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ABSTRACT

Examined here is the question of whether current teacher inservice activities for improving students' basic skills incorporate research-validated practices. First, 27 dimensions for analyzing inservice education were idenitified under six headings: teacher objectives, student objectives, delivery systems, organizational context, governance, and selection/evaluation. Then research literature was reviewed to identify inservice practices that have had demonstrated effects on students' basic skill achievement, teacher behavior, and teacher satisfaction. Six elementary schools were studied to determine how much the research-validated practices were used. Teachers and administrators were interviewed concerning their perceptions and descriptions of their schools' inservice activities. Findings indicated that most of the inservice activities did not use research-validated methods. Specifically, inservice activities were short-term activities for teacher improvement rather than long-term activities for school improvement, and programs were fractionated across many goals. Although most subjects approved of the effective practices identified, they were satisfied with 80-90 percent of the inservice training they participated in that did not incorporate the practices. The authors conclude that inservice education needs to be more tightly coupled to district-level priority goals and assessment of goal attainment. Interview schedules and other materials are appended. (JM)

THE RELATIONSHIP BETWEEN INSERVICE EDUCATION PRACTICES AND EFFECTIVENESS OF BASIC SKILLS INSTRUCTION

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ABSTRACT

The purpose of this study was to determine whether current inservice activities for teachers incorporate research-validated practices. Inservice programs for activities improving students' basic skill achievement were of particular interest.

The initial step was to identify dimensions for describing and analyzing inservice education. Twenty-seven dimensions were identified and organized under six headings: teacher objectives, student objectives, delivery systems, organizational context, governance, and selection/evaluation. The dimensions were intended to reflect the complex, systemic character of inservice education and the sequential arrangement of its processes and effects.

Next, the research literature was reviewed to identify inservice practices that have had demonstrated effects on students' basic skill achievement, teacher behavior, and teacher satisfaction. Inservice experiments that trained teachers in direct instruction principles were found to yield many useful findings. Research on curriculum and instruction implementation also suggested effective inservice practices.

An empirical survey of two elementary schools in each of three Pacific Northwest districts were undertaken in 1982. Approximately six teachers in each school (total N = 38), the principal of each school (total N = 6), and the assistant superintendent of each district (total N = 3) participated in extensive individual interviews. The interviews sought descriptions and perceptions of all inservice activities in which teachers had participated or that administrators had sponsored over a one-year period.

The survey of current inservice practice yielded results disparate from the research-based model that emerged from the literature review. In this model an effective inservice program for improving basic skills instruction would be embedded in a school improvement process in which the inservice program, assessment procedures, and curriculum and instruction work together in a tightly linked fashion to achieve priority goals. The survey showed, however, that the majority (67 percent) of inservice activities were perceived as being for teachers' personal professional improvement. Only 18 percent were perceived as being for school or district improvement. School improvement efforts typically extend over several years, but almost 75 percent of the inservice activities extend for just one session.

Another disparity between the research-based model and current practice is that the latter is fractionated across many goals rather than focused on a few priority goals. Thirty-seven percent of the activities concerned basic skills, but they were dispersed across many topics. Of the 279 inservice activities described by the teachers, just 20 included mention of student achievement outcomes. Only 6 percent of the activities included an assessment of student improvement or change resulting from teachers' participation in the activity. Just 8 of the 279 activities included reference to direct instruction strategies.

One set of interview questions asked whether the teachers and administrators agreed with elements of the research-based model. Both groups

endorsed most elements, with administrators generally more favorable than teachers. The majority of teachers (56 percent) had reservations about the use of nationally standardized or curriculum-specific tests to measure basic skills achievement, and a substantial percentage of teachers were resistant to some elements of direct instruction.

Teachers' participation in inservice education over the one year period was 73 hours (sample mean) distributed across approximately 7 discrete activities. Also, teachers were satisfied with 80 to 90 percent of their activities depending upon the dimension being rated. Teachers' high participation and satisfaction rate may be explained by the fact that most inservice activities (88 percent) are perceived as relevant to their work; they require little new learning (teachers felt adequately prepared for 63 percent of the activities before the activity began); they are inexpensive (78 percent involved no out-of-pocket expense); incentives are common (present in 55 percent of the activities); many of them are voluntary (49 percent); and most involve no assessment. Current inservice education appears to consist largely of unintrusive, comfortable experiences that reinforce prevailing patterns of school work. Experiences that seek to improve school work against measured criteria are uncommon.

A loose coupling interpretation of current inservice practice is suggested by the results. Many inservice activities are loosely coupled to school improvement, student learning outcomes, and assessment. This interpretation raises questions about the purpose for inservice education in current practice. Policy makers need to consider how inservice education can be more tightly coupled to district-level priority goals and assessment of goal attainment.

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APPENDIX

PREFACE

The project co-directors and staff wish to thank the teachers and administrators who were interviewed in this study. They graciously made time for us in their busy schedules, and they consistently responded to the interview task in a professional manner. We also thank administrators in the three participating school districts for granting us permission to conduct the study in their schools.

We appreciate the contribution made by the project interviewers: Terri Atkinson, Gavin Bird, Andrew Duncan, Marilyn Lane, Maury McMahon, Lynn Renz, Ruth-Ann Satterfield, and Joan Shaunnessey. We are very pleased by the quality of the data that they collected.

Several staff members of the Center for Educational Policy and Management provided support to the project. Ken Duckworth developed the conceptual framework from which this study was derived. He also provided many useful ideas to us as the study progressed. Jane Arends contributed essential administrative support to the project. Terri Williams quickly and ably typed project documents, including this report. We thank each of them for their help.

Meredith Gall, professor of education, co-directed the project. He prepared the technical proposal for the project, directed the development of the measures, and wrote the final report. Any inaccuracies in this report are his responsibility alone. Fay Haisley, associate dean for teacher education, co-directed the project. She contributed to the design of the research, recruited the sites and personnel for the project, and provided administrative support throughout its duration. Rob Baker, doctoral student in curriculum and instruction, assisted in the literature review and development of the measures, trained interviewers, managed all of the data collection in the field, and contributed to the data analysis. Miguel Perez, doctoral student in educational psychology, created the data files for the project and executed all of the data analyses reported here.

CHAPTER 1
PURPOSE OF STUDY

Overview

The research project described in this report was guided by two general questions. First, if educators want to help elementary teachers improve the basic skills achievement of their students, what type of inservice program should be instituted? This question led us to a search for previously developed, effective inservice programs and practices. A program or practice was considered effective if research had demonstrated that it contributed to (a) teacher implementation of the inservice content, (b) teacher and administrator satisfaction, or (c) improved student achievement in the basic skills.

The second question was this--What is happening in current inservice practice, and how discrepant is it from practices for which there is research evidence of effectiveness? Description of current practices provides useful baseline information from which further research can be planned. Also, baseline information is useful to educators for planning improvements in inservice programs to make them more effective.

The following project objectives were derived from these questions:

1. To develop a set of dimensions for characterizing inservice programs.

2. To identify dimension-related practices whose effectiveness has been demonstrated through research.

3. To determine the extent to which research-validated inservice practices are present in current inservice activities.

4. To determine the extent to which teachers and administrators have a positive attitude toward research-validated inservice practices and toward current inservice practices.

The first objective of the research project was achieved by a review of the research literature on inservice education and on curriculum implementation and change. The literature review and research-validated practices are described in Chapter 2. The other objectives were achieved by conducting an intensive interview survey of teachers and administrators in several school districts. The survey is described in Chapters 3 through 5.

Rationale for the Study

Basic skills achievement has emerged as a priority of American education in the last decade or so. Achievement in the basic skills of reading, language arts, and mathematics is a particular problem for children of low-SES families and for children of various ethnic origins. The federal

government has an explicit policy of supporting equal educational opportunity for these children. Much of the research supported by the National Institute of Education (NIE), including the present research project, is also directed toward this goal.

Probably the most basic policy and research question with respect to equal educational opportunity is, What can be done to improve the academic achievement of low-performing students? In the paradigm developed by the Center for Educational Policy and Management at the University of Oregon (Duckworth 1981), teacher work is seen as a central determinant of students' basic skill achievement. In an elaboration of the paradigm (Hersh et al. 1981), inservice education was seen as a major available resource for improving the effectiveness of teacher work.

Effects of Inservice Education. The intent of inservice education, more than any other aspect of human resource management, is to increase teacher effectiveness. Bruce Joyce and his colleagues have defined inservice education as the "formal and informal provisions for the improvement of educators as people, educated persons, and professionals, as well as in terms of the competence to carry out their assigned roles" (Joyce, Howey, and Yarger 1976, p. 6).

Inservice education is a large, labor-intensive effort that involves the expenditure of substantial school system resources. In 1975 it was estimated that "...there may be as many as a quarter of a million persons in the United States who engage as instructors in some form of ISTE [inservice teacher education] activity--this is about one instructor for every eight teachers" (Joyce, Howey, and Yarger 1976, p. 6). At that time, too, about half of American teachers held master's degrees, representing a considerable investment in inservice education beyond initial certification.

Despite this considerable investment in inservice education, the research basis for its effectiveness is virtually nonexistent. Most of the research consists of evaluating the immediate effects of inservice education on teacher attitudes, knowledge, and behavior (Joyce and Showers 1981). An important exception is the small but growing number of studies (reviewed by Gage and Giaconia 1981) that have demonstrated, through controlled experimentation, the effects of inservice education on teacher capability to bring about improvements in student performance and achievement. These studies are recent; most of them were completed in the last five years. In each study a group of teachers received the experimental inservice training while a control group of teachers continued their regular activities. Following the training phase, researchers observed the students of both groups over a period of time to determine the effects of training on students' basic skills achievement.

The experiments involved either basic skills instruction in reading (Stallings 1980; Anderson, Evertson, and Brophy 1979) or in mathematics (Good and Grouws 1979; Crawford et al. 1978). In each experiment the content of the inservice program was a set of instructional techniques which in previous correlational research had been found to be correlated with measures of student achievement (see Appendix A for the content of two of the programs). For example, in Good and Grouws' experiment, the instructional techniques taught to the experimental group were derived from earlier correlational research in which the instructional behavior of teachers who were

consistently effective or ineffective in obtaining student achievement results was compared (Good and Grouws 1977). The techniques in this experiment, and in the three others cited above, have generally come to be known as "direct instruction" (Rosenshine 1976).

Implementation Factors. Each of the inservice programs tested in the four experiments were effective in improving students' basic skill achievement. The results are sufficiently consistent and potent that educators need to think about incorporating the experimental inservice programs in practice. In fact, several of these inservice programs have been approved for dissemination through the National Diffusion Network. This implementation of new inservice approaches is no simple matter, however. One important problem is that the format of these experimental programs is unspecified in many respects. For example, characteristics of the inservice trainer, incentives for teachers, scheduling of sessions, and recruitment of teachers for training are not dealt with systematically in the experiments. Yet such factors may be critical to the success of "direct instruction" inservice programs. This point is illustrated in an experiment by Coladarci (1980), who used the same content as in the Crawford study but with a much simpler inservice delivery system. Coladarci's inservice program did not yield significant teacher and student effects.

Coladarci's study demonstrates the importance of specifying all of the key elements of an inservice program if it is to be effective in regular inservice settings. Therefore, one major purpose of our study was to review the research literature to identify the pertinent elements of inservice programs (e.g., recruitment of teachers) and to determine which variations in these elements (e.g., mandatory versus voluntary participation by teachers) enhance or weaken inservice effects on teacher performance and student achievement.

The research on curriculum implementation and school change is especially pertinent to the problem of identifying an effective inservice education model. Inservice education is intended to be helpful, but at the same time it is an "innovation" that represents an intrusion into a teacher's current work and into a school system's current patterns of operation. If the inservice program is intrusive in a negative way, teachers may acquire new instructional skills but fail to implement them in their work. The available research on implementation and change therefore was reviewed to identify additional elements beyond those specified in the traditional inservice education literature.

Current Inservice Practice. Inservice programs on direct instruction strategies for the basic skills are a relatively new development in teacher education. If they are to be successfully introduced into school systems, we must have a good understanding of prevailing inservice practice. For example, there will be problems of implementation if these programs require extensive training of teachers over a period of time, but current practice consists primarily of brief one-shot inservice activities. Such a finding would reveal the lack of an existing structure to support sustained inservice activity on a single priority goal. A similar problem of implementation might occur if school teachers and administrators place higher priority on different student outcomes (e.g., self-concept and attitudes) than basic skills achievement.

It is important then to develop a sound understanding of existing inservice practice as a basis for determining how to implement the effective elements of inservice education identified through research. As indicated in Chapter 2, descriptive studies of inservice practice have been done but they are of limited value. Most of these studies are questionnaire surveys of teacher attitudes toward their inservice experiences. This type of research does not yield objective information about the inservice activities in which teachers have participated, or about the extent to which the activities incorporate elements identified through research as "effective." Cruickshank, Lorish, and Thompson (1979) similarly observed that "...inservice education research has given little attention to descriptive studies; thus we know little about what actually occurs during inservice programs" (p. 31).

Another characteristic of previous research on inservice practices is that it has mostly focused on descriptions of isolated, individual inservice programs and their immediate effects on teacher knowledge and attitudes (Joyce and Showers 1980). To our knowledge, no studies have examined the interconnections between inservice experiences received by individual teachers over a specified time frame. It is possible that some experiences have the capacity to enhance teacher productivity, but are cancelled out by other "distractor" experiences that channel the teacher away from efforts to change his or her behavior with respect to basic skills instruction. In contrast, our research focused on the individual teacher and administrator as the unit of study. This methodology made it possible to determine variations in amount and quality of inservice activities that were actually received by teachers or sponsored by administrators over a year's period of time.

Research Questions

The research project was carried out in two phases. The first phase involved a literature review to answer the following questions:

What are the pertinent dimensions for analyzing and designing inservice programs to improve teacher capacity for delivering basic skills instruction?

Progress in inservice education at this point in time depends upon developing a more comprehensive model of its dimensions. The literature on inservice education, which includes thousands of entries in ERIC and a book-length bibliography (Collins et al. 1979), makes clear that it is a complex process. Content, training methods, purposes, governance, and organizational context must be considered. Also, there are complex interactions between inservice education, implementation strategy, and school improvement that need to be understood. Most importantly, the effectiveness of a particular inservice variable in improving teacher and student performance depends on how other aspects of the inservice program have been constituted. For example, variations in inservice training methods may have little effect when the criterion is student achievement gains averaged across teachers for a single school year (as was the case in the experiment by Crawford et al. [1979]). Training variations may have a substantial effect, though, when the criterion is student achievement gains for as many teachers as possible in a school site, sustained over a multi-year period.

We find good reason to agree then with Edwards (1981), who concluded

her review of the inservice literature with the statement that there is a need "to widen the perspective of changing teacher practice by...creating a more comprehensive conceptualization of the process of changing teacher practice." As we describe in Chapter 2, we have developed a comprehensive model of inservice education in line with Edwards' recommendation. The current version of the model involves 29 dimensions. It is an elaboration and restructuring of the model developed by the staff of the Inservice Teacher Education Concepts Project (Joyce, Howey, and Yarger 1976).

The 29 dimensions of the inservice model provided the basis for the second phase of the research project. This phase involved an interview survey of teachers and administrators to answer the following five research questions:

#1. How much inservice education is currently received by teachers and sponsored by administrators?

Most of the research on inservice education has consisted of studies of individual inservice programs (for example, the programs reviewed by Lawrence et al. [1974]). Only a few studies have looked at the individual teacher as the recipient of inservice programs. This type of study is important for two reasons. First, knowledge about a teacher's inservice activities over a period of time would indicate whether teachers focus their inservice on a few priority topics or whether they disperse their inservice efforts over a wide range of topics. Second, a complete record of a teacher's inservice activities is needed to derive an estimate of the percentage of inservice time devoted to basic skills instruction.

#2. What percentage of current inservice activities is in the area of basic skills instruction?

There is little research data about the extent to which basic skills inservice instruction--and the form it took in recent experimental studies--is present in current practice. The one pertinent study that we identified (Sullivan 1981) produced these results: "A 1977-78 audit of the training program designed to improve the abilities of New York City teachers found that only 10 percent of the programs' 303 courses were related to reading and mathematics, even though pupils in the public schools were scoring significantly lower in those areas than they should...." It will be helpful to learn whether this finding is generally true of school districts. Descriptive data of this type should prove a useful "mirror" for teachers and policy makers to help them determine whether current practice reflects desired practice.

#3. What form do current inservice activities take, and how does this form compare with recommended practice?

Each of the inservice activities identified in the present study was described with respect to its teacher objectives, student objectives, delivery system, organizational context, and governance. The purpose of this description was to determine current inservice practice so that it could be compared for discrepancies with our research-based model of effective inservice education for improving basic skills instruction.

#4. How effective and satisfying is current inservice education as perceived by educators?

Several research studies, reviewed in Chapter 2, have addressed this question. However, these studies generally relied on questionnaire responses and are about inservice education generally. In contrast, the present study used interview methodology to identify educators' attitudes about specific inservice practices within a recent time period.

Data about teacher and administrator perceptions are important for understanding the adaptability of inservice education to change and improvement. If educators are demonstrated to be dissatisfied with an inservice practice, policy makers may be motivated to change the practice. Conversely, if educators are satisfied with an inservice practice, policy makers may be less likely to change it even if it conflicts with a practice that is more effective.

#5. In the opinion of educators, what constitutes an effective inservice program for improving teachers' basic skills instruction?

The research on curriculum implementation (Fullan and Pomfret 1977) indicates that teacher and administrator perceptions are critical to successful adoption of new instructional practices. For example, Loucks and Pratt (1979) reached this conclusion based on their research on implementation processes: "Staff developers, administrators, and other change facilitators often attend closely to the trappings and technology of the innovation but ignore the perceptions and feelings of people. The personal dimension is often more critical to the success of the change effort than are the technological dimensions" (p. 214).

We use the term "perceptions" to refer to such personal factors as beliefs, values, biases, and fears. Based on the findings of curriculum implementation research, we have hypothesized that the effectiveness of the technology validated in basic skills inservice experiments and research on school improvement is influenced by teacher and administrator perceptions of this technology. For example, teachers sometimes fear that the achievement test scores of their students will be used to evaluate teachers' performance. Teachers also have negative feelings about inservice programs that are designed "top-down" by administrators. To the extent that teachers have such perceptions, they are likely to resist participating in inservice programs that are linked directly to assessment of students' basic skills achievement.

There is a small amount of knowledge about educator perceptions that may influence the effectiveness of research-based inservice education, but much more knowledge is needed. The present research project collected research data pertinent to this problem.

