaching.

Simulation techniques, examined mainly in Thailand, were shown to be better than traditional techniques in several studies as measured by Flanders' Interaction Analysis (Checkjantuck, 1976; Niempradit, 1976; Boonchai, 1976; Poonsuvan, 1976; Pitaksanurat, 1976; Srivaleerat, 1976). Team teaching was reported to be related to indirect behavior in one study (India, Sharma, A.P., 1971). The use of interaction analysis in training was reported to be related to the development of a child-centered approach to teaching in Thailand (Chariyankul, 1972) and training in indirect behavior was found to affect its use in the classroom (India, Jangira, 1972, Raijiwala, 1975, Sing, L.P., 1973).

Various feedback techniques on student-teacher behavior were effective in several studies. Positive attitude changes toward teaching were found to be the result of feedback techniques (Thailand, Nipariyai, 1974; India, Roy, B., 1970).

Concerning inservice training and the relationship between inservice training experiences and teacher behavior and attitudes, several studies reported positive effects on attitudes regarding teaching and subject-matter (Lebanon, Ali, 1975, Ghunaym, 1975; Philippines, Loreto, 1972, Apilado, 1971; Peru, Barriga, 1973-75; Malaysia, Velappan, 1977). A couple of studies, did not support this relationship (Jordan, Billeh, 1974; Lebanon, Abou Ali, 1970). Another effect of inservice training seemed to exist in knowledge of subject-matter: of intermediate teachers in mathematics (Lebanon, Ghunaym, 1975), in developing selected concepts in biology, chemistry, and physics (Jordan, Billeh, 1975; Lebanon, Abou Ali, 1970) and in physics and general science (Philippines, Loreto, 1972, Apilado, 1971). Teaching strategies and classroom behavior were also found related to inservice training in several studies. When compared to teachers with only preservice or no profecional training, inservice training was found to have a positive effect on quality lesson planning and observed performance (Jordan, Ryyan, 1977), on instructional skills and personal qualities (Philippines,Lumbao, 1976), and on success in implementing curricular changes or reforms in the educational system (Thailand, Suchareeckul, 1978; Salvador, Mayo, et al. 1976). As a matter of fact, Avalos and Haddad found that practically all that was reported on inservice training showed effects on attitudes and behavior of

teachers. However, given the number of inservice courses that have been organized in every country, the lack of studies on the effects of inservice training of student performance, and especially of longitudinal ones measuring changes in teachers and students over time was conspicuously absent. Also there was no evidence indicating the effectiveness of different ways of organizing inservice training or methodologies used for this purpose, except for one Thai study dealing with various means of performing inservice training such as studying from instructional pamphlets and listening to, or rating audio-tape models (Chewpreecha, 1977).

In their discussion of research results and findings in current literature Avalos and Haddod (1981) pointed out that most of the early research attempts to describe characteristics of a good teacher on the basis of opinion surveys with no consistent relationship to student achievement. In addition to the survey type of research, they found several studies that link contextual factors and teacher personal characteristics to teacher behavior and teaching skills as measured mostly by opinionnaires and rating scales. Classifying this type of studies as "research which assumes that `appropriate' behavior will have an impact on students," they indicated that this type of research "...has, by and large, been abandoned by researchers in developed countries for research that, not only, attempts to describe the

teaching process, identify good teaching skills, behaviors, and attitudes, but also relates the process to student outcomes." They pointed out that although this type of research has been avoided due to inconsistent findings in past research (Getzels & Jackson, 1963; Gage, 1963), they found an increasing renewed interest in relating teacher training experiences and teacher characteristics, i.e., skills, intelligence, motivations, personality to student outcomes (Dunkin & Biddle, 1974).

Avalos and Haddod (1981) offer their findings on teacher training as "findings that might be looked at in relation to similar ones in the research of developed countries," dealing primarily with the teaching process.

Peck and Tucker (1973), in their review of teacher education research, reported a significant increase in teacher training research and synthesized the results in the following points:

(a) A system approach to teacher education (instructional design) substantially improves its effectiveness. A good deal of research in this area is centered around three cases of the model: training in interaction analysis, microteaching, and behavior modification.

(b) Teacher trainees taught in the same way they are asked to

teach their pupils are more effective in actually practicing it.