CHAPTER 2
DEVELOPING A MODEL OF AN EFFECTIVE INSERVICE PROGRAM FOR BASIC SKILLS INSTRUCTION

The purpose of the literature review in this project was to synthesize research findings on effective inservice practices with respect to basic skills instruction at the elementary school level. The research findings were used to construct a model of what an effective basic skills inservice program might look like. In turn, the model was used in the interview survey (see Chapters 3-5) as a basis for judging the efficacy of current inservice practices.

The first step in the literature review was to identify a set of generic dimensions for characterizing inservice programs. The term "program" is used here in a general sense to refer to any self-contained inservice activity ranging from a "one-shot" meeting to a sustained process of professional development.

The systems framework developed by the Inservice Teacher Education Concepts Project (Joyce, Howey, and Yarger 1976) provided a useful starting point for creating the set of dimensions. The ISTE (Inservice Teacher Education) Concepts Project was a large-scale study carried out in 1975-1976 under the auspices of the National Center for Education Statistics and the National Teacher Corps. It was designed to conceptualize the structure of American inservice education and to define issues for further research. The project investigators found that "there are four major dimensions that take the form of systems that link together to form the operating structure which is ISTE" (Joyce, Howey, and Yarger 1976, p. 3). The four systems identified by the ISTE Concepts Project are:

1. Substantive system: refers to the content of an inservice program and the process used to deliver the content.

2. Delivery system: refers to incentives, interface between teacher and training, and inservice staffing pattern.

3. Model system: refers to the organizational context in which inservice education occurs.

4. Governance system: refers to the decision-making structures which legitimize inservice activities and govern them.

The majority of the dimensions in our model were derived from the ISTE project's analysis. Another source for identifying inservice dimensions was the research literature on curriculum implementation. Even if a teacher acquires a new set of instructional skills as a result of inservice education, this does not mean necessarily that the teacher will use (i.e., implement) the skills in practice. Thus, implementation of inservice training is an important factor in its own right. It seems reasonable to believe that factors which influence implementation will also influence teacher effectiveness.

The available research on implementation was reviewed by Fullan and Pomfret (1977). Their list of determinants of effective implementation overlaps at some points the system variables identified in the ISTE Concepts Project:

A. Characteristics of the Innovation
   1. Explicitness (what, when, how)
   2. Complexity
B. Strategies and Tactics
   1. Inservice training
   2. Resource support (time and materials)
   3. Feedback mechanisms
   4. Participation
C. Characteristics of the Adopting Unit
   1. Adoption process
   2. Organizational climate
   3. Environmental support
   4. Political complexity

(pp. 367-368)

Several of these dimensions of implementation were included in our model of effective implementation.

Additional dimensions were derived from the literature on general inservice education. For example, Pankratz and Martray (1981) specified an eight-step model for incorporating inservice education in the process of curriculum change and improvement. Nelson (1981) described a similar model for using inservice education to support the development and installation of new instructional programs. Both models incorporate inservice dimensions previously identified in our literature search. The models also suggested several dimensions that were added to our list: use of needs assessments and relevance of content.

Cruickshank, Lorish, and Thompson (1979) suggested that Dunkin and Biddle's model for conceptualizing research on teaching (Dunkin and Biddle 1974) could be used to identify and organize inservice education variables. Presage variables in Cruickshank's model represent the characteristics of inservice program leaders, corresponding to the trainer dimension in our model. Context variables include characteristics of the teacher participants, the school and community setting, and the teachers' instructional context. Process variables in their model refer to the instructional activities in which teachers engage. This class of variables corresponds to the Delivery System dimensions of our model. The final part of Cruickshank's model involves product variables, which are the short- and long-term effects of inservice education. This set of variables corresponds to the Teacher Objective and Student Objective dimensions of our model.

The literature on loose coupling (Meyer 1981) suggests the need for identifying dimensions that reflect the relationship between inservice education and school organization arrangements for conducting administrative and technical functions. The inservice programs tested in the four basic skills experiments described in Chapter 1 posit a rational, "tightly coupled" connection between means (inservice training) and ends (student achievement in basic skills). The theory of loose coupling as it applies to school

organization suggests, however, that inservice education practice is poorly linked ("loosely coupled") to student achievement goals and to other aspects of school organization. A set of dimensions under the heading Selection and Evaluation was added to our model to characterize whether particular inservice programs are tightly or loosely coupled to school outcomes and needs.

The current version of the set of dimensions that comprise the model is shown in Table 1. There are 27 dimensions under 6 major headings. The headings and dimensions are discussed in the next sections of the chapter.

The second step in the literature review was to identify practices corresponding to the dimensions that have been found to contribute to the effectiveness of inservice programs for basic skills instruction. For example, with respect to the dimension of readiness activities (no. 7 in Table 1), we were interested in identifying any research that determined whether the presence of readiness activities--or the presence of particular readiness activities--contributed to the effectiveness of an inservice program. The four inservice experiments on basic skills instruction described in Chapter 1 (Anderson, Evertson, and Brophy 1979; Crawford et al. 1978; Good and Grouws 1979; Stallings 1980) were especially useful for identifying such practices. These experiments are referred to collectively in the rest of the chapter as the "four inservice experiments."

Another source of successful inservice practices was a meta-analysis of research studies of inservice programs conducted by Lawrence and Harrison (1980). A study was included in the meta-analysis if it included measured outcomes of an inservice program. The outcomes could refer to teacher competencies (dimension 1 in our model) or student objectives (dimension 5).

The effective practices identified by the literature review are described in the following sections and are summarized in Table 3 at the end of the chapter.

A. Teacher Objectives

Inservice education is usually defined as a change in teacher capacity brought about by new learning. For example, Joyce and his colleagues (1976) defined inservice education as the "formal and informal provisions for the improvement of educators as people, educated persons, and professionals, as well as in terms of the competence to carry out their assigned roles" (p. 6). Inservice education attempts to improve teacher capacity in three broad areas: knowledge, attitudes, and skills. We define inservice teacher education, therefore, as efforts to improve teachers' capacity to function as effective professionals by having them learn new knowledge, attitudes, or skills. These outcomes constitute the teacher objectives of an inservice activity.

1. Target Competencies

Each of the four inservice experiments that yielded positive outcomes on measures of basic skills achievement emphasize teaching skills rather than

TABLE 1

A Set of Dimensions for Characterizing Teacher Education Programs

A. Teacher Objectives

1. Target competencies
2. Operationalization
3. Complexity
4. Expected level of performance

B. Student Objectives

5. Target objectives
6. Expected level of achievement

C. Delivery System

7. Readiness activities
8. Instructional process
9. Maintenance and monitoring
10. Training site
11. Trainer
12. Scheduling

D. Organizational Context

13. Purpose for participation
14. Inservice cohorts
15. Concurrent organizational changes
16. Other inservice activities

E. Governance

17. Governance structure
18. Teacher participation in governance
19. Recruitment of participants
20. Incentives
21. Sanctions
22. Costs

F. Evaluation

23. Policy
24. Needs assessment
25. Relevance to participants
26. Measurement of teacher competence
27. Measurement of student objectives

knowledge and attitudes. The content of the inservice programs in these studies was derived from correlational research linking specific teaching behaviors to measures of growth in basic skills achievement. Roehler and Duffy (1981) indicated that the teaching skills in these inservice programs generally can be classified into two types: (1) monitoring behavior in which the teacher asks pupils to perform a desired "basic skill" (e.g., workbook practice accompanied by teacher monitoring) and (2) reactive-corrective behavior to help a student when he or she fails to make the desired response. These instructional strategies presumably are effective because they insure a high engagement rate of students in academic tasks.

The four inservice experiments involved long lists of behaviorally-defined instructional skills. (Several of the lists are in Appendix A.) These skills collectively have been called a "direct instruction" model (Rosenshine 1976). Several recent studies, still in progress, are using a more general ALT (academic learning time) model as the teacher objectives of an inservice program. In the study being done at RBS (Research for Better Schools) by Helms (described in Rouk 1981), the five key instructional variables are: allocated time, engagement rate, student engaged time, taking into account students' prior learning, and instructional overlap (i.e., the match between instructional content and achievement test content). Hutchins, at Mid-Continent Regional Educational Laboratory (McREL), is also currently testing the effectiveness of an inservice workshop for increasing ALT in schools (described in Saily 1981).

The last two instructional variables in Helms' inservice program are of particular interest because they require a change in teachers' curriculum content rather than in their instructional style. Evidence on teachers' ability and willingness to change their curriculum content is not yet available from Helms' and Hutchins' research. Studies by Porter and his colleagues (1981) are relevant because they indicate that teachers are quite willing to change their curriculum content in response to such external influences as standardized tests, principals, other teachers, and parents.

Each of the four inservice experiments measured teachers' use of the instructional skills that formed the target competencies. We should stay open to the possibility of other teacher changes as a result of the inservice programs. For example, an inservice program may have effects on teacher self-concept or beliefs about education, even though those effects were not part of the formal objectives of the program. These effects on teachers may be immediate (side-effects) or may show up some months or even years after training (long-term).

2. Operationalization

The research on curriculum implementation reviewed by Fullan and Pomfret (1977) and by Hall and Loucks (1980) indicates that the explicitness of a curriculum or inservice content has an effect on its implementation. Hall and Loucks state: "...research and experience have shown that unclear expectations are one way to guarantee nonimplementation. Teachers appreciate clear objectives--they need to know what they are expected to do and how their roles are to change" (p. 16). It is difficult to imagine how a teacher can acquire new instructional skills unless the skills are clearly operationalized. Thus, one criterion of an effective inservice program is likely to be the extent to which its content is clearly operationalized. A

characteristic of the four inservice experiments is that the teaching skills are stated at a relatively low inference level and are easily observable in a model teacher's performance. In contrast, Ogletree and Allen (1974) found that a majority of their sample of elementary teachers believed that the objectives of their "inservice meetings" were not clearly defined.

3. Complexity

The complexity of a new curriculum or inservice program has an effect on its implementation. The complexity of teacher objectives in an inservice program is probably a function of several factors: number of skills to be learned, whether the skills already exist to some degree in the teacher's repertoire, and the extent to which the skills must be adapted to classroom conditions. Hall and Loucks (1980) stated that, "When the innovation is complex,...major components should be phased in one or a few at a time" (p. 18). Gersten, Carnine, and Williams (1981) found that teachers in their sample needed to learn the skills of a complex direct instruction model in phases--several skills in each phase--over a relatively long period of time. These results suggest that if complex teacher objectives are delivered to teachers in just a few sessions, the inservice activity will have little effect on their instructional behavior, and subsequently little effect on students' basic skill achievement.

4. Expected Level of Performance

In skills-based inservice programs teachers are expected to increase or decrease their use of particular instructional behaviors. The direction, but not the degree of change is specified in most of these programs. An interesting feature of the inservice programs in the four basic skills experiments is that specific levels of use of some instructional behaviors are specified. For example, one of the recommendations in Crawford's program is, "Teachers should avoid calling on volunteers more than 10 or 15 percent of the time during question-and-answer sessions" (Crawford et al, 1978, Appendix A, p. 4). In the program developed by Good and Grouws (1979) one of the recommendations is to spend the first twenty minutes of a Monday math period conducting a review of skills and concepts covered during the previous week.

This dimension of inservice teacher objectives is related to the second dimension (operationalization). Operationalization refers to the explicitness of the teacher objectives. Expected level of performance refers to specificity of criteria for determining whether the objectives have been met.

B. Student Objectives

We assume that inservice activities have objectives at two levels. The immediate objective is to bring about an increase in teacher competence. The longer-range objective is to bring about improvements in student performance as a result of the increase in teacher competence.

In this section we discuss dimensions related to these longer-term objectives of inservice education, namely, improvements in student performance. We are aware that the connections between improved teacher competence and improved student performance are complex. The connections may be explicit and experimentally validated, as is the case with the training programs used in the four inservice experiments. We suspect, though, that in many inservice activities the connections between teacher objectives and student performance gains are vague and unverified. Weick (1976) and others have commented on the prevalence of "loose coupling" in school organizations. One manifestation of loose coupling is that means, such as inservice activities, are often disconnected from ends, such as improvement of student performance in the basic skills.

5. Target Objectives.

Public criticism of the schools in recent years has focused on the failure of many students to acquire basic skills in reading and mathematics. Educators are well aware of this criticism. For example, a recent report on the status of professional development in Oregon (Schalock 1977) included the statement that, "There...is an increasing demand for schools in Oregon, as there is throughout the nation, to provide better preparation in the basic skills of reading, writing, and computation" (p. 1). We might expect, then, a high proportion of inservice activities concerned with basic skill objectives. However, the only study that we could locate with pertinent data found just the opposite to be true. This study (Sullivan 1981), which we cited earlier in the report, found that only 10 percent of the New York City inservice programs were related to reading and mathematics instruction.

Research on teacher preferences and values suggests that basic skills development would not be a high inservice priority for teachers. Schurr and his colleagues (1980) found that teachers prefer inservice topics that concern student motivation and attitudes. Recent studies by Prowat and Anderson (1981) found that elementary teachers consider their most important task to be attending to students' affective needs. Also, when asked about their priorities, "teachers made twice as many statements about things they did to promote affective growth (for example, getting students to interact positively or feel good about themselves) as compared to cognitive growth" (p. 1). Similarly, a study conducted by Harootunian and Yarger (1981) found that most teachers judge their success by the degree to which they involve their students affectively in instruction. These results suggest that, given the choice, teachers would opt for inservice objectives having an affective theme rather than inservice objectives relating to basic skills instruction.

Target objectives for students is a very important dimension of inservice education. Cawelti (1981) observed that support for inservice education ultimately rests on its demonstrated connection to "objective productivity criteria," such as basic skills achievement. Critics of the federally funded Teacher Centers claimed that such centers should not be supported because they served the needs of teachers rather than the needs of students.

Some inservice programs may seek to train teachers with the

expectation that change in teacher competence will produce direct changes in student performance. There may be an additional expectation that these changes in student performance will lead to other changes in students either concurrently (side-effects) or over a longer period of time. For example, some educators believe if student self-concept is improved, there will be subsequent improvements in student academic achievement. Many inservice programs are designed to help teachers acquire skills for reducing student discipline problems in the classroom. It is conceivable that reduction of student discipline problems will lead immediately to more instructional time on task (a side-effect). In turn, increased time on task may result gradually in increased academic achievement.

6. Expected Level of Achievement

The effectiveness of the inservice programs used in the four experiments was assessed by examining pre/post gains of the experimental group and by comparing adjusted post-test scores of the experimental and control groups. Statistical significance was the criterion of whether a noteworthy effect occurred. In regular school practice, though, educators may be unwilling to sponsor inservice programs just to produce a statistically significant gain in students' achievement scores.

There is ample research evidence (e.g., Brophy and Good 1974) that educators have expectations about individual students' achievement potential. We know little, though, about the relationship between educators' expectations for student achievement and educators support for inservice programs as a response to these expectations. It may be that decline in test scores over time within a school district is a more effective trigger for initiating a basic skills program than is the perception that students are performing below expectations. In fact, there is some reason to believe that educators adjust expectations to match the realities of student achievement. For example, the California legislature in 1976 enacted minimal competency requirements for high school graduation, but allowed each district to make up its own test and set its own standards. Savage (1982) reported that, "Fewer than 1 percent of high school students were denied a diploma because of the test."

C. Delivery System

The delivery system in inservice education refers to the process used to achieve teacher-level objectives (i.e., gains in teachers' knowledge, attitudes, and skills). Traditional delivery systems in inservice programs include presentations by experts during school districts' "inservice days"; university coursework, which typically is in a lecture demonstration discussion format; and hands-on workshops. Another characteristic of traditional inservice delivery systems is that they are relatively brief, "one-shot" experiences. By contrast, educators are increasingly advocating multi-stage, lengthy delivery systems that include both training and implementation strategies. For example, Pankratz and Martray (1981) recently formulated an eight-stage inservice/school improvement model that includes awareness building, skill-training, implementation assistance, and monitoring and maintenance. In this section we review evidence that supports the

effectiveness of these components of an inservice delivery system.

7. Readiness Activities

We use the term "readiness activities" to refer to the inservice experiences provided to teachers and administrators prior to the skill-training phase of an inservice delivery system. There is a small amount of evidence that readiness activities have an important effect on how well inservice training and related school improvements are implemented (Loucks and Pratt 1979).

The literature on inservice education suggests several activities that should be included in the readiness phase of an inservice delivery system. Pankratz and Martray (1981) claim that these activities are helpful; develop awareness of need among formal and informal school leaders; obtain their agreement on a delivery system; and use exploratory workshops to provide information and to develop consensus.

Miller (1981) argued that an important component of an effective school improvement process is teachers' acceptance of their personal responsibilities for students' basic skill achievment. Miller's claim is supported by Berman and McLaughlin's finding (1978) that teachers' belief about whether they could help students was correlated with the degree of new program implementation. Readiness activities might be conducted to help teachers raise their expectations of students and improve their attitudes toward their own instructional efficacy.

The concerns-based approach to curriculum change developed by Loucks and Pratt (1979) suggests several readiness activities that might be incorporated into an inservice delivery system. Loucks and Pratt found that teachers have three "concerns" prior to becoming involved in inservice training and curriculum implementation: absence of concern, concern to know more about the new program, and concern about how its use will personally affect each of them. Loucks and Pratt described a "pre-inservice" session that they developed to help teachers deal with the first two concerns in a particular curriculum implementation project.

8. Instructional Process

Instructional process refers to the methods used by inservice staff to train teachers in knowledge and skills or to modify their attitudes. Table 2 summarizes the methods used in the four inservice experiments and the ongoing studies by Helms and by Hutchins.

Examining commonalities in four completed studies, we find that each of the inservice programs involved at least two meetings. (The "minimal" group in Crawford's study did not include any meetings, with resulting lower end-of-year achievement scores relative to the "maximal" group.) Another common feature across the studies is the use of brief manuals to describe the desired behaviors.

TABLE 2

Instructional Process Used in Basic Skills Inservice Programs.

1. Anderson, Everitson, and Brophy (1979)

   Project staff met with teachers to discuss the study. Teachers then read a 33-page manual describing 22 research-validated principles of reading group instruction, and took a short quiz on it. Teachers met once again with project staff to discuss the manual. One subgroup of these teachers was observed for their implementation of the principles throughout the school year. Another subgroup was not observed. (The two trained groups did not differ from each other in end-of-year student achievement.)

2. Crawford et al. 1978

   The "minimal" training group received a training manual and one self-administered test per week for five weeks. The "maximal" group received the same manuals and tests, and also came to a two-hour meeting with project staff each week. In these meetings the teachers discussed, practiced, and studied the techniques; engaged in role-playing exercises; and viewed videotapes of a "model" teacher performing the behaviors. (End-of-year student achievement was somewhat higher for "maximal" group.)

3. Helms (described in Rouk 1981)

   Teachers follow a five-step process:
   (a) teachers collect data on their students' achievement and on their own classroom procedures.
   (b) teachers compare their data with data of high-achieving classrooms.
   (c) teachers select ways to modify their instruction to conform to conditions found in high-achieving classrooms.
   (d) teachers implement their modifications.
   (e) teachers repeat steps (a) and (b) to determine progress.

4. Hutchins (described in Saily 1981)

   Four one-day workshops spread over a period of several months. Each workshop covers research-validated instructional principles. Between workshops teachers carry out "homework" assignments involving classroom observation and feedback.

5. Good and Grouws (1979)

   Teachers attend an introductory 90-minute meeting and then read a 45-page manual of research-validated principles of mathematics instruction. Two weeks later teachers attend another 90-minute meeting in which project staff respond to their questions and concerns.

6. Stallings (1980)

   Each teacher is observed for three days, then given a quantitative summary of the observations as feedback to help change his/her instruction to conform to research-validated specifications. Teachers also attend four two-hour workshops over a two-and-one-half month period.

Teacher behavior was observed and critiqued in two of the studies. Stallings' teachers were observed in their classrooms and given both a qualitative and quantitative summary of the results. Crawford's "maximal" group teachers were observed in role-playing exercises during meetings. (Teacher behavior was observed in one of Anderson's trained groups, but the observations were not shared with the teachers.) Classroom observation and feedback are being incorporated in the inservice programs currently being evaluated by Helms and by Hutchins. Lawrence and Harrison (1980) found in their meta-analysis that successful inservice programs tend to include a sequence in which participants can try out new behaviors in their classrooms (or in simulations) and then receive feedback from a skilled person.

It appears that extensive skill training of the type used in microteaching programs (e.g., Borg et al. 1969) is not necessary in a basic skills inservice program. The critical elements appear to be (a) the opportunity to study manuals that present research-validated principles of instruction, and (b) the opportunity to discuss these principles in meetings with an inservice trainer and other teachers at the same grade level. The value of supplementing these process elements with classroom observation and feedback has not yet been clearly established.

The results of this research suggest that teacher productivity in basic skills instruction can be increased by using a relatively simple instructional process. It should be noted, though, that these studies extended over a period of no more than a single school year. Also, the inservice programs were not successful for all teachers. Instructional processes not used in the four inservice experiments may produce more sustained effects, and effects for more teachers, than those observed in the experiments. For example, the coaching procedure described by Joyce and Showers (1982) may significantly enhance the effectiveness of training manuals and meetings by promoting transfer of the instructional principles to the teacher trainee's particular classroom situation.

We could locate no data on the frequency with which the instructional process described above (manuals and meetings focused on research-validated instructional principles) occurs in practice. A survey of 1,200 South Dakota teachers (Betz, Jensen, and Zigarni 1978) found that they had engaged in these types of inservice activities: reading of bulletins, newsletters, and other printed matter (80 percent of sample); inservice meetings (48-61 percent of sample, depending upon type of meeting); one-day workshops (48 percent of sample); and observation of other teachers (20-23 percent of sample, depending upon type of observation). It is unlikely that the objectives of these activities were similar to those of the objectives in the four inservice experiments. Reports of the correlational research on which the four inservice experiments were based, and the experiments themselves, had not been widely disseminated at the time of Betz's survey.

The inservice instructional processes that were frequently recorded in the survey (reading, meetings, observation) were the same as those used in the four inservice experiments. Thus, it appears that an instructional process is already in place (assuming that the South Dakota data are generalizable across states and across time) for incorporating the inservice programs used in the four experiments.

9. Maintenance and Monitoring

Maintenance refers to the use of follow-up inservice activities to help teachers preserve or increase gains made in initial training. Monitoring refers to the use of procedures for making continuing observations of teachers' adherence to desired instructional strategies or of student performance.

There is evidence that changes in teacher behavior as a result of training tend to revert to baseline levels over longer periods of time than those observed in the four inservice experiments. Johnson and Sloat (1981) found reversions of teacher behavior to baseline rate twelve months after completion of training. Borg (1973) found reversions three years after training. It appears, then, that monitoring and maintenance procedures are desirable in order to preserve teacher productivity gains over a period of school years.

An important element of the four inservice experiments is that the project staff maintained contact with the teachers over a duration of months by spacing training sessions and by collecting classroom data on teacher behavior and student performance (achievement testing). The continued observations are like a monitoring procedure and may have had the effect of cuing teachers to reinstate desirable instructional behaviors.

A maintenance intervention was used in the Crawford experiment several months after the initial five-week training period. Both the "maximal" and "minimal" groups received a "refresher" training manual. In addition, the teachers in the maximal group were videotaped and given feedback on their implementation of the instructional principles. These maintenance interventions were not experimentally manipulated (present versus absent) to determine their effect on teacher and student performance.

One of the conclusions reached by Fullan and Pomfret (1977) in their review of research was that "intensive in-service training (as distinct from single workshops or pre-service training) is an important strategy for implementation" (p. 37). This particular conclusion was based primarily on the Rand studies of educational change (Berman and McLaughlin 1978). It seems reasonable that "one shot" inservice education will have less effect on teacher productivity than continuous inservice education that includes monitoring and maintenance processes.

Maintenance and monitoring activities do not appear to be features of current inservice practice. Less than 20 percent of the teachers in the survey conducted by Betz and his colleagues (1978) reported that their inservice meetings included follow-up activities. In an earlier survey Ogletree and Allen (1974) found that a majority of urban elementary teachers reported no follow-up or evaluation of their inservice meetings.

10. Training Site

We could locate no empirical data concerning teachers' preferences for training sites. The teacher's own classroom was used as a "training"

site in the four inservice experiments in that each teacher's classroom behavior was observed in order to assess implementation of the desired instructional behaviors. In Stallings' study these observational data were also used as personal feedback to the participating teachers.

The meta-analysis conducted by Lawrence and Harrison (1980) found that inservice programs tended to be more effective if conducted at the school site. This generalization, however, applies only to inservice programs that emphasized affective or skill performance objectives.

11. Trainers

Each of the four inservice experiments required one or more inservice trainers. Their roles generally did not require close, sustained involvement with the teachers. It is not known whether individual differences between inservice trainers would influence the effectiveness of the inservice programs used in these experiments.

The teachers surveyed by Betz, Jensen, and Zigarni (1978) reported that they learned the most from other teachers. However, their ratings of college and university personnel and professional consultants were nearly as high. McDonald (1980) reviewed a series of British experiments on teacher induction programs, and concluded that the most successful ones were those that made available to the beginning teacher an experienced teacher who could serve as a monitor, model, and counselor. McDonald raised the question: whether it was necessary for an experienced teacher to perform these roles, or whether others--such as a principal or university supervisor--could perform them.

12. Scheduling

We see at least three issues related to the scheduling of inservice activities: time of day or week for holding an inservice session, spacing of inservice sessions over time, and the time frame over which a particular inservice program is implemented.

With respect to the first issue, Betz and his colleagues (1978) found that the teachers in their sample generally preferred inservice education to be scheduled during school hours. In practice, though, over one-half of the sample reported attending some inservice activities before and after school; one-fourth of the sample reported attending weekend inservice activities. The inservice activities in the four inservice experiments could be held at any time of day or week, except for the collection of classroom observation data and student achievement tests.

The results of Lawrence and Harrison's meta-analysis (1980) do not support the teacher preferences expressed in Betz's study. They found that effective inservice programs tended to be scheduled at times (evenings, summers) that did not compete with other professional obligations of teachers. Inservice programs scheduled during work hours were considerably less successful in achieving objectives.

Sessions of a typical inservice program can be held all together (e.g., an intensive weekend workshop) or spaced over a longer period of time. We could locate no research findings concerning teachers' preference for "massed" or spaced sessions. A possible advantage of spacing inservice sessions is that they provide sustained contact between teachers and trainers, allow for spaced practice of new skills, and allow more time for teacher concerns to surface and be addressed.

The third scheduling issue is the time frame over which a particular inservice program is to be implemented. Loucks and Pratt (1979) emphasized the need for a substantial time period: "...research indicates that three to five years are necessary to implement an innovation that is significantly different from current practice" (p. 213). Fullan and Pomfret (1977) also concluded that implementation of innovations, with concurrent inservice support, required a long-term perspective.

The four inservice experiments produced effects on student achievement over much shorter time frames than those recommended by the curriculum implementation researchers mentioned above. Good and Grouws' experiment (1979) extended over a four-month period. Training occured in the first two weeks. The experiment by Anderson, Evertson, and Brophy (1979) extended over a school year, but training involved just a few hours of the teacher's time at the beginning of the school year. The experiment by Stallings (1980) also extended over a school year, with training spaced over a period of approximately one month before and after the Christmas holidays. The experiment by Crawford and colleagues (1978) extended over a school year, too. Training occured over a six-week period in early November, and there was a refresher session several months later.

The discrepancy between the time frames in these experiments and those recommended by curriculum implementation researchers may reflect differences of purpose. The primary purpose of the experiments was to demonstrate the effects of inservice training on student achievement. By contrast, curriculum implementers are concerned with the institutionalization of an innovation as part of a school improvement effort. This purpose may well require a longer time frame in order to accommodate readiness experiences, gradual training of all staff, and monitoring and maintenance of training effects.

Organizational Context

Inservice education is fundamentally a learning experience that occurs for individual teachers. It is also the case that teachers are members of school organizations. Characteristics of these organizations may well influence the delivery of inservice education programs to teachers. These same characteristics may also influence the effects of the program on teachers and their students. We consider in this section three characteristics of school organizations that are likely to influence inservice program effectiveness.

13. Purpose for Participation

This dimension was suggested by Joyce's discussion (Joyce, Howey, and Yarger 1976) of the "modal system" in inservice education. The modal system refers to the organizational context in which inservice education occurs. Five such contexts were distinguished by Joyce and his colleagues:

1. Job-embedded mode, e.g., school committee work.

2. Job-related mode, e.g., school district workshops outside of regular school hours.

3. Credential-oriented mode, e.g., university certification courses.

4. Professional organization-related work, e.g., NEA workshops.

5. Self-directed mode, e.g., sabbatical leaves.

We prefer to think of these modes as representing different purposes for inservice education. We distinguish four such purposes:

1. Inservice for personal professional development, which corresponds to the self-directed mode and perhaps the professional organization mode.

2. Inservice for credentialling, which corresponds to the credential-oriented mode.

3. Inservice for the purpose of being inducted into the profession. McDonald (1980) has argued that first year teachers need a special form of inservice education (called "induction") to help them adjust to full-time teaching and to learn skills not covered in preservice education.

4. Inservice for school improvement, which typically would be done in the job-embedded and job-related modes.

The first three purposes relate to the development of the individual teacher. Inservice for school improvement, though, gives priority to the school organization. Teachers' personal needs may be taken into account, but teachers' roles as members of the school organization are critical to this form of inservice education. Campbell (1981) developed two separate models of inservice education based on this distinction between needs of the school system and needs of the individual teacher. Miller and Wolf (1979) developed a cyclical Staff Development/School Change model reflecting these two purposes of teacher education.

Each of the four inservice experiments was focused on the individual teacher and his or her classroom. Teachers volunteered for the inservice program. They were not recruited because they were members of a particular school staff. Also, the building principals and district curriculum specialists were not directly involved in the program, as they might have been if the program had been conducted for the purpose of school improvement.

Hutchins (described in Sally 1981) is currently testing basic skills inservice programs for the purpose of school improvement. The program covers

content similar to that in the four inservice experiments, but there are several important contextual differences. The most critical difference is in who receives the training: "The workshop series is generally conducted for a school district or group of schools within a district. Each participating school sends to the workshop a team of the principal and two or three teachers; a central office staff member is also involved" (p. 11). The workshops also cover training in standardized achievement testing in order to help educators increase test validity in their district. Hutchins notes, however, that improving test validity is beyond the capability of individual educators, and therefore requires "district-wide action."

The meta-analysis conducted by Lawrence and Harrison (1980) found that the more effective inservice programs were designed as a collective effort of a school staff. Also, the more effective programs had shared goals rather than individual teacher goals. These results suggest that inservice for school improvement is generally more effective than inservice for personal professional development.

14. Inservice Cohorts

The available research indicates that teachers have a strong preference for working with other teachers, rather than working alone, in their inservice activities. Lawrence and his colleagues (1974) concluded from their research review that inservice activities produced more positive effects on teachers when they provided mutual assistance in an inservice program than when they worked alone. Holly (1982) found in her survey of 110 teachers that they most preferred inservice activities that allowed them to work with other teachers: "Teachers described their colleagues as valuable sources of practical ideas and information, helpful advisors on professional problems, the most useful evaluators of teaching skills, and understanding allies" (p. 418). Similarly, Ngaiyaye and Hanley (1979) found in their survey of 228 teachers that the teachers preferred inservice meetings organized for colleagues with similar teaching responsibilities.

We consider it worthwhile to distinguish at least three aspects of how teachers are grouped for an inservice activity: individually-based versus group-based instruction; groups that are homogeneous or heterogeneous with respect to teaching responsibilities; and whether the group includes same-school or different-school colleagues. We could locate no evidence relating to the differential effectiveness of variations in these inservice cohort factors. The four inservice experiments used a combination of individually-based instruction (study of manuals) and group-based instruction (inservice meetings). Also, each study included teachers at the same grade level. This feature of inservice group composition may be particularly relevant because it helps to increase the relevance of the inservice activity to each teacher's situation (see dimension 25).

15. Concurrent Organizational Changes

As indicated above, one major purpose of inservice education is to bring about school improvement. If an inservice activity is used for this

purpose, it would be informative to learn whether the activity is supported by other changes in the school system of which the teacher is a member.

The building principal is probably the most influential symbol of school organization for teachers. Loucks and Pratt (1979) concluded from their research that, "...what the principal does is critical to the success of an implementation effort" (p. 215). These critical role behaviors of the principal have been referred to as "instructional leadership" (Rouk 1981). Leithwood and Montgomery (1982) recently reviewed the research on the role of the principal in school improvement. These reviewers found that the more effective principals were more likely to participate in teachers' inservice activities. Participation included attending all or at least the early inservice sessions provided for teachers.

Another type of organizational change relevant to inservice education is curriculum revision. Inservice education is sometimes used to support implementation of a new curriculum. In turn, the new curriculum may include features that facilitate the teacher and student objectives of the inservice program. Examples of such features are: teacher manuals that contain lesson plans based on direct instruction principles; criterion-referenced tests; and learning activities that insure high student success rate. We could locate no research concerning whether inservice is more or less effective when it accompanies curriculum revision.

16. Other Inservice Activities

The effects of a particular inservice program are possibly dependent on other inservice programs that the teacher experiences either concurrently or at some other point in time. These other programs may reinforce and build upon the objectives of a particular program. Another possibility is that other programs neutralize the impact of a particular program by diffusing the teacher's attention across disconnected priority goals.

Research is uninformative about how teachers' inservice experiences articulate with each other across a specified period of time. A few studies, however, have addressed the related question of quantity of inservice that teachers receive. Arends (1982) followed beginning high school teachers over a three year period. His sample participated in a mean number of 10.5 inservice activities during this interval. This is an average of 3.5 activities per year. The mean total number of inservice hours for the sample was 291 hours, or 97 hours per year. In contrast, Schalock (1977) surveyed 450 teachers and found that they engaged in a mean number of 1.5 activities over the course of a year.

Two differences in the methods of Arends' study and Schalock's study may explain their disparate estimates of inservice quantity. Arends used interviews and only studied beginning teachers. Schalock used questionnaires and studied teachers representing a much wider range of teaching experience.

An interesting finding of Arends' study was a correlation of .67 between (a) principals' ratings of a teacher's competence at the end of the teacher's first inservice year and (b) the teacher's total number of inservice hours over the three year period. This finding may mean that

participation in many inservice activities leads to improved teacher effectiveness. An equally plausible interpretation is that a teacher's high involvement in inservice is seen by the principal as a sign of competence.

E. Governance

Governance involves a number of policy and management decisions that may influence the effects of inservice education on teachers and their students. Governance issues have been at the forefront of dialogue on inservice education in recent years. For example, the federally-funded Teacher Centers were established on the premise that inservice education would be more effective if teachers controlled its design and governance. We review in this section the available research concerning various dimensions of inservice governance. The four inservice experiments are not informative about these decisions because the decision to institute the experimental inservice programs reflected researcher initiatives primarily rather than school system initiatives.

17. Governance Structures

This dimension is meant to represent the individual or group that has responsibility for making key inservice policy decisions concerning: selection of inservice objectives and activities, design of the activities, incentives and sanctions, and allocation of resources. Teacher Centers and some school districts have governing boards to make these decisions. In other settings these decisions may be left to the building principal or district staff development specialist.

Inservice activities may be associated with several levels of governance. For example, an office of a state department of education may make the decision to mandate a certain type of training (e.g., in mainstreaming) at the district level. In turn, a governance board at the school district level may assume the responsibility for how this training will be designed and offered to district teachers. We could identify no research on variations in governance structures and whether such variations have an influence on the effectiveness of inservice programs.

18. Teacher Participation in Governance

As might be expected, several surveys (Betz, Jensen, and Zigarni 1978; Holly 1981; Schurr et al. 1980) have found that teachers desire input into the planning of inservice programs. Inservice leaders (e.g., Gehrke and Parker 1981; Johnston and Yeakey 1977) also strongly advocate collaborative planning among teachers and administrators in order to insure successful implementation of an inservice program. Three prominent educators (Ryor, Shanker, and Sandefur 1979) stated: "Inservice programs imposed from the top down are doomed to failure" (p. 15). Lawrence and Harrison's meta-analysis (1980) found that inservice programs in which teachers chose at least some of the goals and activities were more effective than entirely preplanned programs in increasing teacher competence.

19. Recruitment of Participants

Participation in an inservice activity can be voluntary or required. There probably are degrees of participation between these two extremes. For example, administrators may stop short of requiring participation, but may use strong sanctions and incentives to insure high participation rates. The critical element, then, is probably not whether the inservice activity is voluntary or mandatory, but whether teachers feel coerced into participation against their wishes. Even if a particular inservice activity is required, teachers may not react negatively if they wish to participate.

The four inservice experiments involved volunteer samples of teachers. Voluntary participation seems reasonable if the purpose of the inservice activity is to conduct a researcher-controlled experiment (as in the case of the four experiments) or to encourage the professional development of individual teachers. When inservice education is used for the purpose of school improvement, however, mandatory participation may be more effective. School improvement may require the staff to make their individual preferences and needs secondary to school goals. We could locate no research data about the extent to which current inservice activities are voluntary or required. An interesting finding of Lawrence and Harrison's meta-analysis (1980) is that mandatory versus voluntary participation of teachers did not predict inservice program effectiveness.