(c) Direct involvement in the role to be learned (sensitivity-training laboratories or classroom simulation laboratories) contributes more effectively to desired behavior than do lectures or instructional theory.

(d) By using the above techniques, it is possible to induce a more self-initiated, self-directed, effective pattern of learning in teachers and their pupils.

McKnight (1971) reinforced the effectiveness of microteaching, modeling (use of videotape models), and the effects of feedback in microteaching as adjunct to supervisory critiques for changing behavior.

None of these studies, however, used achievement as criteria. Good, Biddle and Brophy (1975) challenged the effects of the use of microteaching, interaction analysis, mini-courses, and other competency-based teacher education techniques, on the grounds that much more research was needed on teacher behavior as a result of the use of these techniques and its impact on student outcomes. Nor had these techniques withstood the test of time. Turner (1975) recommended summative evaluation of the long-term effect of teacher training on student learning, attitudes, and behavior. Although some studies did

examine student achievement, Turner contended that there was not enough reliable information to encourage effective policy-making concerning teacher training. Longitudinal studies were needed that provided information on how selection, training, and placement variables affect each other and how they may be linked to teacher success. Also missing, were studies focusing on indications of the motivation of teachers for entering teaching, and experiments screening teacher candidates early in the training process. Turner (1975) agreed with Good, Biddle and Brophy (1975), that much more research was needed on the use of procedures such as modelling, micro-teaching, mini-courses, performance-based teacher education, and especially of technology-based simulation strategies.

Teacher Training Reforms

Current sweeping education reforms in the U.S. are moving teacher training more and more toward an inservice function, with school districts developing and implementing teacher training programs which they consider to be more relevant to the needs of their teachers.

Teacher recertification is a common way of insuring that teachers continue to upgrade their education in the U.S. As many as 40 states were predicted to require recertification of teachers in service by 1985 according to a survey conducted by Hanes and Rowls (1984).

Historically teachers have been required to earn graduate credit hours from a college or university over a period of time in order to renew their certification. Recent trends enable teachers to meet recertification requirements by participating in state approved inservice training activities sponsored by local districts.

According to Hanes, et al. (19) in twenty-nine states such options, have been initiated since the South Carolina State Board of Education officially adopted district-planned recertification in the Spring of 1982. Under the South Carolina Plan, instead of completing six semester hours of college coursework every five years, teachers may accumulate 120 renewal points for participation in state approved district staff development activities during a five-year period.

Inspite of opposition from teacher education groups and college administrators in South Carolina, support for district-level recertification came from all sectors of the state, thereby sending a clear message to the state colleges of education that traditional college courses based on advanced degree programs were not getting the job done for the school districts.

The South Carolina project was soon replicated in Florida, and similar models were adopted in Georgia and North Carolina. In a survey of 50 state departments of education and colleges of education at major state universitites to determine how wide-spread district-planned

certification had become, Howey et at. (1985) found that of 40 states that had, or expected to have recertification requirements, 34 would require periodic renewal of certificates and would issue no life time certificates. Six states had periodic renewal leading to life certificates, increasingly linked to advanced degrees. Five states reported that some form of periodic renewal had been approved. Of the 29 states that allow inservice training sponsored by school districts for at least part of the recertification requirements, 18 states indicated that by 1985 they would allow all of their recertification requirements to be met by district-sponsored approved training. Clearly, local inservice training programs are in competition with colleges and universities for teachers who seek salary incentives.

To determine the impact that this has had on colleges of education, Hanes, et al. (1984) surveyed 61 colleges of education at major state institutions. The colleges of education reported that they do play a role in providing inservice training to teachers, but the role is shared with state agents, school districts, or private consultants. Workshops by individual faculty members were reported to be the most widely used form of college participation, others included field-based version of existing courses, and special courses designed specifically for the districts.

As does the literature on pre-service training, the research literature on inservice training of teachers consists of a growing number of reports, primarily of descriptions of programs and practices that are seldom, if ever, substantiated with empirical treatment. Much of what is reported on inservice training can be seen as a piecemeal approach to meeting pressing educational problems.