20. Incentives

A reasonable hypothesis is that incentives have an influence on teachers' willingness to participate in an inservice activity and their satisfaction with the experience. We could locate no empirical tests of the hypothesis, however. Some descriptive data about inservice incentives were collected in a survey of teachers by Betz and colleagues (1978). Teachers reported that: "The most common and also the most preferred types of compensation included released time, expenses, credit for certificate level, and college credit" (p. 492). Approval of the principal may also function as an incentive. The Rand studies (Berman and McLaughlin 1978) found that teachers were unlikely to continue implementing a new curriculum or method without the approval of the principal. The reports of the four inservice experiments do not specify what types of incentive, if any, were given to teachers for participating in the inservice programs.

21. Sanctions

In the discussion of participant recruitment (dimension 19), reference was made to the possible use of coercion to secure teachers' participation in an inservice activity. The dimension of sanctions refers to the use of threatened negative consequences to secure teachers' agreement to participate in an inservice activity, or to punish them for non-participation. An example of such a tactic is to require "remedial"

supervision as a condition of continued employment in a school district. Another example is non-renewal of a teacher-certificate if a teacher does not earn a minimum number of credits within a time limit. No research about use of sanctions in inservice programs could be located.

22. Costs

There is surprisingly little information in the literature about the costs of particular inservice programs. A survey of Oregon school districts several years ago (Schalock, 1977) found that typically 3 to 5 percent of district budgets was allocated to inservice education. It is not known how much teachers pay on their own for inservice programs, and whether such expenses affect how much they benefit from the programs.

F. Selection and Evaluation

The evaluation of inservice programs is not a well-developed field. Lawrence and Harrison (1980) stated that their meta-analysis of the inservice literature began with a review of approximately 6,000 abstracts and references. Only 150 of these documents reported quantitative data, and only 59 of them contained sufficient data for inclusion in the meta-analysis.

The Lawrence and Harrison meta-analysis suggests that systematic evaluation of inservice programs is the exception rather than the rule. Also, there have been few efforts to conceptualize the parameters and purposes of inservice evaluation. One of these efforts was a conceptualization of the levels of impact that might result from an inservice program (Gall et al. 1976). Four levels of impact were distinguished:

Level I - Implementing the inservice program. This level of impact refers to how well the program is conducted. A possible indicator of level I impact, for example, is the number of teachers who choose to participate in the program and complete it.

Level II - Teacher improvement. This type of impact refers to the effects of the inservice program on teacher competence.

Level III - Change in student behavior. Many inservice programs have the goal of changing student behavior by first changing teacher behavior (level II).

Level IV - Changes in the environment. Level II and III effects of a program might spread to other contexts. For example, a teacher who learns about a new instructional practice in an inservice program might informally teach it to his or her colleagues.

Each of these levels of impact can be the object of evaluation. We have included Levels II and III as dimensions below (nos. 26 and 27) because they are the most direct outcomes of inservice programs. We have also included several dimensions (nos. 23-25) relating to the quality of the process by which an inservice program is selected or developed for presentation to teachers.

23. Policy

This dimension refers to the rationale and evidence that decision-makers use to justify the use of inservice activities to achieve educational goals. Inservice education is just one option that can be used by decision-makers to implement policy. For example, if the goal is to improve students' basic skills achievement, administrators might consider these options, among others: reduce class size, hire more teacher aides, or issue directives to teachers to spend more time on basic skills instruction. Inservice education must compete with these options in the policy-making process.

A decision-maker's rationale for selecting the type of inservice activities used in the four inservice experiments probably would be that such activities are of demonstrated effectiveness in improving student achievement. There is evidence, though, that decision-makers may not be receptive to such research data on inservice effectiveness. Schalock (1977) found widespread concern among Oregon educators about the effectiveness of inservice education as a method of improving educational practice. The problem is compounded by the fact that, at least in some settings, staff development specialists are only "loosely coupled" to policy making. Vacca, Barnett, and Vacca (1981) found in their study that: "No one identifying primarily with staff development claimed to experience intimate involvement in the decision-making process. Staff developers perceive themselves as middle managers with limited access and little power" (p. 51).

The most noteworthy feature of the four inservice experiments is that the teacher objectives are derived directly from correlational research linking teacher instructional behaviors to student gains in basic skills achievement. This "rational" approach may be the exception rather than the rule. Berman and McLaughlin (1978, p. 14), in a study of curriculum implementation, found that few school districts in their sample conducted a rational search for better ways to educate students. Similarly, Edwards (1981) criticized staff development programs for being "a conglomeration of activities determined by decision making criteria such as cost or availability or strong advertising" (p. 2).

24. Needs Assessment

The training programs in the four inservice experiments were not selected as a result of a formal needs assessment process. The purpose of these studies was to validate through controlled experimentation the effectiveness of particular training programs, rather than to respond to identified needs of school districts. In practice, though, school districts may initiate inservice programs for reasons other than demonstrated effectiveness.

The literature suggests that a formal needs assessment is the process by which particular inservice objectives become identified and achieved through the implementation of particular inservice activities.

Neumann-Etienne and Todd (1976) and Powell (1980), for example, have described models for developing a comprehensive inservice program for a school system. Both models rely heavily upon such needs assessment techniques as site visitations to diagnose system needs, survey of teacher concerns, and survey of teacher priorities. Similarly, the Montgomery County, Maryland school district (Nelson 1981) initiated an inservice program to support an instructional renewal process by first conducting an assessment of training needs for the district's teachers.

We were unable to locate any research, however, on the prevalence of formal needs assessments to identify inservice objectives. It may be that inservice objectives and activities are selected by a much more informal, opportunistic process. A particular administrator may initiate an inservice activity because an inservice trainer made a convincing presentation of its merits; because he or she heard about its success in another district; because the school board identified a problem for which an inservice activity seemed an appropriate solution; or for some other reason.

25. Relevance of Content

Researchers have found that teachers generally evaluate the effectiveness of an inservice program by how relevant its content is to their particular classroom situation. Holly (1982) interviewed 100 K-12 teachers and concluded that, "The single most important factor determining the value teachers placed on an inservice education activity was its personal relevance" (p. 418). Similarly, Vacca and her colleagues (1981) found that teachers' major criteria in rating the effectiveness of staff development personnel was their relevancy. Teachers preferred staff development specialists who gave them "ideas, strategies, and materials that relate directly to their own classrooms" (p. 51). It is disappointing, then, that the elementary teachers in one study (Ogletree and Allen 1974) felt their inservice meetings generally were irrelevant to their professional work. Similarly, the directors of the ISTE (Inservice Teacher Education) Concepts Project interviewed many teachers and found that "the interviewees were much less specific and clear about substance and process than any other aspect of the structure of ISTE" (Joyce, Howey, and Yarger 1976, p. 23). They reached this conclusion: "The interviews, position papers, and literature all reveal an agreement that much of ISTE contains substance which is irrelevant to the needs of classroom teachers" (p. 23).

The training provided in the four inservice experiments was probably implemented in part because it was quite relevant to the classroom situations of the participating teachers. The instructional principles were derived from previous correlational research based on observations of teachers similar to those who participated in each experiment. (In Stallings' experiment [1980], some of the teachers had also participated in the correlational study.) Thus, the instructional principles were directly relevant to the teachers' classroom situation. The teaching behaviors reflected in the principles were already present to some degree in most teachers' repertoires. Inservice training consisted primarily of having teachers do either more or less of what they already were doing in their classrooms, and to sequence their activities appropriately. The training in the four experiments was also relevant in that all of the participating

teachers in a particular experiment were at the same grade level. Thus, a question or problem raised by a teacher at a training meeting probably would be relevant to the other teachers, too.

26. Measurement of Teacher Competence

A major justification for inservice programs is that they produce desirable changes in teacher competence. Our review of the literature revealed that this claim is rarely tested. Evaluation involving objective measurement of teacher competence is seldom included as a component of inservice programs for teachers. Measurement procedures can range from administration of questionnaires and surveys to observation of teachers' classroom behavior.

Each of the four inservice experiments on basic skills instruction involved direct observation of the teachers' classroom behavior before and after the inservice program. The observations were focused on teachers' use of instructional behaviors that researchers had found to be correlated with student achievement gains. The purpose of the observational data in each experiment was to determine whether the experimental inservice program was more effective than a no-training condition.

Measurement of gains in teacher competence requires resource expenditures by the agency sponsoring the inservice program. We could identify no studies that determined whether this type of measurement occurs in practice and whether policy makers find utility in measurement data on teacher competence. Also, no studies could be located on the relative benefits of collecting teacher competence data and student achievement data for evaluating inservice programs.

27. Measurement of Student Objectives.

Educators have available the technology to measure most student objectives of inservice programs. Whether they choose to measure the objectives, and for what purpose, are matters of policy. In the four inservice experiments, the student objectives were basic skills in reading or mathematics. These skills were measured in each study by standardized achievement tests. The test data were used to assess the effects of the inservice programs that comprised the experimental treatments in these studies. Reinstein (1976) noted other useful purposes that could be served by such achievement data; determining allocation of resources to alleviate weakness in instructional programs and assessing whether students are acquiring "minimum competencies" as they progress through school.

Although standardized achievement tests are useful in certain circumstances, they are also problematic. Sally (1981), for example, referred to a recent study at the Institute for Research on Teaching at Michigan State University which found that 30 to 40 percent of items in standardized achievement tests are not covered by commercial textbooks at the same grade level. Because teachers rely heavily on these textbooks to determine their classroom instructional content, there is probably a weak

match between what teachers teach and what standardized tests measure. Thus, the test results may have low validity for measuring the objectives of some inservice programs. If teachers attempt to "teach to the test," they may need to deviate substantially from their textbooks and devote extra effort in order to improve the match between their instructional content and the test content. This extra effort may arouse resentment in teachers and resistance to school system efforts to promote basic skills achievement.

Another potential problem of standardized achievement tests is that they may be used to evaluate teachers and to make them the prime targets of accountability for student progress. Edwards (1981), for example, claimed that "apprehensiveness of teachers about the process of evaluation, their distrust of the accountability movement, and their fearfulness of becoming scapegoats for the failure of innovations..." is widespread.

Summary of Inservice Practices

The effective practices identified through the preceding research review of 27 inservice dimensions are summarized in Table 3. The first column of this table lists the dimensions and the headings under which they are organized. The next column lists effective inservice practices associated with particular dimensions. In a few cases (for example, dimension 11), an effective practice could not be identified.

The third column of Table 3 indicates the type of research from which the effective practice was derived. The types of research listed in this column are as follows:

1. Basic skills experiments. These are the four inservice experiments by Anderson, Evertson, and Brophy; Crawford et al.; Stallings; and Good and Grouws.

2. Implementation research. These are studies (mostly descriptive and correlational) in which the criterion was how well a curriculum or instructional method was implemented in a natural school setting.

3. Inservice research. These are usually experiments in which effects of different inservice practices on teacher competence (i.e., knowledge, skill, attitudes) were assessed.

4. Survey research. These are descriptive studies of teacher preferences and attitudes concerning particular inservice practices.

5. Other research. Some studies relating to teacher expectations, school principals, and achievement tests are relevant to several of the inservice dimensions.

In most cases the effective practices listed in Table 3 are a direct statement of a finding from one or more research studies. In a few cases the effective practice is a reasonable inference from research findings. For example, the practice associated with dimension 5 is a reasonable inference from the basic skills experiments. Each of these experiments focused on improving student achievement in the basic skills. This focus was not systematically varied within or between experiments. It seems reasonable that inservice programs focused on this objective would tend to be more

effective in achieving the objective than inservice programs focused on other objectives.

The set of research-based, effective practices summarized in Table 3 provides a standard for comparing current inservice practice. An empirical survey of current practices relative to this standard is reported in the next three chapters.

The effective inservice practices summarized in Table 3 are slanted toward improving basic skills instruction. Most of them also apply to other instructional goals. The few that are specific to basic skills instruction could be modified so that they are generic or so that they apply to other instructional goals.

TABLE 3
Summary of Research on Effective Inservice Practices for Improving Basic Skills Instruction

Dimension	Effective Practice	Basis
A. Teacher Objectives		
1. Target Competencies	Teachers should use direct instruction methods	Basic skills experiments
2. Operationalization	Inservice program should have operationally-stated objectives for teacher behavior.	Implementation research
3. Complexity	If the skills to be learned are complex, phase them into the teacher's repertoire gradually	Implementation research; in service research
4. Expected level of performance	Teachers should be told specifically how much to use particular instructional behaviors	Basic skills experiments; implementation research
B. Student Objectives		
5. Target objectives	Inservice program should focus on improving student achievement in basic skills	Basic skills experiments
6. Expected level of achievement	Teachers should be helped to believe that students' basic skill achievement can be improved.	Basic skills experiments; teacher expectations research
C. Delivery System		
7. Readiness activities	Hold meetings that deal with teachers' concerns about the inservice program and that build consensus agreement to participate in it	Implementation research
8. Instructional process	Teachers should study manuals describing direct instruction methods; should discuss the methods in group meetings with a trainer; and should receive observation and feedback on their behavior	Basic skills experiments; inservice research

TABLE 3
(Continued)

Dimension	Effective Practice	Basis
9. Maintenance and monitoring	Inservice program should maintain, build on, and monitor gains made in initial training	Implementation research
10. Training site	Inservice program should use the teacher's classroom as training site at least part of the time to provide observation and feedback	Basic skills experiments; inservice research
11. Trainers		
12. Scheduling	Schedule inservice sessions at times that do not interfere with teachers' other obligations	Inservice research
D. Organizational Context		
13. Purpose for participation	Inservice program should focus on school improvement rather than personal professional development	Inservice research
14. Inservice cohorts	Inservice program should provide activities that allow teachers to work with and learn from each other	Survey research
15. Concurrent organizational changes	Principal should participate in and support the teachers' inservice activities	Implementation research; research on principals' behavior
16. Other inservice activities		
Governance Structure		
17. Governance structure		

TABLE 3
(Continued)

Dimension	Effective Practice	Basis
18. Teacher participation in governance	Teachers should have opportunity to help plan the inservice program	Survey research
19. Recruitment of participants	Participation should be mandatory in order to bring about schoolwide improvement	Inservice research
20. Incentives	Provide incentives like released time, expenses, college or district credits, approval by school principal	Survey research; implementation research
21. Sanctions		
22. Costs		
Selection and Evaluation		
23. Policy	Inservice program should be selected because of its demonstrated effectiveness in improving students' basic skills achievement	Basic skills experiments
24. Needs assessment	Inservice program should be given in schools where students have been identified as low-achieving in basic skills	
25. Relevance to participants	Content of the inservice program should be relevant to the teacher's classroom situation	Survey research
26. Measurement of teacher competence	Teachers' classroom performance should be assessed to determine teacher implementation of inservice content	
27. Measurement of student objectives	Inservice program effectiveness should be assessed by measuring student performance on content-valid achievement tests and in such a way that teachers do not feel threatened	Research on achievement testing

CHAPTER 3
METHOD

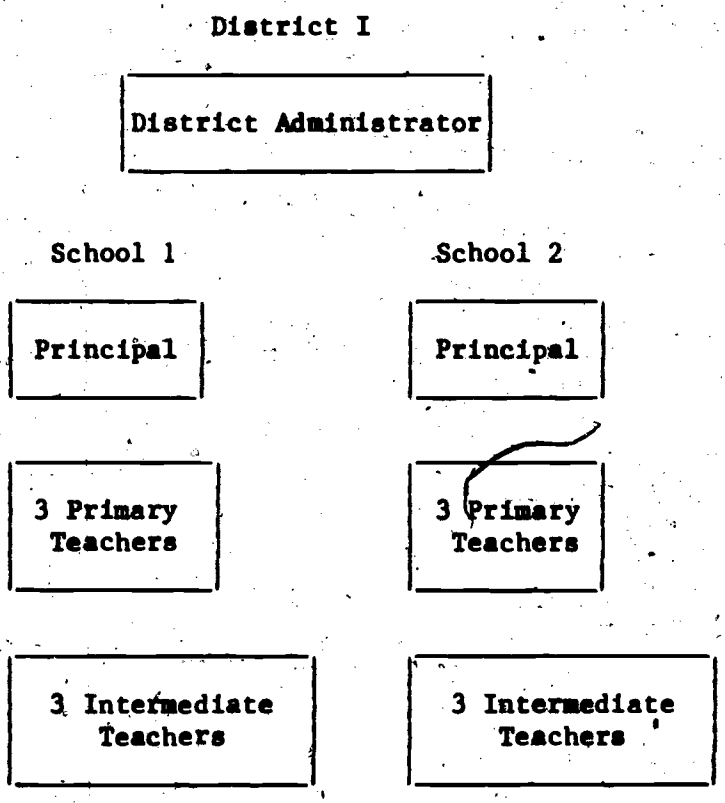
Research Design

An empirical study was undertaken to answer the five research questions stated in Chapter 1. The research design was descriptive. One part of the design involved collecting data to describe teachers' and administrators' inservice activities and their attitudes toward the activities. It was originally planned that data about the activities would be collected at approximately the time that they occurred. Had this occurred, the study would have been planned as a longitudinal design with data collection extending over at least a school year. However, the grant funding cycle and other factors made it more feasible to use a retrospective survey of the sample's inservice activities. Each educator was asked at the end of the school year (approximately June 1982) to recall the inservice activities in which he or she had participated during the school year and the preceding summer.

The other part of the research design involved a descriptive survey of the sample's attitudes toward selected aspects of inservice education for improving basic skills instruction. These attitudes were assessed at one point in time. Longitudinal factors (e.g., changes in attitude over time) were not considered in this part of the research design.

Sample

Sampling design. The sampling procedure involved selecting three school districts and two elementary schools within each district. A central office administrator was selected in each district (total N = 3) to represent district-level management of inservice education. Each principal of the participating schools (total N = 6) was selected to represent school-level management of inservice education. Six teachers in each school (total N = 36) were selected to represent participants in inservice education. Teacher selection in each school was stratified to include three primary teachers (grades 1-3) and three intermediate teachers (grades 4-6). The sampling plan for one of the three districts is illustrated below.



This sampling design has the advantage that it makes possible the description of inservice activities within natural units of organization (i.e., schools and districts). Also, the design allows study of differences between districts, between schools, between schools-within-districts, and between teachers. The research results presented in Chapter 4 involve primarily total sample and between-district analyses. Supplementary analyses involving other differences will be done at a subsequent date.

Three school districts were recruited to participate in the study. The researchers selected the districts to represent a range of community characteristics. The first step was to meet with central office administrators and principals to secure their approval. These groups also recommended schools that had the most low-achieving students in the district. The next step was for the researchers to meet with the principal and teachers in each school to recruit their participation. Cooperation was good. There was no need to recruit additional school districts because of refusal to participate by one of the initially approached sites. A modest honorarium was paid to each participant in recognition of the time required to complete the interview schedules.

School and district characteristics. Characteristics of the school districts are summarized in Table 4. District I is a mixed socioeconomic community with a preponderance of low-income families and some transient students. District III serves some children from low-income families, but the community as a whole is middle-class. District II is quite unlike the other two districts. It serves a relatively isolated coastal community with

TABLE 4
Characteristics of Participating Schools

Characteristic	District I		District II		District II	
	School 1	School 2	School 3	School 4	School 5	School 6
Setting	Small Suburban		Small Rural		Large Suburban	
Student Population	200	300	300	300	400	300
Title I Status	Yes	Yes	No	Yes	No	Yes
Number of Regular Teachers	10	15	14	14	15	10
Number of Specialist Teachers	3	5	7	7	5	5

Note: The data in this table are given as approximations to preserve the sample's anonymity.

many small farming and fishing families. The district is spread over a fairly wide geographical area. All of the districts are located in the Pacific Northwest.

A central office administrator in each district made available district testing results for the 1981-82 school year. Grade level equivalents in the two schools of district I ranged from one year below grade level to grade level for the classes that were tested. Test scores in the two schools of district II were below the national average in most areas of reading, language, and math. Test scores in the two schools of district III were generally at or above the national average.

One item of the interview schedules asked teachers and administrators to characterize the ability level of their students. Results for this item are shown in Table 5. The majority of teachers and administrators rated their students as being of medium ability level. Teachers and administrators were also asked to rate their students' progress in learning the basic skills. As shown in Table 6, most of them were satisfied or very satisfied with students' progress in the basic skills of reading, math, and language arts.

The school districts were not selected because they had a noteworthy inservice program for their teachers. They were selected primarily because they were accessible for purposes of data collection and because they represented a range of size and resources for schooling. One item on the interview schedules asked those sampled to characterize their school or district as a climate for inservice education and professional development. Results for the items are shown in Table 7. The majority of the teachers and all of the administrators perceived that the district provided a supportive climate for inservice education.

One item on the interview schedules asked teachers and administrators to characterize the difficulty of their work environment. Results for this item are presented in Table 8. Only a third of the teachers considered their classes easy to teach. Similarly, only a third of the principals and assistant superintendents considered their schools or districts easy to administer.

Sampling of teachers. It was hoped to select a random stratified sample of three primary grade teachers and three intermediate grade teachers in each school. This procedure would have helped to insure a representative sample of teachers across schools. However, the principals requested voluntary participation of their teachers in the study. They agreed, though, to selection of a stratified grade level sample if teachers were willing.

The sampling of teachers by grade level in each school is shown in Table 9. One more teacher than necessary in schools 4 and 6 volunteered to participate. They were included in the sample.

Because the teachers comprised a volunteer sample, their characteristics may differ from the population of teachers in the participating schools. It is possible that they may be more interested in inservice education than the general population of teachers. It is also possible that their interest level is the same as other teachers; but that they happened to have more time available for participation in the study.

TABLE 5
Rating of Students' Ability Level by Their Teachers and Administrators
(N = Number of teachers or administrators)

Rating of Student Ability Level	Total Sample N	Total Sample %	District I N	District I %	District II N	District II %	District III N	District III %
1. Teacher rating								
High	8	22%	1	9%	5	39%	2	15%
Medium	26	70%	8	73%	7	53%	11	85%
Low	3	8%	2	18%	1	8%	0	0%
2. Administrator rating								
High	3	33%	0	0%	1	33%	2	67%
Medium	5	56%	2	67%	2	67%	1	33%
Low	1	11%	1	33%	0	0%	0	0%

Note: Data source for item 1 is Appendix B, item 5. Data source for item 2 is Appendix F, item 7.

TABLE 6
Educators' Satisfaction with Students' Progress in Learning the Basic Skills
(N = Number of teachers or administrators)

Teachers

Basic Skills	Total Sample N	%	District I N	%	District II N	%	District III N	%
Reading								
Very satisfied	17	50%	5	46%	9	69%	3	30%
Satisfied	15	44%	4	36%	4	31%	7	70%
Dissatisfied	2	6%	2	18%	0	0%	0	0%
Math								
Very satisfied	16	46%	6	55%	5	38%	5	45%
Satisfied	16	46%	3	27%	7	54%	6	55%
Dissatisfied	3	8%	2	18%	1	8%	0	0%
Language Arts								
Very satisfied	10	29%	4	36%	4	33%	2	18%
Satisfied	20	59%	6	55%	5	42%	9	82%
Dissatisfied	4	12%	1	9%	3	25%	0	0%

TABLE 6
(Continued)

Administrators

Basic Skills	Total Sample N	Total Sample %	District I N	District I %	District II N	District II %	District III N	District III %
Reading								
Very satisfied	5	56%	1	33%	1	33%	3	100%
Satisfied	3	33%	2	67%	1	33%	0	0%
Dissatisfied	1	11%	0	0%	1	33%	0	0%
Math								
Very satisfied	1	11%	0	0%	0	0%	1	33%
Satisfied	6	67%	2	67%	2	67%	2	67%
Dissatisfied	2	22%	1	33%	1	33%	0	0%
Language Arts								
Very satisfied	1	11%	0	0%	0	0%	1	33%
Satisfied	6	67%	2	67%	2	67%	2	67%
Dissatisfied	2	22%	1	33%	1	33%	0	0%

Note: Data source for teacher table is Appendix E, item 3. Data source for administrator table is Appendix H, item 3.

TABLE 7
Rating of the School and District as a Climate
for Inservice Education
(N = Number of teachers or administrators)

Ratings of Inservice Climate	Total Sample N	%	District I N	%	District II N	%	District III N	%
1. Teachers' rating.								
Supportive	32	84%	9	75%	10	77%	13	100%
Neutral	3	8%	1	8%	2	15%	0	0%
Unsupportive	3	8%	2	17%	1	8%	0	0%
2. Administrators' rating								
Supportive	9	100%	3	100%	3	100%	3	100%
Neutral								
Unsupportive								

Note: Data source for item 1 is Appendix B, item 7. Data source for item 2 is Appendix F, item 9.

TABLE 8
Rating of the Classroom and School
as a Work Environment
(N = Number of teachers or administrators)

Rating of Work Setting	Total Sample N	Total Sample %	District I N	District I %	District II N	District II %	District III N	District III %
1. (Teachers) How difficult is this class to teach?								
Easy	13	34%	4	33%	2	15%	6	46%
Medium	11	29%	4	34%	5	39%	2	15%
Difficult	14	37%	4	33%	6	46%	5	39%
2. (Administrators) How difficult is (are) your school(s) to administer?								
Easy	3	33%	1	33%	1	33%	1	33%
Medium	1	11%	0	0%	0	0%	1	34%
Difficult	5	56%	2	67%	2	67%	1	33%

Note: Data source for item 1 is Appendix B, item 6. Data source for item 2 is Appendix B, item 8.

TABLE 9
Sampling of Teachers from Each Participating School

School		Number of Teachers by Grade Level						
		1	2	3	4	5	6	Total
District I								
1.	Total	2	2	2	2	2	-	10
	Sample	2	1	0	2	1		6
2.	Total	4	3	3	3	2	-	15
	Sample	1	2	0	2	1		6
District II								
3.	Total	3	3	3	3	2	-	14
	Sample	1	1	1	2	1		6
4.	Total	3	2	3	3	3	-	14
	Sample	1	1	1	2	2		7
District III								
5.	Total	3	3	3	2	2	2	15
	Sample	0	1	2	0	2	2	6
6.	Total	2	2	2	2	2	2	10
	Sample	1	1	1	1	1	1	7

Note: Description of teachers by grade level in "total" rows was altered slightly to preserve the sample's anonymity.

Our general impression is that the use of volunteer schools and teachers resulted in a slight bias toward including educators who are more interested in inservice education than educators generally.

Teacher and administrator characteristics. As shown in Table 10, the sample of teachers is predominantly female, and the sample of administrators is with one exception male. The teachers and administrators both tend to have many years of experience as professional educators.

Measures

Description of Measures

The data collection measures in this study took the form of semi-structured interviews and checklists. Separate but related measures were developed for teachers and administrators. Except for a few slight changes in wording, the same measures were given to both types of administrator: building principal and assistant superintendent for curriculum and instruction. All of the measures were administered by trained interviewers.

Each teacher measure is described below, followed by a description of the administrator measures. A copy of each measure is included in the appendix.

Teacher Interview Schedule I, Part One (Appendix B). One purpose of this measure was to obtain demographic information about the teacher and information about her work situation (items 1-7). The major purpose of the measure was to obtain a list of the teacher's inservice activities over a twelve-month period extending from June 1981 to May 1982. The teacher was given a definition of inservice education (item 8) and then asked to recall inservice activities month to month (item 9). Pilot-testing of this procedure and experience during actual data collection indicated that teachers had no difficulty recalling their inservice activities over this period of time. Item 9 provided the primary basis for answering research question 1 ("How much inservice education is currently received by teachers...?").

The consultant to the project suggested that it would be interesting to obtain information about the teacher's informal activities that resulted in professional development over the same period of time. Since little additional effort was required to collect this information, it was included in the interview schedule (item 11). The resulting data were not analyzed for this report, but will be analyzed at a later time.

Teacher Interview Schedule I, Part Two (Appendix C). The purpose of this measure was to obtain detailed information about each inservice activity identified on page 3 of Part One. Information was requested about each dimension in the researchers' model for describing inservice education programs (see Table 1 in Chapter 2). Thus, the five sections of this measure are labelled: teacher objectives, student objectives, delivery system, organizational context, and governance. There is in Table 1 a set of

TABLE 10
Characteristics of the Teacher and Administrator Sample

Teachers

Characteristics		Total Sample (N=38)	District I (N=12)	District II (N=13)	District III (N=13)
Male	N	4	2 17%	0 0%	2 15%
Female	N	34	10 83%	13 100%	11 85%
Years Teaching	M	12.26	11.67	15.54	9.54
	SD	7.02	7.00	7.82	5.08
Age	M	38.34	39.50	41.23	34.38
	SD	8.89	10.00	9.15	5.48

Table 10
(Continued)

Administrators

Characteristics		Total Sample (N = 9)	District I (N = 3)	District II (N = 3)	District III (N = 3)
Male	N	8	3 100%	2 67%	3 100%
Female	N	1	0 0%	1 33%	0 0%
Years as Educator	M	27.88	28.67	27.00	27.67
	SD	6.80	9.29	5.09	4.99
Years as Administrator	M	17.33	21.33	12.67	18.00
	SD	9.15	10.84	7.59	6.16
Years as Administrator in District	M	15.78	20.33	9.33	17.67
	SD	9.54	10.21	8.34	5.79
Age	M	50.56	48.33	51.67	51.67
	SD	6.85	9.43	4.71	4.71

Note: Data source for teacher characteristics is Appendix B, items 1-3. Data source for administrator characteristics is Appendix F, items 1-3, 5-6. The midpoint of the age intervals were used as data for this table: (21-25) = 23; (26-30) = 28; (31-40) = 35; (41-50) = 45. Educators whose age is 55+ were assigned an age of 55.

dimensions labelled "Selection and Evaluation" that does not appear in the measure. The reason for the difference is that this set of dimensions was conceptualized after the measure had been developed. Several of the dimensions under this label, however, are included as items at various points in the measure.

The items in this interview schedule were framed to elicit a description of what occurred with respect to each dimension of inservice programs. Also, an effort was made to phrase the item so that it could be determined whether a research-based inservice practice (see Table 3) had occurred. Because our review of research literature continued past the development of this measure, some of the research findings reported in Chapter 2 are not reflected in the measure.

The measure included a mix of closed-form items (mostly items that elicited a yes/no response) and open response items. The former items were intended to yield data that could be analyzed and reported within the funding period of the project. The latter items were included to provide in-depth data that could be analyzed within the funding period or at a subsequent point in time.

The items of this interview schedule provided the basis for answering research questions 2 ("What percentage of current inservice activities is in the area of basic skills instruction?") and 3 ("What form do current inservice activities take...?").

Teacher Interview Schedule I, Part Three (Appendix D). After completing each section of the Part Two interview schedule, the teacher completed a corresponding rating form on Part Three. The five sections of Part Three correspond to the five sections of Part Two. The Part Three rating forms provided the basis for answering research question 4: "How effective and satisfying is current inservice education as perceived by educators?"

Teacher Interview Schedule II (Appendix E). The teachers were typically interviewed over several sessions to collect data about each of their inservice activities using the Part Two and Part Three schedules. After those interviews were completed, the teacher was interviewed a final time using Schedule II. The various parts of this measure were intended to provide data for answering research question 5: "In the opinion of educators, what constitutes an effective inservice program for improving teachers' basic skills instruction?"

The first section (items 1-3) asked for the teacher's opinion on the importance of basic skills instruction and her students' progress in this area. The second section (items 4-8) elicited attitudes toward standardized measures of basic skills achievement. This type of measure was used as the criterion in the four inservice experiments described in Chapter 2.

The third section (items 9-20) asked for the teacher's attitude toward various instructional practices that have been found effective in improving students' basic skill achievement: allocating more time for basic skills instruction (item 9), keeping students on task (item 12), and bringing instruction in line with content on achievement tests (item 15). The teacher was also asked for her attitude toward an instructional strategy used in one

of the four inservice experiments (items 18-20). Several of the items in this section asked whether the teacher had ever received inservice education in these instructional practices.

The remaining sections of Schedule II elicited teachers' opinions and preferences regarding inservice dimensions in the areas of delivery system, organizational context, and governance. Where possible, items asked for the teacher's opinion regarding a research-validated inservice practice.

Administrator Interview Schedule I, Part One (Appendix F). This interview schedule served the same functions as Teacher Interview Schedule I, Part One. The major difference is that teachers were asked to recall inservice activities in which they had participated, whereas administrators were asked to recall inservice activities that they had administered or sponsored for teachers. Item 12 of this schedule provided the basis for answering research question 1: "How much inservice education is currently...sponsored by administrators?"

Administrator Interview Schedule I, Part Two (Appendix G). Each inservice activity sponsored by the administrator was probed using this interview schedule. Items 1, 4, 5, and 6 were intended to provide data for answering research question 2: "What percentage of current inservice activities is in the area of basic skills instruction?" The remaining items were intended to reveal the administrator's involvement in decision-making and policy-making with respect to inservice education for teachers. The items were outside the formal scope of work for this project but were included because administrators' responses to them might be useful in interpreting findings of the present study. The items will be analyzed and presented in a subsequent report.

Administrator Interview Schedule II (Appendix H). This interview schedule closely paralleled Teacher Interview Schedule II. Where appropriate, items from the latter schedule were reworded to reflect the fact that principals and assistant superintendents are sponsors or administrators of inservice programs for teachers.

Development and Administration of Measures

The first version of the measures was developed and pilot-tested by the project staff in March 1982. The major purpose of pilot-testing was to check the clarity of each item and to determine whether it elicited the intended type of data. Another purpose was to check the sequencing of items and the number of items that could be asked before the respondent became tired or restless. Also, the format of each interview schedule was checked to determine that there was adequate space to record responses. The pilot tests were conducted primarily with respondents who were graduate students with recent or current experience as an elementary teacher or administrator.

Each measure was revised based on pilot test feedback from respondents and interviewers. When necessary, all or part of a measure was retested to check the adequacy of the revision.

A total of nine interviewers conducted the interviews. Some of the

interviewers were project staff and local doctoral students. Other interviewers were educators with research training who lived in or near the sites that were distant from the university.

It would have been desirable to randomly assign interviewers to subjects in order to minimize the effects of interviewers on observed group differences. However, this was impossible for several reasons: some interviewers could not travel to distant sites; project expenses would have increased substantially; and it would have been disruptive to a school to have as many as seven or eight interviewers calling on the teachers and principal.

The assignment of interviewers to subjects is shown in Table 11. In a few cases (approximately 6) an interviewer could not complete all of the interview schedules for a particular teacher or administrator. In these cases a second interviewer finished the interviews.

Each interviewer was trained by a project staff member to use the interview schedules. One staff member did all of the training. Most of the training effort was spent on Teacher and Administrators Schedules I, Part One and Part Two. The interviewer conducted simulation interviews with the staff member and also conducted practice interviews with an accessible teacher or administrator.

It was expected that an interviewer could complete all of the measures for a teacher or administrator in three sessions of approximately one hour each. This time estimate assumed that a typical educator would have participated in two inservice activities over a year's period of time. In fact, the typical teacher participated in three times that number of activities. Therefore, interviews often lasted beyond an hour, and four to six interviews were usually required to complete all of the measures for a subject.

The interviews in districts I and II were completed in May and June of 1982. The interviews in district III were completed in late May and June, with the exceptions of Teacher Schedule II and Administrator Schedule II. This district was recruited later than the other two districts, and many of the teachers and administrators had left for the summer before Schedule II could be administered. These interview schedules were administered from late September to early November.

The completion of measures by participants is displayed in Table 12. Everyone completed Part One of Schedule I. With two exceptions, everyone also completed Schedule II. The two exceptions were teachers in the third district. They had been available in Spring when Schedule I was administered, but they went on leave in Fall when Schedule II was administered.

As stated above, Part Three of Teacher Interview Schedule I was administered whenever Part Two was administered. Therefore, the "Complete" column of Table 12 includes the number of completed matched pairs of Part Two and Part Three schedules for each teacher. Because of the unexpected high frequency of inservice activities, it was not always possible to collect data on each activity recorded on Teacher Interview Schedule I, Part One. The time required to complete all of these schedules was too great for some

TABLE 11
Assignment of Interviewers to Teachers and Administrators

District I	Interviewer	District II	Interviewer	District III	Interviewer
School 1		School 1		School 1	
Teacher 1	A	Teacher 1	F	Teacher 1	H
2	A	2	F	2	H
3	A	3	F	3	H
4	B	4	F	4	H
5	C	5	F	5	H
6	C	6	F	6	H
Principal	D	Principal	F	Principal	I
School 2		School 2		School 2	
Teacher 1	A	Teacher 1	G	Teacher 1	H
2	A	2	G	2	H
3	C	3	G	3	H
4	C	4	G	4	H
5	C	5	G	5	H
6	E	6	G	6	I
		7	G	7	I
Principal	D	Principal	B	Principal	J
Asst. Supt.	D	Asst. Supt.	B	Asst. Supt.	J

Note: Each letter in the interviewer columns represents a different interviewer.