Bilingual Education Inservice Programs: Refuting arguments that teachers generally are not interested in inservice training and do not wish to upgrade their skills recent reports indicate that teachers are willing to undergo further training in bilingual education and ESL, (Mazon, 1984). They are reluctant to take traditional courses taught by professors who have not set foot in a public school classroom, or who teach the same courses year after year under different titles (Greer, 1979). Teachers prefer short-term credit/degree oriented workshops that offer up-dated information and are relevant to their classroom activities (Mazon, 1984).

Research conducted under Part C Title VII of the Bilingual Education Act of 1964, indicates that teachers are willing to undergo training and that they recognize their need for additional training (Rivera-Medina, in progress; Tikunoff, 1984; Collier, 1984; Weber, in progress). A 1984 report on inservice training of teachers in Northern New Mexico finds that participating teachers resisted training

involving traditional courses, but were receptive to short-term workshops (Mazon).

Experience with short-term degree oriented workshops for training elementary teachers at Texas Southern University seeking ESL endorsement, suggests that they offer teacher training institutions a viable alternative to traditional courses for teachers. A comparison of student scores of two ESL courses taught in workshop format with one taught traditionally indicated that students in the workshops scored as well or better than students in the traditional class. Teachers rated the workshops as superior (Mazon, 1985).

Although results of this experiment are inconclusive, the study offers convincing evidence that short-term workshops for elementary teachers should be examined by training institutions. The following observations concerning the benefits of the workshops certainly should encourage further research:

1. The teachers in the workshops observed that the three-hour block of time allowed for:

   o valuable class discussion and student interaction;

   o critical inquiry, hands-on-activities and exercises that enabled teachers to try out new ideas, get input from each other, and reinforce each other;

o teachers to work individually and/or in small groups on relevant projects and activities that they put to immediate use in their own classrooms.

2. Teacher enthusiasm remained high throughout the entire workshop. Teachers rated the workshops as superior on a five-point scale.

Empirical research needs to be done on short-term, credit/degree oriented workshops before they can be recommended as alternatives to traditional courses for inservice training of teachers. Education professors are generally supportive of examining short-term workshops for courses dealing with teaching methodology and practice. There is skepticism and some resistance to short-term credit oriented workshops for courses that are traditionally more theoretical (Lopez, in progress).

A review of forty documents on teacher training from the bibliographic file of the computerized database of the National Clearinghouse for Bilingual Education (NCBE), yielded no information on training evaluation. The literature consists of discussions of training competencies, descriptions of program designs and demographic information related to training programs and to certification. Evaluation of training effectiveness in terms of teaching outcomes is not considered, nor is the effect of training on student achievement.

Other Inservice Practice/Modes in the U.S.

A team of English teachers in a Sacramento, California high school studying Synectics (Gordon, 1961), designed to stimulate metaphoric thinking, in considering new strategies for some of their classes, utilized the coaching of teaching (Joyce and Showers, 1982) approach. After reading Gordon (1961)'s book, Synectics, observing several demonstrations on the strategy by an expert, participating in teacher discussions, watching a video tape of Gordon (1961) explaining the theory behind synectics, and visiting a school where teachers had used synectics for two to three years, they planned mini-lessons in three specific teaching areas. Each teacher practiced the strategy several times with the other teachers, and finally in pairs, they tried it out with most able students in their elective classes. One teacher taught while the other observed and constructively critiqued, then switched places. Some times they taught together. This practice continued several times with the "coaching partner" present to offer suggestions and improvement.

Still working in teams they begin to use synectics in some of their classes where they found that actually utilizing a new model, that is teaching the student to relate to it is much more complicated than learning it. It took time. The team found it necessary to reread

parts of Gordon (1961)'s book and to revisit experience teachers in using synectics. The team studied alternative Models of Teaching (Joyce and Weil, 1980) and used the following training procedures virtually guaranteed to produce successful implementation of almost any approach:

1. Study the theoretical basis or rationale of method.
2. Observation of demonstration by experts.
3. Practice and feedback in protected conditions, i.e., trying out the strategy on each other, then on students who are relatively easy to teach.
4. Coaching one another as they work the new models into their repertoire, providing companionship, helping each other learn to teach the appropriate responses to their students figuring out the optimal use of the model in their courses, and sharing ideas and feedback.