TABLE 12

Number of Measures Completed by Each Teacher and Administrator

District I	Part One	Parts Two and Three* Complete	Parts Two and Three* Not Done	Schedule II
School 1				
Teacher 1	+	12		+
2	+	7		+
3	+	4		+
4	+	9		+
5	+	6		+
6	+	6		+
Principal	+	3		+
School 2				
Teacher 1	+	5		+
2	+	8		+
3	+	13	1	+
4	+	4		+
5	+	3		+
6	+	5		+
Principal	+	2		+
Asst. Supt.	+	1		+

* Principals and assistant superintendents only completed Part Two for Administrator Schedule I.

District II	Part One	Parts Two and Three Complete	Parts Two and Three Not Done	Schedule II
School 1				
Teacher 1	+	6	7	+
2	+	7	7	+
3	+	8	2	+
4	+	7	2	+
5	+	7	1	+
6	+	4	1	+
Principal	+	3		+
School 2				
Teacher 1	+	3		+
2	+	7		+
3	+	6		+
4	+	5		+
5	+	3		+
6	+	6		+
7	+	4		+
Principal	+	5		+
Asst. Supt.	+	3		+

TABLE 12
(Continued)

District III	Part One	Parts Two and Three Complete	Parts Two and Three Not Done	Schedule II
School 1				
Teacher 1	+	7	1	+
2	+	4	2	+
3	+	3	2	
4	+	4	4	+
5	+	5		+
6	+	6	2	+
Principal	+	3		+
School 2				
Teacher 1	+	2		+
2	+	6		+
3	+	4	3	+
4	+	3		
5	+	4		+
6	+	6		+
7	+	4		
Principal	+	3		+
Asst. Supt.	+	2		+

teachers, especially teachers with a high frequency of inservice participation. The time demands for these teachers exceeded the time estimates that they had been given at the outset when they were recruited for the study. The interviewers were instructed not to "wear out their welcome." They were also instructed to use Parts Two and Three for the most important activities, and to obtain a brief summary description of the other activities.

School district I caused no difficulty. With one exception (teacher 3 in school 2), all activities were probed using the Part Two and Three schedules. School 1 in district 2 had a substantial number of inservice activities for which Part Two and Three data were not collected. The number of inservice activities in this school was high: with one exception, each teacher had more inservice activities than the most active teacher (no. 2) in school 2. The interviewer completed as many Part Two-Three schedules as possible within the time available. School 1 in school district III also had a substantial number of inservice activities not probed by Part Two and Three schedules. The teachers in this school were very busy at the end of the school year, and so it was difficult to arrange sufficient time for all of the interviewing that was required.

CHAPTER 4
RESULTS

Data Analysis Procedures

The research questions posed in this study generally call for descriptive inquiry. Therefore, all of the data analyses presented in this chapter are summarized in the form of descriptive statistics: frequency counts, percentages, means, and standard deviations. Many of the tables present descriptive statistics for the total sample and for each of the three school districts. Tests of statistical significance were not done on observed between-district differences, though. It did not seem reasonable to use inferential statistics to make generalizations about population parameters from sample statistics when the sample (in this case, school districts) was not randomly drawn from a clearly defined population of school districts and when subjects within districts comprised a volunteer sample. The analysis focused instead on the observed magnitude of district-level differences to determine whether the districts were generally similar to each other in inservice practices and perceptions.

Inspection of the data suggests that inservice education is generally organized at the district level rather than at the school level. With a few exceptions then, the analyses focus on teacher and administrator data aggregated to the district level. It is important to realize that district-level data analyses do not imply that the activities were district-sponsored. An activity was assigned to a district only because the teacher who participated in the activity worked in the district. The activity may have been district-sponsored or sponsored completely outside of district auspices.

As described in Chapter 3, different interviewers were assigned to different schools and different districts. Therefore, it is possible that observed group differences reflect district effects or interviewer effects. Efforts were made to standardize the interviewing procedure, but there is no way of knowing for certain how well interviewer bias was controlled in this study. Observed differences between districts should be interpreted cautiously.

Two different units were used in the statistical analyses. In some analyses the individual educator (teacher, principal, or assistant superintendent) was the statistical unit. The individual inservice activity, however, was used as the statistical unit in analyses of data from Teacher Schedule I, Parts Two and Three, and from Administrator Schedule I, Part Two. The number of inservice activities varied substantially between teachers. The range was from 3 to 15 activities. When this much range occurs, data for individual inservice activities can become unduly weighted when aggregated to the teacher level.

The problem of aggregration can be illustrated by this example. Suppose a teacher participated in three inservice activities, all of which were mandatory. Another teacher participated in ten inservice activities, only three of which were mandatory. This situation can be depicted as follows (M = mandatory, V = voluntary):

Teacher 1: M M M
Teacher 2: M M M V V V V V V V

A summary statistic to describe mandatory inservice can be calculated in two ways. If the teacher is the unit, one would compute the percentage for each teacher (100 percent; 30 percent) and divide by N (in this case, 2) yielding a mean percentage of 65 percent. If the inservice activity is the unit, one would sum the mandatory activities (N = 6) and divide by the sum of all the activities (N = 13), yielding a percentage of 46 percent. The difference between the two statistics (46 percent and 65 percent) is substantial.

It was decided that the analyses for this report would use the inservice activity as the unit of statistical analysis. This unit has the advantage of giving more weight to teachers who have been frequent participants in inservice activities. At the same time, we realize that there are insights that can be gained by aggregating inservice activities so that the teacher is the focus of statistical description. Such analysis is beyond the scope of the present report. A few important variables, though, have been analyzed at both levels here.

The inservice activities reported by different teachers are not necessarily independent events. Teachers from the same school and from the same district often attended the same inservice activity, for example, a beginning-of-year orientation meeting organized by the district. The extent to which activities overlapped among teachers is represented, to a degree, in the data analyses concerned with the organizational context of inservice education (see pages 78-83). The overlap of activities poses no special methodological problem. The reader should keep in mind, though, that data analyses in which the inservice activity is the statistical unit are not dealing with completely independent events.

Missing data were negligible because data were collected through in-person interviews with each educator in the sample. There are a few missing data entries because the interviewer skipped over an item or forgot to record a response. Also, missing data occurred when a teacher did not record a response on the rating forms on Teacher Interview Schedule I, Part Three. In tables where the teacher is the unit of analysis, missing data can be inferred when total N is less than 38 or when district Ns are less than 12 (district I) or 13 (districts II and III). An exception to this rule is that N should be 11 for district III in analyses involving Schedule II; this is because two teachers were on district leave when this schedule was administered. Missing data for administrators can be inferred when total N is less than 9, when principal N is less than 6, or when assistant superintendent N is less than 3.

When teacher inservice activity is the unit of statistical analysis, missing data can be inferred when:

Total N is less than 213.
District I N is less than 82.
District II N is less than 73.
District LII N is less than 58.

When administrator inservice activity is the unit of statistical analysis, missing data can be inferred when:

Total N is less than 25.
District I N is less than 6.
District II N is less than 11.
District III N is less than 8.
Principal N is less than 19.
Assistant Superintedent N is less than 6.

The data source for the summary statistics in each table is given in a note to the table. These notes refer the reader to the appendix containing the appropriate interview schedule. The summary statistics for data relating to an interview item sometimes follow the response options for the item, for example, yes/no. However, rating scales are usually collapsed to a smaller number of values for data presentation unless it seems important to preserve the total scale. For example, the satisfaction scales in Appendix D (very satisfied, satisfied, dissatisfied, very dissatisfied, not applicable) were usually collapsed to three values: satisfied, dissatisfied, not applicable. The resulting tables of results are more easily interpreted. Also, the validity of the distinction between adjacent values such as "very satisfied" and "satisfied" is uncertain.

Research Question 1
How much inservice education is currently received by teachers and sponsored by administrators?

Teachers were asked to recall the number of inservice activities in which they had participated during a twelve-month period (a summer and the following school year). An inservice activity was defined as any event, however brief or long, that is intended to improve the teacher's capacity as a professional educator.

The number of inservice activities recalled by each teacher is shown in Table 13. The mean number of activities (7.34) is much greater than that reported in previous research. There is between-district variation, but it is not substantial. The most noteworthy group difference is between the two schools in district II. The mean frequency in school 1 is twice that of school 2. The between-teacher variation is also very substantial. There is a small cluster of teachers with fewer than 5 activities and another cluster of teachers with 10 to 15 activities.

The number of teacher inservice activities sponsored or administered by principals and assistant superintendents is shown in Table 14. Most noteworthy is the fact that each administrator was involved in at least one teacher inservice activity, and several were involved in 4 or more. As with teachers, there was substantial variation between principals and assistant superintendents in number of activities sponsored or administered.

Number of activities is a limited index of teacher and administrator involvement in inservice education. Extent of involvement also needs to be indexed by measures of the length of the activities. Data on the number of hours required by each activity is displayed in Table 15. These data are teacher reports of the length of each activity in which they participated.

Fully half of the inservice activities shown in Table 15 are 4 hours

TABLE 13
Frequency of Teacher Inservice Activities
(N = Number of inservice activities)

Teacher		District I N	District II N	District III N
School 1				
1		12	13	8
2		10	14	6
3		6	10	8
4		9	10	8
5		7	8	5
6		6	5	8
School 2				
1		13	3	2
2		8	9	8
3		15	6	7
4		4	5	5
5		6	3	4
6		5	6	8
7			4	5
School 1	M	8.33	10.00	7.17
School 2	M	8.50	5.14	5.57
District	M	8.42	7.38	6.31
	SD	3.30	3.48	1.90
Total (N=38)	M	7.34		
	SD	3.09		

Note: Data source is the frequency of activities recorded for Appendix B, item 9.

TABLE 14
Frequency of Inservice Activities Sponsored by
Principals and Assistant Superintendents
(N = Number of inservice activities)

Administrator		N
District I		
Principal, School 1		4
Principal, School 2		2
Assistant Superintendent		1
District II		
Principal, School 1		3
Principal, School 2		6
Assistant Superintendent		7
District III		
Principal, School 1		4
Principal, School 2		4
Assistant Superintendent		2
Principal	M	3.83
Assistant Superintendent	M	3.33

Note: Data source is the frequency of activities recorded for Appendix F, item 12.

TABLE 15
Distribution of Durations of Teacher Inservice Activities

No. of Hours	Cum %	Bar Graph of Number of Activities
1	13%	xxxxxxxxxxxxxxxxxxxxxxxxxxx
2	34%	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
3	46%	xxxxxxxxxxxxxxxxxxxxxxxxx
4	53%	xxxxxxxxxxxxxx
5	59%	xxxxxxxxxxxxx
6	66%	xxxxxxxxxxxxxxx
7	68%	xxxxx
8	74%	xxxxxxxxxxxxx
9	75%	xx
10	77%	xxxx
12	81%	xxxxxxx
13	81%	x
14	82%	x
17	82%	x
18	83%	x
20	84%	xxxx
22	85%	x
24	87%	xxxx
25	87%	x
30	89%	xxx
32	90%	xxx
34	91%	x
35	91%	x
38	92%	x
40	93%	xxx
44	94%	xx
45	94%	x
48	95%	x
53	95%	x
56	96%	x
64	97%	xx
70	97%	x
80	98%	xx
100-125	99%	xx
126-192	100%	xx

Note: Data source is Appendix C, item 18e.

or less. A modest skill training program for teachers might be 30 hours or more (Borg et al. 1970). Only 11 percent of the inservice activities were of this duration or longer. A typical university course for teachers is 3 credit hours, which involves 30 contact hours with the professor plus an estimated 60 individual hours of independent study. Only 2 percent of the inservice activities were as long as the 90 hours required for a university course that might cover one topic in depth.

Data on scheduling provide additional insight into the length of inservice activities. These data are summarized in Table 16. Almost three-quarters of the activities are scheduled for one meeting (the "all at once" variable in Table 16). Ninety-one percent are completed within a school term. Research on curriculum implementation suggests the need for a time frame of 3 to 5 years for incorporating an innovation into a school system. Just 1 percent of the inservice activities lasted a year or more.

There is little variation between districts in the incidence of one-shot inservice activities (72 percent, 73 percent, and 69 percent). There is more between-district variation in occurrence of inservice activities lasting more than a school term (13 percent, 7 percent, and 4 percent).

Taken together, Tables 13, 15, and 16 characterize inservice activities as a relatively frequent occurrence for teachers, but they are mostly one-shot events of short duration. The model of inservice education in which a few school improvement priorities are worked on by a school staff over a substantial period of time is weakly represented, if at all, in these data.

The extent of participation in inservice activities was also analyzed for individual teachers. This analysis involved summing the number of hours of all the inservice activities in which a particular teacher participated. The results of this analysis are shown in Table 17. The extent of variation is large: two teachers each reported a total of only 12 hours of inservice activity, whereas two other teachers reported a total of approximately 250 hours. There is much less variation between schools, with one exception. One of the schools in district I had just one-third the number of inservice hours of any of the other schools in the sample. There is some variation when the data are aggregrated to the district level, but this variation is largely a function of the one school in district I.

The mean number of inservice hours for the total sample of teachers is 73.34. Using 8 hours as the equivalent of one work day, 73.34 hours equals just over 9 work days. This means, then, that the typical teacher is involved in inservice activities for almost 2 weeks each calendar year.

The median number of inservice hours for the total sample is 46 hours. This is a substantially lower figure due to the skewed distribution of the data. The figure of 46 hours equals approximately 6 work days, or just over a week of inservice activities each calendar year.

Table 18 presents examples of inservice activities that are of brief or long duration. The six longest activities and a random selection of one-hour activities (two from each district) are included. Four of the six longest activities involved university coursework. Just one of the brief

TABLE 16
Scheduling of Teacher Inservice Activities
(N = Number of activities)

Scheduling of Activity	Total Sample		District I		District II		District II	
	N	Cum N %	N	Cum N %	N	Cum N %	N	Cum N %
All at once	141	72%	59	72%	49	73%	33	69%
Over period of few days	8	76%	3	76%	4	79%	1	71%
Over period of week	9	80%	0	76%	4	85%	5	81%
2 - 4 weeks	6	83%	2	78%	0	85%	4	90%
5 - 8 weeks	6	86%	3	82%	2	88%	1	92%
A school term	9	91%	4	87%	3	93%	2	96%
Two terms	9	95%	7	95%	2	96%	0	96%
A year	7	99%	4	100%	2	99%	1	98%
More than a year	2	100%	0	100%	1	100%	1	100%

Note: Data source is Appendix C, item 18c.

TABLE 17
Number of Hours of Inservice Activity Per Teacher
Over a One-Year Period

Teacher		District I Hours	District II Hours	District III Hours
School 1				
	1	90	132	83
	2	256	142	88
	3	12	39	20
	4	40	34	124
	5	40	65	147
	6	19	52	29
School 2				
	1	32	15	47
	2	27	100	65
	3	46	115	177
	4	19	59	95
	5	18	38	14
	6	12	251	175
	7		17	53
School 1	M	76.17	77.33	81.83
School 2	M	25.67	85.00	89.43
District	M	50.92	81.46	85.92
	SD	65.15	63.60	53.56
Total (N = 38)	M	73.34	Median = 46	
	SD	62.78		

Note: Data source is Appendix C, item 18e.

TABLE 18
Examples of Brief and Long Inservice Activities

Brief Activities

1. (1 hour) Teachers were trained how to teach students the mechanics of test-taking.
2. (1 hour) A workshop on how to teach students about energy.
3. (1 hour) A presentation on rape awareness.
4. (1 hour) School district orientation at beginning of school year.
5. (1 hour) Inservice on district's program to improve students' writing skills.
6. (1 hour) Orientation of cooperating teachers to student teacher supervision.

Long Activities

7. (125 hours) University course on beginning computer programming.
8. (80 hours) University course, "Counseling for the Classroom Teacher."
9. (80 hours) Participation in district's "Instructional Theory Into Practice" program.
10. (128 hours) Five university courses toward a master's degree in curriculum and instruction.
11. (100 hours) Inservice program on outdoor education.
12. (192 hours) Three university courses toward a special education certificate.

inservice activities (no. 6) was university-based. Also, just one of the long inservice activities (no. 9) was clearly a school improvement effort.

Research Question 2
What percentage of current inservice activities is in the area of basic skills instruction?

The data used to answer this research question came from teachers' descriptions of the teacher objectives (Appendix C, item 1) and student objectives (Appendix C, item 8) for each inservice activity. Each description was transcribed onto a separate sheet of paper. A content analysis procedure was developed to code the inservice topics mentioned in these descriptions. A total of 18 topics were coded. (The list of topics appears in Table 19). The content analysis procedure is described in Appendix I.

Each inservice activity was scored by two raters. Two types of rater disagreement could occur. Because inservice activities could include more than one inservice topic according to the content analysis procedure, raters could disagree on the number of topics represented by a set of inservice activities. A reliability check on 78 of the activities indicated 6 disagreements on number of topics. This is a disagreement rate of 8 percent. The raters resolved their disagreements on this variable before checking on the accuracy of their coding of activities by topic. A reliability check indicated 15 percent disagreement in coding of topics. Disagreements were resolved by discussion between the two raters. The disagreements were generally attributable to vagueness in teachers' descriptions or in interviewers' transcription of the descriptions.

A total of 246 inservice activities were available for content analysis. This total includes 33 more activities than were included for data analyses involving Parts Two and Three of Teacher Interview Schedule I (N = 213 activities). These additional activities were briefly recorded by the interviewers even though the Part Two and Part Three schedules were not completed. The 33 additional activities correspond to the "Not Done" activities in Table 12. (Table 12 actually includes 35 "Not Done" activities, but 2 of the activities had no description available for content analysis.)

Of the 246 activities that could be content-analyzed, 210 covered a single inservice topic each. The other 36 activities covered 2 inservice topics each.