Research dealing with the effects of these elements on the development of skills in using new approaches to teaching and on transfer of the approaches to active teaching indicates that the first three elements, the study of theory, the observation of demonstration, and practice with feedback, if done in high quality, can enable teacher to implement a new approach successfully.

Staff Development: In a journal article, Kenneth Howey (1985) discusses the characteristics of effective staff development that are beginning to emerge in the literature and suggests that although the knowledge base on staff development is sporadic and fragmented, there is enough data to offer guidance to teacher training planners and policy makers in the design of programs to prepare more and better teachers.

Current staff development practices, for the most part, focus on the improvement of teaching skills (Weil, 1984), which Howey finds severly limited. He points out that while staff development often includes a "potpourri of other activities," the activities, for the most part, tend to be brief, atheoretical and lacking in relationship to what teachers do in their classrooms (Gall, Hoisley, Baker and Perez, 1984; Joyce, Howey and Yarger, 1976). Howey (1985) contends further that staff development commonly relates more to job-related activities sponsored by the school district. He states that the recent emphasis on school improvement and the focus in the literature on characteristics of effective schools such as goals agreed upon by faculty, shared expectations of pupils performance and behavior, enhanced collegiality and a sense of community, and school wide articulation of the curriculum gives impetus to the growing use of the term staff development. This body of literature focuses on all school

factors and how these relate to individual classrooms (Cohen, 1981; Purkey and Smith, 1982; Ralph and Fennessey, 1983), and suggests that collective efforts among faculty and staff can result in improved curricula, in a more human school climate, and in more challenging instructional norms.

According to Howey (1985) studies of teaching have also addressed imbedded concerns about teacher accountability. The teacher effectiveness literature has encouraged development based on specific school curricula and instructional behavior. Good and Grouws (1979) designed a training program based on instructional practices related to higher-than-expected elementary student achievement gains in mathematics. Stallings and Staybrook (1978); Brophy and Evertson (1974); McDonald (1976); and Good, Grouws, and Ebmeier (1983) translated findings about chains of inquiry in classrooms into training materials that can help teachers produce desired student cognitive achievement. Shower's (1984) study of the effects of peer coaching on the transfer of training shows how follow-up activities can be incorporated into staff development designs. Sparks (1983) shows how staff development can be incorporated more closely into classroom practices through peer observation and feedback. Several other staff development programs reflecting varying degrees of empirical support include such topics as mastery learning, cooperative learning, active

teaching, and time on task. Howey (1985) found the most popular of this type of program seemed to be the Madeline Hunters' Instructional Theory Into Practice (ITIP). This type of programs attempt to change teacher behavior in an effort to improve student performance. Howey (1985) cautions that not all programs are successful. Many programs often remain loosely structured and, while major improvements have occurred in certain areas of teacher development, much work is yet to be done. He supports this contention by citing from a study of staff development activities in Oregon (Gall, Hoisely, Baker, and Perez, 1984):

> Our hunch is that inservice education, however it is originally conceived, becomes bent to the prevailing patterns of school system functioning. Inservice education appears largely designed to be unintrusive and undemanding of teachers. It reinforces prevailing curriculum and instruction, and is not intended to alter them in a fundamental way. The focus of inservice instruction on the instructional process rather than instructional outcomes is a major indicator that it is not intended to challenge the prevailing system. Another indicator of lack of challenge is the fact that teachers feel adequately prepared in the majority of inservice activities even before they begin participation. (p. 8)

Marsha Weil's (1985) journal article reporting her finding on her case study of the use of research results by pre-service and inservice educators raises the hope that in California, at least, staff development training is taking on a more comprehensive approach. From her examination of selected research dissemination practices in California, Weil contends that research is encouraging school

administrators to become active leaders in developing and implementing research-based staff development programs at the school-district level. According to Weil (1985) staff development as a "school-based-approach" is now an integral part of the local school scene, while at the same time, district offices are assuming more active roles in guiding and directing school-based staff development activities. The result has been more collaboration and/or partnerships forged between school districts and regional agencies or county offices which offer inservice training. She reports that there is less reliance on individual consultants who perform one or two training sessions, and that there is more demand for research-based training because teachers and administrators themselves have become more knowledgeable about research, and because of the growing number of local district staff developers who can effectively train other teachers in the various research-based practices. She reports that because of research, staff development has become more behavioral and more oriented to school-level practices and policies.

Ward (1985) describes the complexity of improving the performance of teachers in classrooms which she considers to be parts of a larger social, political, and educational context. She outlines four dimensions of teacher development that need to be considered in any teacher training programs: (a) recent actions and policies of state

legislatures and state boards of education, (b) the nature of the teacher work force, (c) the characteristics of the schools in which teachers teach, and (d) the administrators with whom they work.

Recent legislative and school board actions encourage development and implementation of training designed to improve teaching skills so that measurable effects can be observed in students' learning quickly. These include:

1. New teacher incentives for performance.
2. New forms of teacher evaluation.
3. Specifications of required continuing education or inservice training for teachers in service in order to renew certification requirements.
4. Alternative certification, i.e., allowing persons with a B.A. degree to be employed as teachers while completing education training requirements.
5. Inclusion of an induction period in the professional and credentialing process and in the development of salary scales.

Concerning the nature of the teacher, Ward (1985) cites data pointing to the changing nature of teachers in the W. S. Levine (1984) reported that during the Depression highly trained professionals moved into teaching because they were seeking more secure employment, and for

several years, highly talented women vbecame teachers because of few other options for employment, and for several years, highly talented women became teachers because of few other options for employment. This talented pool of teachers is fast declining because of retirement and the women's ability to find employment elsewhere. Ward and Tikunoff (1984) reported that in one urban district, 36% of the teachers in a representative sample had taught 20 years or more. Darling-Hammond (1984) reported on the large numbers of teachers who will retire in the next decade. They reported on the differences in ability level of individuals now entering the teaching profession compared with older, experienced teachers, noting that many young, experienced teachers are leaving the profession for other occupations. Schlecty and Vance's (1981) studies conducted in North Carolina estimate that first- and second-year teachers leave at an annual rate of 15%, third-year teachers leave at a rate of approximately 10%. They found further, that only 26% of the new teachers in the upper 20% of measured verbal ability intend to teach at age 30, contrasted with 56% of those with the lowest verbal ability. Feistritzer (1983) found that individuals entering teacher training are less talented than other high school graduates who plan to go to college. From this Ward projects that participants in teacher development programs of the future will be less experienced and more likely will have slower ability level than

currently employed teachers, therefore, she contends that attention must be given to what is known about adult learning, cognition, and change as well as to what is known about teaching effectiveness in the development and implementation of staff development programs. Furthermore, she contends that if the number of teacher candidates continues to decrease as noted by Feistritzer (1984), staff development programs will also have to train teachers who have no formal pre-service teacher training.

Based on her review of research on effective schools focusing on schools in which teachers teach, Ward (1985) mentions three aspects of schools that need to be considered: (a) the isolation of teachers from sources of information about the strengths and weaknesses of their teaching and from new information and ideas that might improve their teaching; (b) the lack of a future orientation in teachers' work; and (c) the feelings of inefficiency that teachers experience. According to her findings physical isolation creates a situation where teachers feel that they are seen as incompetent when they seek information or advice from others (Glidewell, Tucker, Todt, and Cox, 1983).

The College Board reported that in 1982 the average verbal score on the SAT among college bound seniors was 425 and the math score was 467. The average score for prospective education majors was 394 for the verbal section and 419 for the math. The scores on the Graduate

Record Examination and the National Teacher Examination also indicate that students enrolled in teacher education are the least competent when compared to students enrolled in other fields (Mazon, 1985).

Teachers must depend on their own ability to detect problems and find solutions (Lortie, 1975). Ward (1985) states that this "trial-and-error learning" tends to be the main method of development for many teachers, and contends that the work that teachers do is primarily characterized as having no future orientation because their work remains primarily the same throughout their career and is short-ranged in terms of planning. Instructional planning may extend to a semester at best, but more often it covers a single period, day, or week. Ward reported that lack of feedback on their teaching and on how they can improve limits teachers' effectiveness in their classrooms (Ashton, 1983).

Concerning school administrators, Ward (1985) reports that teachers who work in a school with an effective principal are more likely to be effective teachers than those who do not, even when the two groups of teachers have the same levels of training, expertise, and commitment to help students to learn (Boyer, 1983). According to Ward (1985) Levine (1984) noted that the "role of the principal in improving the quality of teaching and the effectiveness of schools is central" (p. 5). Ward and Tikunoff (1984), according to Ward, found that

teachers consider school administrators to be the most important help--or the greatest hindrance--in their being more effective teachers. Therefore, the development and improvement of skills in instructional leadership for school administrators need to be included in overall staff development plans.