Table 20 presents the frequency and percentage of inservice activities that dealt with each topic. Six of the topics were considered to be in the area of basic skills: reading, math, language arts, handwriting, composition, and spelling. More than one-third of the inservice activities were concerned with basic skills instruction. Twenty-seven percent of the inservice activities were concerned with specific areas of the elementary school curriculum such as art, science, music, and social studies. One-third of the inservice activities dealt in a more general way with matters of elementary curriculum and instruction. Examples of topics included in this category are: classroom discipline, teaching the learning disabled, computer education, and Madeline Hunter's ITIP (Instructional Theory Into Practice)

TABLE 19

List of Inservice Topics Included in Content Analysis System

Basic Skills

1. Reading. Ex.: workshop sponsored by International Reading Assoc.

2. Math. Ex.: inservice meetings to discuss a pilot program to help students develop math problem solving strategies.

3. Language Arts. Ex.: inservice program to develop instructional materials for reading and writing.

4. Handwriting. Ex.: inservice on district adoption of new handwriting program.

5. Composition. Ex.: inservice on holistic writing program and how to implement it.

6. Spelling. Ex.: inservice on adoption of new spelling program.

General Academic

7. General Academic. Ex.: lecture on effective schools research.

8. Handicapped & Gifted. Ex.: inservice on role of career education in special education.

9. Management & Discipline. Ex.: workshop on achieving positive classroom behavior.

Specific Curriculum Areas

10. Art. Ex.: workshop on how to use paper scraps for art projects.

11. Career Education. Ex.: inservice on career awareness and sex equity.

12. Music. Ex.: workshop on how to play the autoharp.

13. Mental Hygiene. Ex.: inservice session on how to help students deal with personal loss and death.

14. Physical Education. Ex.: workshop on how to do exercising to music.

15. Science. Ex.: inservice on how to teach energy conservation to students.

16. Social Studies. Ex.: inservice on how to do social studies textbook adoption.

Professional & Personal

17. Professional & Personal. Ex.: inservice on mental health and stress for teachers.

18. District & School Policies. Ex.: beginning-of-year orientation to district policies concerning pupil discipline problems.

TABLE 20
Relative Frequency of Inservice Topics for Total Sample
(N = Number of inservice activities)

Topic	N	% *	Cum ** %
Basic Skills			
Reading	26	11%	
Math	24	10%	
Language Arts	23	9%	
Handwriting	7	3%	
Composition	5	2%	
Spelling	4	2%	
			37%
General Academic			
General Academic	59	24%	
Handicapped & Gifted	10	4%	
Management & Discipline	9	4%	
			32%
Specific Curriculum Areas			
Art	12	5%	
Career Education	5	2%	
Music	6	2%	
Mental Hygiene	3	1%	
Physical Education	12	5%	
Science	25	10%	
Social Studies	6	2%	
			27%
Professional & Personal			
Professional & Personal	28	11%	
District & School Policies	15	6%	
			17%

* The percentages are the number of activities covering a topic divided by the total number of inservice activities (N = 246).

** The cumulative percentage for each category is the number of activities covering the topic divided by the total number of inservice activities (N = 246). Occasionally an activity would cover more than one topic within a category, but their incidence is low (N = 5 or less) and would not affect the cumulative percentages. Note also that the cumulative percentages add up to more than 100 percent because there are more topics (numerator) than activities (denominator).

program. Finally, 17 percent of the inservice activities concerned district and school policies, and personal and professional development.

Table 21 presents the same statistics as Table 20 but at the district level. There is little between-district variation in overall emphasis on inservice activities relating to basic skills instruction. There are substantial district differences in emphasis on specific basic skills topics, however. Only district I emphasized reading. District III had virtually no math inservice, and district I had very little language arts inservice relative to the other two districts. Other categories of inservice content also vary substantially. District I emphasized inservice on specific areas of the curriculum; district III emphasized inservice on general curriculum topics; and district II emphasized inservice on professional and personal development.

Table 22 presents the same data as in tables 20 and 21 but organizes them at the individual teacher level. Each "X" in a column of the table indicates that the teacher participated in at least one inservice activity on the topic represented by that column. The table reveals that each teacher in the district I sample participated in at least one reading inservice. Almost every teacher in the district II sample participated in at least one language arts inservice. No basic skills priority was evident in district III, although generally the various aspects of language arts curriculum were emphasized. With respect to the other curriculum areas, only district I revealed any priority areas for inservice (in physical education and science).

Tables 20, 21, and 22 together create a picture of an inservice program that is fractionated over many topics, with a few priorities apparent in basic skills instruction (especially reading inservice in district I). The 18 categories used to group the inservice topics do not fully represent the extent of fractionation. Categories like "general academic," "science," and "professional/personal" each include a wide range of inservice topics.

Table 23 presents the inservice topics sponsored by the principals and assistant superintendents in the sample. The coding procedure was exactly the same as that used for coding teacher inservice activities. Each administrator activity was double-coded. Interrater reliability was good (90 percent agreement); differences were resolved by discussion between the raters.

The topics shown in Table 23 indicate that principals and superintendents mostly sponsor inservice activities on basic skills instruction. Seventy-six percent of the inservice activities dealt totally or in part with basic skills instruction. This is double the percentage for the activities in which teachers participate (37 percent; see Table 20). Also, most of the basic skills inservice activities sponsored by administrators are in the area of language arts instruction, whereas teachers' activities are dispersed over more categories of basic skills instruction.

Table 24 presents educators' perceptions of the pertinence of each inservice activity to basic skills instruction. Interestingly, administrators rate 83 percent of their sponsored inservice activities as pertinent or very pertinent to basic skills instruction. This is close to

TABLE 21

Relative Frequency of Inservice Topics for Each District
(N = Number of inservice activities)

Total	District I N	District I %	District I Cum * %	District II N	District II %	District II Cum** %	District III N	District III %	District III Cum*** %
Basic Skills									
1. Reading	17	20%		4	4%		5	8%	
2. Math	10	12%		13	14%		1	1%	
3. Language Arts	3	4%		16	18%		4	6%	
4. Handwriting							7	10%	
5. Composition	2	2%					3	4%	
6. Spelling							4	6%	
			38%			36%			35%
General Academic									
7. General Academic	22	27%		18	20%		19	26%	
8. Handicapped & Gifted				2	2%		8	11%	
9. Management & Discipline	1	1%		2	2%		6	8%	
			28%			24%			45%
Specific Curriculum Areas									
10. Art	4	5%		4	4%		4	6%	
11. Career Education	1	1%		4	4%				
12. Music	6	7%							
13. Mental Hygiene				1	1%		2	3%	
14. Physical Education	12	15%							
15. Science	12	15%		7	8%		6	8%	
16. Social Studies				2	2%		4	6%	
			43%			19%			23%
Professional & Personal									
17. Professional & Personal	4	5%		16	18%		8	11%	
18. District & School Policies				15	16%				
			5%			34%			11%

* Total activities within a category divided by 82 activities.
** Total activities within a category divided by 91 activities.
*** Total activities within a category divided by 72 activities.

TABLE 22
Number of Teachers Participating in Inservice Activities
on a Particular Topic
(N = Number of teachers)

District I

Teacher ID	Basic Skills 1	2	3	4	5	6	General Academic 7	8	9	Specific Curriculum 10	11	12	13	14	15	16	Prof/Personal 17	18
1	x	x	x				x					x		x	x			
2	x	x	x				x			x	x	x		x	x			
3	x						x					x		x	x			
4	x	x					x							x	x			
5	x				x		x			x				x	x			
6	x	x					x			x					x			
7	x	x					x			x		x		x				
8	x	x					x					x		x			x	
9	x	x					x		x			x		x	x		x	
10	x						x							x				
11	x						x											
12	x						x								x			
N	12	7	2	0	2	0	12	0	1	4	1	6	0	9	8	0	2	0

District II

Teacher ID	Basic Skills 1	2	3	4	5	6	General Academic 7	8	9	Specific Curriculum 10	11	12	13	14	15	16	Prof/Personal 17	18
13		x	x				x		x	x					x		x	
14	x	x	x				x								x		x	
15		x	x	x			x			x	x						x	
16							x	x		x	x				x		x	x
17	x	x	x				x								x		x	
18							x				x				x		x	
19			x				x											
20	x	x	x				x				x					x		
21	x	x	x				x										x	
22			x				x									x		
23			x						x									
24		x	x					x									x	x
25		x	x				x											
N	4	8	11	1	0	0	11	2	2	3	4	0	1	0	6	2	8	2

TABLE 22
(Continued)

District III

Teacher ID	Basic Skills 1	2	3	4	5	6	General Academic 7	8	9	Specific Curriculum 10	11	12	13	14	15	16	Prof/Personal 17	18
26		x	x			x	x		x	x						x	x	
27					x	x	x			x					x	x		
28	x		x				x		x						x		x	
29			x	x	x	x	x		x								x	
30		x		x		x	x								x			
31	x			x			x	x		x			x		x	x		x
32				x			x											
33	x				x		x	x							x			x
34			x				x	x	x								x	x
35							x	x					x					x
36								x	x								x	x
37	x			x			x	x										x
38	x			x			x											
N	5	1	4	7	3	4	12	6	5	3	0	0	2	0	5	3	5	6

Note: The inservice topics represented by the number designations beneath each content category can be determined by referring to Table 21. For example, 1 = Reading, 2 = Math.

TABLE 23
Topics of Inservice Activities Sponsored by Principals and Assistant Superintendents

District I Topics	District II Topics	District III Topics
Principal, School 1	Principal, School 1	Principal, School 1
1. (BS) Math	1. (BS) Math	1. (BS) Language Arts
2. (BS) Language arts	2. (BS) Language Arts	2. (BS) Language Arts
3. (BS) Language arts*	3. (BS) Language Arts	3. (PP) Professional and Personal
4. (SC) Mental Hygiene*		
Principal, School 2	Principal, School 2	Principal, School 2
1. (SC) Music	1. (BS) Language Arts	1. (BS) Language Arts
2. (SC) Mental Hygiene	2. (BS) Language Arts	2. (BS) Language Arts
	3. (BS) Composition	3. (PP) Professional and Personal
	4. (GA) Handicapped and Gifted	
	5. (SC) Art	
Asst. Superintendent	Asst. Superintendent	Asst. Superintendent
1. (BS) Language Arts	1. (BS) Language Arts	1. (BS) Math
	2. (BS) Composition	2. (BS) Language Arts
	3. (BS) Language Arts*	
	3. (GA) Handicapped and Gifted*	
	3. (SC) Physical Education*	

Note: BS = basic skills; GA = general academic; SC = specific curriculum area; PP = professional and personal.

*There are inservice activities in which more than one inservice topic was covered.

TABLE 24
Educators' Perception of Pertinence of Inservice Activities to Basic Skills Instruction
(N = Number of inservice activities)

Perception	Total Sample N	Total Sample %	District I N	District I %	District II N	District II %	District III N	District III %
Teachers								
1. How pertinent was activity to helping you instruct students in basic skills of language, reading, and arithmetic?								
Very pertinent	74	35%	27	47%	25	34%	22	27%
Pertinent	67	32%	17	30%	27	37%	23	29%
Not Pertinent	70	33%	13	23%	21	29%	36	44%
Administrators								
2. How pertinent was activity to helping teachers instruct students in basic skills of language, reading, and arithmetic?								
Very pertinent	14	58%	5	83%	5	50%	4	50%
Pertinent	6	25%	0	0%	3	30%	3	38%
Not Pertinent	4	17%	1	17%	2	20%	1	12%

Note: Data source for item 1 is Appendix C, item 4. Data source for item 2 is Appendix G, item 6.

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the finding of 76 percent stated in the above paragraph as the percentage of basic skills activities in Table 23. As shown in Table 24, teachers also see that a high percentage of their activities are pertinent or very pertinent to basic skills instruction (67 percent). This percentage is much higher than the percentage of 37 percent (Table 20) derived from our content analysis. A likely explanation for this discrepancy is that teachers perceive that basic skills are embedded in and reinforced by other curriculum subjects.

Research Question 3

What form do current inservice activities take and how does this form compare with recommended practice?

This research question was answered by comparing the descriptive data on teachers' inservice activities with the recommended practices listed in Table 3. The recommended practices were derived from a review of research on inservice education. These practices are organized into six major categories: teacher objectives, student objectives, delivery system, organizational context, governance structure, and selection and evaluation. The following presentation of data is organized by the same categories.

It will be apparent that data are not available for some of the recommended practices listed in Table 3. This is because some of the practices had not been identified through a literature review at the time that the measures were designed. Also, some of the data relating to recommended practices are open-form responses to interview questions. They were not analyzed in time for this report.

Teacher objectives. The first category of inservice practices concerns teacher objectives. These objectives are the information, understandings, skills, and attitudes that teachers are expected to acquire as an outcome of participating in the inservice activity. The literature review indicated that training in direct instruction strategies is an effective teacher objective if the eventual goal is to improve students' basic skill achievement.

To determine whether such training occurred, teachers' descriptions of their inservice activities over a year's time were analyzed to determine whether they included mention of training in direct instruction strategies. (Content analysis procedures are described in appendix I.) An activity was coded as including such training if the teacher referred to any of these direct instruction strategies:

1. Monitoring behavior in which the teacher asks students to perform a desired basic skill, for example, workbook practice accompanied by teacher monitoring.

2. Reactive-corrective behavior to help a student when he or she has failed to make the desired response.

3. Increasing time allocated for basic skills instruction.

4. Increasing students' on task behavior during

basic skills instruction.

5. Taking into account students' prior learning.

6. Increasing the overlap between instructional content and achievement test content.

The results of this analysis are shown in Table 25 (item 1). Only 3 percent of the inservice activities included mention that such training occurred. This 3 percent statistic includes just 8 of the 279 inservice activities that were content-analyzed on this dimension.

A similar content analysis was done on administrators' descriptions of the inservice activities that they sponsored or administered. Only 3 of the 28 activities (11 percent) included mention of direct instruction techniques. This percentage is higher than the percentage reported by teachers.

Teachers were asked in Interview Schedule II whether they had ever been trained in several of the techniques that comprise direct instruction. Their response to these questions is also shown in Table 25 (items 2-4). A majority of the teachers stated that they had received training in techniques for keeping students on task at some point in their careers. A much smaller percentage of teachers stated that they had received training in time allocation and instruction/test content overlap. The large between-district variation on these training objectives (for example, 0 percent on time allocation in district I, but 38 percent in district II) suggests that individual districts have made these objectives a priority at some point in time.

The literature review indicated that the teacher objectives for an inservice activity should be stated in operational form and with explicit criteria for performance. The descriptive data presented in Table 26 indicate that the majority of inservice activities had clear, operationally stated objectives. Less than half of the activities, however, presented criteria so that teachers would know when they had achieved an objective.

Student objectives. Research findings indicate that effective inservice programs for improving students' basic skills achievement focus directly on this objective. Research question 2 addressed part of this student objective, namely, the prevalence of inservice activities that deal with basic skills. The research results relating to this question (see Table 20) indicate that a bit more than one-third of inservice activities relate directly to basic skills, with substantial between-district variation in emphasis on specific basic skill areas (see Table 21). Basic skills instruction doubtless also received additional attention in inservice activities classified as "general academic" (24 percent of the activities received this classification--see Table 20). Given the many facets of the elementary school curriculum, this amount of emphasis on the basic skills may be quite adequate.

The other part of recommended practice is that inservice activities should aim to increase achievement of the basic skills. Teachers' descriptions of the student objectives for inservice activities in which they

TABLE 25
Prevalence of Training in "Direct Instruction" Strategies
in Current Inservice Practice

Direct Instruction (DI)	Total Sample N*	Total Sample %	District I N*	District I %	District II N*	District II %	District III N*	District III %
1. Did last year's in-service include training in direct instruction?								
Yes	8	3%	4	4%	2	2%	2	3%
No	271	97%	90	96%	102	98%	79	97%
2. Ever been trained in how to allocate more time for basic skills instruction?								
Yes	9	26%	0	0%	5	38%	4	36%
No	26	74%	11	100%	8	62%	7	64%
3. Ever been trained in how to keep students on task during basic skills instruction?								
Yes	21	60%	6	54%	7	54%	8	73%
No	14	40%	5	46%	6	46%	3	27%
4. Ever been trained in how to increase overlap between content of basic skills instruction and test content?								
Yes	11	31%	6	54%	3	23%	2	18%
No	24	69%	5	46%	10	77%	9	82%

Note: Data source for item 1 is a content analysis of Appendix C, item 1.
Data source for items 2-4 is Appendix E, items 11, 14, and 17, respectively.

*N for item 1 is number of inservice activities. N for items 2-4 is number of teachers.

TABLE 26

Prevalence of Effective Practices Relating to Objectives of Inservice Education for Basic Skills Instruction

(N = Number of inservice activities)

Practice	Total Sample N	Total Sample %	District I N	District I %	District II N	District II %	District III N	District III %
1. Operationalization								
a. Were the inservice objectives clearly communicated?								
Yes	179	84%	61	74%	67	92%	51	88%
No	34	16%	21	26%	6	8%	7	12%
b. Were the inservice objectives clear to you?								
Clear	176	84%	65	80%	60	84%	51	88%
Unclear	31	16%	16	20%	11	16%	7	12%
2. Measurement of Teacher Competence								
Were you given criteria for knowing when you achieved an inservice objective?								
Yes	89	42%	32	39%	28	38%	29	50%
No	124	58%	50	61%	45	62%	29	50%

Note: Data source for items 1a and 2 are Appendix C, items 3 and 4, respectively. Data source for item 1b is Appendix D, item 3.

had participated were content-analyzed for mention of student achievement outcomes. Any mention of achievement tests, achievement test scores, or grades was considered an indicator of focus on student achievement. This variable was not limited to achievement of basic skills, but all of the inservice activities that included mention of achievement concerned basic skills or general academic performance.

The results of the data analysis are shown in Table 27. Only 20 of the 279 inservice activities made any mention of student achievement outcomes, and the majority of these activities were in 1 district. The raters' impression of the teachers' descriptions was that the emphasis of inservice activities was on improving the instructional process and student motivation for learning. There was very little emphasis on student achievement of basic skills as an outcome of inservice activities.

A similar content analysis was made of administrators' descriptions of the inservice activities that they sponsored or administered. Only 2 of the 28 activities (7 percent) included mention of student achievement as an outcome of inservice activities.

Delivery system. This category refers to the design of the activities involved in the inservice program. Two recommended inservice practices are to include readiness activities and followup activities. The research results presented in Table 28 indicate that approximately one-third of the inservice programs included readiness and followup activities.

These results are consistent with the data presented in Tables 15 and 16. Twenty-eight percent of the inservice programs (see Table 16) included more than one session, which would provide opportunity for readiness and/or followup activities to occur. Similarly, one-third of the programs (see Table 15) were 7 hours or more, which is sufficient time to include a readiness and/or followup activity.

Research on effective practices for scheduling inservice activities has yielded unclear results. There is evidence that teachers prefer inservice programs to occur during school hours, but there is also evidence that effective inservice programs are scheduled outside of school hours. The data presented in Table 29 indicate that the majority of inservice activities are scheduled during regular work hours (65%) in the afternoon (50%). One-fifth of the activities are scheduled outside of teachers' regular work hours.

Organizational context. This category includes dimensions that reflect whether the inservice activity is connected to the organization and work of the school system. The first item of Table 30 presents data on the extent to which teachers perceive that inservice activities are directed toward school improvement. Less than one-fifth of the activities were perceived as being for this purpose. The majority of the inservice activities were perceived as being for personal professional improvement.