Summary

Although this study focused on reviews dealing with teacher training in general, the intended emphasis is to show that the future of teacher training lies on continuing education and development of teachers already in service. As this review indicates, in the U.S., where teacher training is keyed to certification of teachers, sweeping education reforms have moved several states to initiate recertification requirements of teachers based on some form of staff development. At least 29 states have adopted policy permitting teachers to meet recertification requirements by participating in state-approved school district-based inservice training programs. Although teacher training institutions in several states have protested, colleges and universities are not responding fast enough to the critical needs faced by school districts for more and better trained teachers as a result of shortage of teachers in critical content areas, and community pressures to provide academic excellence.

Shortage of Teachers in the U.S. The minority language population growth in the U.S. over the past decade has forced public school administrators to resort to a variety of strategies in order to staff classrooms that have been impacted with children of limited English proficiency (LEP) or no English proficiency, with teachers who are trained in English as a second language or bilingual education methodology. The decline in teacher training candidates has contributed severely to teacher training in other critical areas such as science and mathematics. A survey of 600 institutions of higher education by the National Science Teachers Association (1982) found a decline of 77% from 1971 to 1981 in the number of science teachers.

The number of new teachers graduated in the past decade nationally has dropped from 36 to 21 percent of all college graduates. The number of education graduates with a major in mathematics dropped from 2, 217, 1971 to 798 in 1981. The number of science education majors dropped from 891 in 1971 to 597 in 1981. This includes teachers of biology, chemistry, physics, earth sciences, and general science. Only 5% of all college bound seniors in 1982 indicated plans to major in education. At state levels across the country, the shortage of teachers in critical content areas is quite serious. In California only 97 students were preparing to be mathematics teachers out of more than 400,000 students enrolled in four year public institutions in

1982. In Maryland, more than 400 teachers were not certified to teach mathematics in the 1979 school year, in 1982 only 17 new mathematic teachers graduated in the state, and only 8 entered teaching. in New Jersey the shortage was so critical that a state of emergency was declared to exist in 17 of 20 counties in 1983 by the State Department of Education, permitting school districts to use uncertified teachers in math, science and bilingual education. In Texas 20 graduates were certified for mathematics teaching in 1982 and only 7 entered teaching. Only 258 teachers received certification in bilingual education in 1984.

Teacher Exodus. Adding to the decline of graduates in education is the exodus of experienced teachers into other, more rewarding fields. Almost five times more science and mathematics teachers left teaching in 1980-81 for employment in industry than were retired. One in four teachers among the younger faculty plan to leave teaching. A survey in North Carolina found that those planning to leave in 1980 were predominatly the best qualified on the basis of preparation and test scores. (Mazon, 1985)

Quality of Education Majors. In examining the quality of education majors, some states have found that education majors at state universitites score at an average of 121 points lower than do their counterparts in other fields on the combined mathematics and verbal

section of the Scholastic Aptitude Test (SAT). Supporting the notion that those who go into teaching are the least competent is the quality of students who enter education. In general students choosing education score lower than students who select other fields when entering college.

Conclusions and recommendations:

With regard to the purpose and focus of this review, although research on teacher training is sketchy, consisting primarily of descriptions with little empirical basis to substantiate conclusions, enough significant data can be found to assist teacher training policy makers and planners in Third World countries. This review clearly indicates that studies on teacher effectiveness and effective schools, and how these relate to teacher training offer careful documentation of critical pedagogical activities which can be incorporated into training material, these include issues such as:

- o classroom organization and management
- o diagnosis and evaluation of instruction
- o instructional decision making and planning
- o effects of teacher expectations on pupils

which are reviewed in the March 1983 special edition of the Elementary School Journal, and also in a volume published jointly by the AACTE and

the ERIC Clearinghouse in Teacher Education (Smith, 1983). Other pedagogical activities that can be incorporated into training material include:

- o Doyle's (1983) signal review on academic work.
- o Anderson and Person's, (1984) review on advances in schema theory and cognitive processing.
- o Anderson's and Armbruster's, (1984) study on developments in advancing study skills.
- o Land and Smith (1983) studies on the effective use of presentational skills.

In addition to pedagogical development which Howey (1985) calls predominantly technical teaching skills, other related issues found in the research are considered essential to effective teacher training and staff development:

- changes in teacher role relationships,
- more attention to grounded theories,
- a better understanding of the relationship of teacher cognitive development to instructional practices, and
- helping teachers to become more aware of changes in themselves as these relate to changes in their life's work of teaching.

Effective teacher training policy and practice must include multiple, interrelated purposes in a coherent design.

This review has attempted to conceptualize teacher training in industrialized countries to learn what teacher training is, what it is intended to do, and what are the general outcomes of teacher training.

Briefly stated, the literature shows that teacher education today must take a much more entrepreneurial approach. It must be attached to the outcomes of education, that is, the work place possibility options, manpower options. It must be related to what teachers do in the classroom, and it must be related to student outcomes.

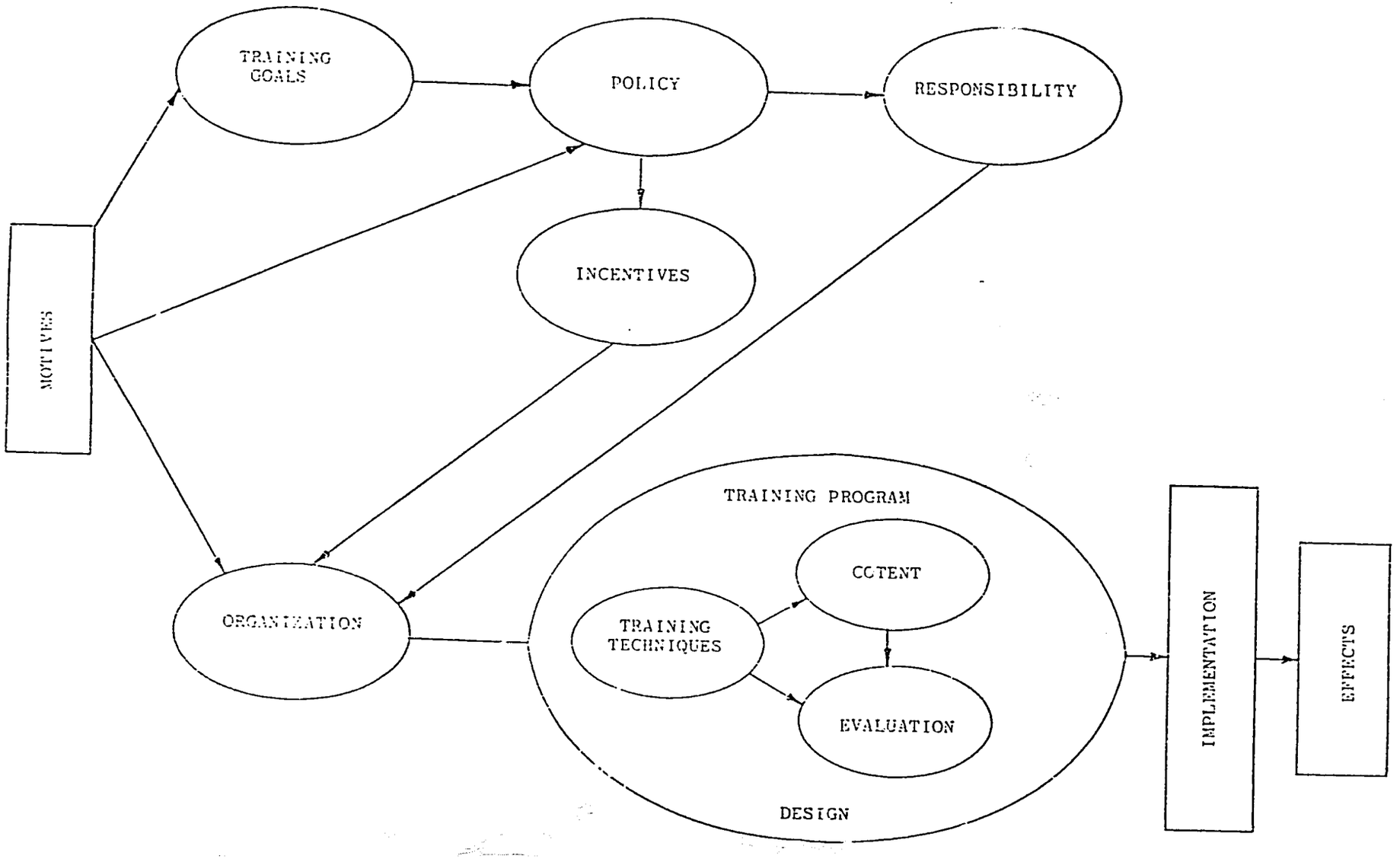
Although there is enough information to help develop good teacher training programs in Third World countries, many of the questions that still need to be answered include:

- do teachers actually become better teachers by participating in an inservice training program than by going through preservice training?
- What are the probabilities of teachers improving in their classroom performance by having participated in inservice training?
- How can the effect of teacher training be followed into student populations?

To find answers for these questions, and others yet to be raised concerning teacher training, the following framework illustrated on figure 3 is proposed to assist policy planners in the planning conceptualization, implementation and evaluation of teacher training.

Figure 3
Conceptual Framework for
Planning, Implementation & Evaluation

Teacher Training: A Research Review
TSU/Harvard BRIDGES, Mazon, 1986



Precipitating the process are the motives which encourage policy makers and planners to have training in the first place. Motivating factors could be such things as certification requirements, changes in society, teacher organization requirements, etc.

The motives have a direct effect on the training goals which is the next variable in the schema. The motives provide policy makers and planners with the aims of training which lead to the training goals. Do teachers need training as a result of institutional changes caused by changes in society, changes in education, etc.? are questions which would be considered in this variable.

As the arrows indicate organization variables are directly influenced by the motives and the training goals variables which effect policy dealing with organization and structure for training. Avalos (1981) discusses two types of structure, which would be of interest here. External structure, referring to the organization of the process to provide the training, and internal structure as the actual training process. Organizations could be divided into two sections to facilitate planning, the participant selection section which would address selection criteria and other participant related factors, and the infrastructure which is more related to the question of who will do the training.

The responsibilities variables in the model are directly related to the organization variables and would include such factors as scope in training participants and selection factors on the one hand, and implementation factors on the other. Policy determines whether the training will be national, regional, or statal in scope. Will it be limited to one or a few districts? Policy also determines criteria regarding decision making, planning, implementation and evaluation of the training. These factors have a direct effect on the organization variables and are directly influeced by all of the variables already discussed.

A critical variable in the external structure of the policy making process regarding training is the incentives variable. Policy establishes incentives for the training by providing encourement to participants. These would include establishing when the training is to take place, and determining budget resources among other things.

All the factors in the external structure as discussed by Avalos (1981) can be evaluated in terms of the numbers of teachers trained or up-graded, and in terms of cost effectiveness considerations. Of more interest in this model is to look for changes in the behavior of participants that might be directly attributed to the training.

Three factors are considered essential in the training variable: (1) content; (2) training techniques; and (3) evaluation. Content

refers to the what of the training. What is the training all about. This could include one or more of the following: attitude, evaluation, classroom management, communication, etc.

Training techniques refer more to format considerations in the training process, the structure in conducting the training, such as: conferences, courses, workshops, internships, lectures, etc.

Evaluation factors are concerned with (a) Position; is it an internal or external evaluation? (b) Procedure; formal or informal, and (c) Object; degree of involvement of participants, of satisfaction, processes, and duration of training, and (d) Purposes, considers whether evaluation is formative or summative.

In evaluation of the implementation, causual effects of the training on teachers which can be observed would be examined. These would include such factors as: (1) change in teachers' behavior; (2) increase in teachers'learning; (3) eliciting positive reactions from students that teachers teach; (4) impact in classrooms; and (5) adequacy to curriculum changes. These effects in teachers behavior should result in quality of instruction which can be observed by the reinforcement techniques of the teachers, the acceleration of the instruction, the cues that teachers give, and the feedback they provide students in their classrooms. They should result in higher student

achievement as measured by intelligence and achievement tests, and they should result in more effective schools.

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118

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121

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122

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