A content analysis of teachers' descriptions was done to determine the extent to which inservice activities were tied to curriculum adoptions. A reliability check indicated that the two raters agreed on 86 percent of their classifications. All activities were double-coded, and disagreements were resolved by discussion. One-third of the activities were rated as being

TABLE 27
Teachers' Reference to Student Achievement Outcomes
in Describing Inservice Activities
(N = Number of inservice activities)

Practice	Total Sample N	%	District I N	%	District II N	%	District III N	%
Were student achievement outcomes mentioned in describing the inservice activity?								
Yes	20	7%	13	14%	2	2%	5	6%
No	259	93%	81	86%	102	98%	76	94%

Note: Data source was a content analysis of Appendix C, items 1 and 8.

TABLE 28
Prevalence of Effective Training Procedures in
Current Inservice Practice
(N = Number of inservice activities)

Practice	Total Sample N	%	District I N	%	District II N	%	District III N	%
1. Readiness Activities								
Did you participate in readiness activities prior to the inservice?								
Yes	69	32%	21	26%	29	40%	19	33%
No	144	68%	61	74%	44	60%	39	67%
2. Followup Training								
Any followup activities to help you maintain or increase what you learned initially?								
Yes	78	37%	28	34%	20	27%	28	48%
No	135	63%	54	66%	53	73%	30	52%
3. Checking for Application								
Did anyone check to see if you were applying what you learned?								
Yes	51	24%	22	27%	9	13%	20	35%
No	158	76%	60	73%	60	87%	38	65%

Note: Data source for items 1-3 is Appendix C, items 12, 14a, and 14b, respectively.

TABLE 29
Times of Day and Year for Scheduling Inservice Activities
(N = Number of inservice activities)

Scheduling	Total Sample N	Total Sample %	District I N	District I %	District II N	District II %	District III N	District III %
1. Time of day								
Morning	14	7%	3	4%	5	7%	6	10%
Afternoon	106	50%	57%	70%	30	43%	19	33%
Evening	17	8%	10	12%	3	4%	4	7%
All day	73	35%	12	14%	32	46%	29	50%
2. Percentage of scheduling during regular work hours*								
0%	47	22%	17	21%	15	21%	15	26%
>0%<100%	28	13%	10	12%	14	19%	4	7%
100%	138	65%	55	67%	44	60%	39	67%

Note: Data source for items 1 and 2 is Appendix C, item 18.

*The mean and standard deviation (in parentheses) of percentage scheduled is: for total sample, 72.58 (41.45); for district I, 74.00 (40.86); for district II, 72.25 (40.54); and for district III, 71.00 (44.01).

TABLE 30

Prevalence of Effective Practices Relating to Organizational Context of Inservice Education

(N = Number of inservice activities)

Practice	Total Sample N	Total Sample %	District I N	District I %	District II N	District II %	District III N	District III %
1. Purpose for Participation:								
To improve myself professionally	124	64%	48	62%	43	72%	33	59%
To help improve my school	22	11%	8	10%	8	13%	6	11%
To help improve my school district	14	7%	9	12%	2	3%	3	5%
To satisfy credential requirements	6	3%	2	3%	3	5%	1	2%
Other	27	14%	10	13%	4	7%	13	23%
2. Were curriculum or other changes related to the inservice being made?								
Yes	89	42%	39	48%	28	38%	22	38%
No	124	58%	43	52%	45	62%	36	62%
3. Was the activity tied to a curriculum adoption in the district?								
Yes	93	33%	39	42%	17	16%	37	46%
No	186	67%	55	58%	28	84%	44	54%
4. I did the inservice activity: By myself								
Yes	69	33%	28	35%	18	25%	23	40%
No	143	67%	53	65%	55	75%	35	60%
5. I did the inservice activity: With other teachers from my school.								
Yes	168	79%	69	85%	58	80%	41	71%
No	44	21%	12	15%	15	20%	17	29%
6. I did the inservice activity: With other teachers from different schools in my district.								
Yes	138	65%	67	83%	35	48%	36	62%
No	74	35%	14	17%	38	52%	22	38%

TABLE 30
(Continued)

Practice		Total Sample N	%	District I N	%	District II N	%	District III N	%
7. Was your principal involved in the inservice?									
	Yes	139	65%	48	59%	45	62%	46	79%
	No	74	35%	34	42%	28	38%	12	21%
8. Were school district administrators involved?									
	Yes	112	53%	53	65%	32	44%	27	48%
	No	99	47%	29	35%	41	56%	29	52%

Note: Data source for items 1, 2, 7, and 8 is Appendix C, items 20, 22d, 22a, and 22c, respectively. Data source for items 4-6 is Appendix D, item 21a. Data source for item 3 was a content analysis of Appendix C, item 1.

tied to a curriculum adoption (Table 30, item 3). A related question in one of the interview schedules asked whether the inservice activity was accompanied by a change in curriculum or in some other aspect of schooling. As expected, this item yielded a higher percentage of inservice activities that accompanied a change process in the school or district (Table 30, item 2). Curiously, though, the percentage of curriculum/other-related activities for district III was lower than the percentage for curriculum-adoption inservice activities.

One might imagine that teachers would consider curriculum adoption to be a school improvement function. The data indicate, however, that 33 percent of the inservice activities were tied to curriculum adoptions, but only 18 percent of the activities were perceived as directed toward school or district improvement. Perhaps some teachers perceive that curriculum adoptions are a school maintenance function rather than an improvement function.

Principals' and assistant superintendents' descriptions of the inservice activities that they sponsored or administered were also content analyzed for mention of curriculum adoption or change. The content analysis involved administrators' responses to items 1 and 5 of Interview Schedule I, Part Two (Appendix G). Thirteen of the 28 inservice activities (46 percent) made reference to curriculum adoption or change.

Table 30 indicates that approximately 80 percent of the inservice activities (see item 5) involved more than one teacher from the same school. A smaller percentage of activities, but still a majority (65 percent--see item 7) involved the teachers' building principals. It is also the case that a majority of inservice activities involve teachers from different schools in a district (65 percent--see item 6) and school district administrators (53 percent--see item 8). These findings suggest that currrent inservice practice is designed to be administered to schools and districts as organizational units. This organizational arrangement should facilitate inservice for school or district improvement, yet it is not often used for this purpose, as was indicated above.

Governance Structure. This category refers to practices involved in administering and managing inservice activities. A key administrative decision is whether to require teacher participation in an inservice program or to allow voluntary participation. The results shown in Table 31 (item 1) indicate that the use of required and voluntary participation is equally prevalent in current practice. There is little basis in previous research for determining whether voluntary or mandatory participation is more effective, but it would seem that mandatory participation would be a necessary condition for schoolwide or districtwide improvement of instruction.

Another practice available for administering inservice activities is to use incentives and sanctions to motivate teacher participation. The current prevalence of incentives and sanctions is shown in Table 31. Incentives were used in approximately one-half of the activities, and sanctions were used in just one-fourth of the activities.

The sponsors of inservice activities can bear the costs associated with the inservice activity or require teachers to pay some or all of the

TABLE 31
Prevalence of Effective Practices Relating to
Governance of Inservice Education
(N = Number of inservice activities)

Practice	Total Sample N	Total Sample %	District I N	District I %	District II N	District II %	District III N	District III %
1. Type of Participation								
My involvement in this inservice was:								
Voluntary	104	49%	30	37%	43	59%	31	53%
Required	102	48%	50	62%	27	37%	25	43%
Not required, but felt pressure to participate	6	3%	1	1%	3	4%	2	4%
2. Incentives								
Any incentives for participation in this activity?								
Yes	116	55%	20	24%	45	63%	51	88%
No	96	45%	62	76%	27	37%	7	12%
3. Sanctions								
Any negative consequences for not participating, for poor performance, or for non-implementation?								
Yes	53	25%	18	22%	26	36%	9	15%
No	159	75%	64	78%	46	64%	49	85%
4. Costs								
Any out-of-pocket costs to participate?								
Yes	47	22%	14	17%	25	35%	8	14%
No	163	78%	68	83%	46	65%	49	86%

Note: Data source for item 1 is Appendix D, item 25.
Data source for items 2, 3, and 4 is Appendix C, items 25, 26, and 19, respectively.

costs. As shown in Table 31, the sponsor bore the costs of almost 80 percent of teachers' inservice activities. Content analysis of interview data on governance structure has not been done yet, but it appears that the great majority of teachers' inservice activities are sponsored by the school district. The costs associated with the activities, then, are largely paid by the district. For those activities that involved out-of-pocket expenses, the median cost for the total sample and for each district was approximately $25. The range of costs was from $2 to $1000. Only 4 percent of the activities involving out-of-pocket expenses had costs of $100 or more.

Several between-district variations in results shown in Table 31 are worthy of note. Relative to the other districts, district I had a high rate of required inservice activities but a low rate of incentives for participation. District II had the highest rate of voluntary inservice activities, but also the highest rate of sanctions for non-participation and the highest rate of activities with out-of-pocket expenses.

Selection and evaluation. This category refers to procedures for selecting and evaluating inservice activities. Table 32 presents data analyses relating to current practices in these aspects of inservice education. Teachers report that only 12 percent of the activities were selected as a result of a formal needs assessment (item 1b). Also, it appears that teachers were seldom asked (10 percent of the time) whether they needed the training provided by the inservice activity (item 1a). Despite the low incidence of needs assessment to select activities, most of them (88 percent) were perceived as relevant to the teachers' work (item 2a).

A key feature of research on basic skills instruction has been the use of achievement tests to evaluate students' progress and to evaluate the effectiveness of inservice programs. The data analysis shown in Table 32 (item 3a) reveals that only 6 percent of the activities involved assessment of students for any type of outcome to determine the effectiveness of the inservice activities. Of activities in this group, just a small number included an expectation of how much student change or gain might result from the inservice activity.

The data analysis reported in item 3a of Table 32 is consistent with the data analysis reported in Table 27. As shown in the latter table, just 7 percent of teachers' descriptions of inservice activities made reference to student achievement outcomes as an objective of an activity. Similarly, Table 32 reports that just 6 percent of the activities included assessment of student improvement.

Research Question 4
How effective and satisfying is current inservice education as perceived by educators?

Teachers completed a rating form (Appendix D) for each inservice activity described in Interview Schedule I, Part Two (Appendix C). Teachers' responses to this rating form provided the data base for most of the analyses that were done to answer the research question stated above.

Table 33 reports data analyses for several measures of teacher satisfaction with the effects of inservice activities on their performance.

TABLE 32

Prevalence of Effective Practices Relating to Selection and Evaluation of Inservice Education

Practice	Total Sample N	Total Sample %	District I N	District I %	District II N	District II %	District III N	District III %
1. Needs Assessment								
a. Were you asked whether you needed the inservice?								
Yes	21	10%	8	10%	5	7%	8	14%
No	192	90%	74	90%	68	93%	50	86%
b. Was this inservice selected by a formal needs assessment?								
Yes	24	12%	13	16%	5	7%	8	14%
No	173	88%	66	84%	68	93%	50	86%
2. Relevance								
a. Did the inservice pertain to your work as a teacher?								
Yes	187	88%	70	85%	64	88%	53	91%
No	26	12%	12	15%	9	12%	5	9%
3. Measurement of Student Objectives								
a. Were students assessed for improvement or change as a result of your participation in the inservice?								
Yes	13	6%	4	5%	5	7%	4	7%
No	200	94%	78	95%	68	93%	54	93%
b. If "Yes" to 3a, above, were you given an expectation about how much of a gain or change in students would result?*								
Yes	4	27%	2	50%	1	20%	1	17%
No	11	73%	2	50%	4	80%	5	83%

Note: Data source for items 1, 2a, 3a, and 3b is Appendix C, items 7, 16, 9, and 10, respectively.

*For two inservice activities, the teacher indicated a "No" response to item 3a in the table, but answered the next question (item 3b in the table) anyway.

TABLE 33
Teachers' Degree of Satisfaction with Effects of Inservice Activities on Their Performance
(N = Number of inservice activities)

Effect	Total Sample N	Total Sample %	District I N	District I %	District II N	District II %	District II N	District II %
1. Effects of the inservice on my competence as a teacher.								
Positive effects	157	75%	57	71%	53	84%	47	81%
Negative effects	5	2%	2	3%	2	3%	1	2%
None	48	23%	21	26%	17	23%	10	17%
2. Side-effects of the inservice on me.								
Positive effects	142	68%	53	68%	50	68%	40	69%
Negative effects	35	17%	14	18%	13	18%	8	14%
None	31	15%	11	14%	10	14%	10	17%
3. Long-term effects of the inservice on me.								
Positive effects	161	79%	59	76%	52	76%	50	88%
Negative effects	22	11%	8	10%	12	17%	2	3%
None	21	10%	11	14%	5	7%	5	9%

Note: Data source for items 1, 2, and 3 is Appendix D, items 27, 2a, and 2b, respectively.

A very low incidence of negative effects on teacher competence (2 percent) was noted. It is surprising, though, that teachers reported negative side-effects for 17 percent of the activities and negative long-term effects for 11 percent of the activities. Overall teachers felt that approximately 75 percent of the activities had positive effects on their professional performance.

Teachers' satisfaction with the content of inservice activities is shown in Table 34. More than 80 percent of the activities were satisfactory in this respect (items 1 and 2). A remarkable finding, though, is that teachers felt that they had adequate mastery of the content of 63 percent of the inservice activities beforehand. This finding suggests that teachers were generally satisfied with inservice content for reasons other than that it filled gaps in their knowledge, skills, or attitudes.

Research results relating to teachers' satisfaction with effects of inservice activities on their students' performance are shown in Table 35. Where student effects were noted, they were generally positive. A substantial percentage of inservice activities (34 percent), however, produced no cognitive or affective effects.

Table 36 presents data analyses relating to teachers' satisfaction with the various dimensions of inservice delivery systems. Teacher satisfaction level was generally high. Where dissatisfaction occurred, it was selective across dimensions. There was low dissatisfaction with readiness activities, training sites, and costs. Higher levels of dissatisfaction were reported for learning process (19 percent of the activities) and inservice trainer (16 percent of the activities). There was relatively little variation in satisfaction levels across districts.

Teachers' degree of satisfaction with the organizational context of inservice activities is reported in Table 37. Teachers generally were quite satisfied with the involvement of other teachers, principals, and district administrators in their inservice activities. Their degree of satisfaction with other teacher participants was especially high.

Teachers' degree of satisfaction with several aspects of inservice governance is reported in Table 38. Teachers expressed a moderate amount of dissatisfaction with inservice policy-making, including their involvement in the selection and design of the activities. They expressed less dissatisfaction with the incentives associated with inservice activities.

The interview schedules included only a single item concerning teachers' satisfaction with the evaluation of inservice activities. Results for this item are reported in Table 39. Teachers are generally satisfied with the way that student effects associated with the inservice activities were measured. The validity of these data is doubtful, however. The total sample reported satisfaction or dissatisfaction with 79 of the activities. The sample also reported that only 13 activities included assessment of student improvement or change (Table 32, item 3a). The difference in frequencies is probably due to the ambiguity in the wording of the item that provided the data base for Table 39.

Summary. The results presented above indicate that teachers are generally satisfied with the outcomes and processes of their inservice

TABLE 34
Teachers' Degree of Satisfaction with the Content of Inservice Activities
(N = Number of inservice activities)

Content	Total Sample N	%	District I N	%	District II N	%	District III N	%
1. Satisfaction with what I was supposed to learn from the activity.								
Satisfied	179	85%	66	81%	60	85%	53	91%
Dissatisfied	32	15%	16	19%	11	15%	5	9%
2. Satisfied with relevance of inservice content.								
Satisfied	176	82%	63	77%	60	82%	53	91%
Dissatisfied	33	16%	18	22%	10	14%	5	9%
3. Prior to the inservice, my knowledge/skill/ attitude relating to the inservice was:								
More than adequate	29	14%	11	14%	10	14%	8	14%
Adequate	103	49%	39	49%	38	52%	26	45%
Less than adequate	79	37%	30	37%	25	34%	24	41%

Note: Data source for items 1, 2, and 3 is Appendix D, items 1, 16, and 28c, respectively.

TABLE 35
Teachers' Degree of Satisfaction with Effects of Inservice Activities on Their Students' Performance
(N = Number of inservice activities)

Effect	Total Sample N	Total Sample %	District I N	District I %	District II N	District II %	District III N	District III %
1. Satisfaction with intended effects of the inservice on my students.								
Satisfied	156	73%	60	73%	50	68%	46	79%
Dissatisfied	24	11%	14	17%	5	7%	5	9%
Not Applicable	33	16%	8	10%	18	25%	7	12%
2. Side-effects of the inservice on my students were:								
Positive	130	62%	51	64%	43	61%	36	63%
Negative	8	4%	4	5%	2	3%	2	4%
None	70	34%	25	31%	26	36%	19	33%
3. Long-term effects of the inservice on my students were:								
Positive	141	69%	48	61%	50	71%	43	78%
Negative	6	3%	4	5%	1	1%	1	2%
None	58	28%	27	34%	20	28%	11	20%
4. The effect of the inservice on students' cognitive growth was:								
Positive	137	66%	48	60%	44	63%	45	78%
Negative	0	0%	0	0%	0	0%	0	0%
No effects	71	34%	32	40%	26	37%	13	22%
5. The effect of the inservice on students' affective growth was:								
Positive	136	65%	49	61%	44	63%	43	74%
Negative	1	1%	0	0%	0	0%	1	2%
No effects	71	34%	31	39%	26	37%	14	24%

Note: Data source for items 1, 2, 3, 4, and 5 is Appendix D, items 8, 9a, 9b, 28a, and 28b, respectively.

TABLE 36
Teachers' Degree of Satisfaction with the Delivery System
Used in Inservice Activities
(N = Number of inservice activities)

Delivery System Practice	Total Sample N	%	District I N	%	District II N	%	District III N	%
1. Readiness Activities								
Satisfied	105	49%	43	52%	33	45%	29	50%
Dissatisfied	19	9%	7	9%	5	7%	7	12%
Not applicable	89	42%	32	39%	35	48%	22	38%
2. Learning Process								
Satisfied	168	79%	62	77%	57	78%	49	85%
Dissatisfied	41	19%	17	21%	15	21%	9	15%
Not applicable	3	2%	2	2%	1	1%	0	0%
3. Followup Activities								
Satisfied	81	38%	36	44%	18	25%	27	47%
Dissatisfied	24	11%	13	16%	5	7%	6	10%
Not applicable	107	51%	33	40%	49	68%	25	43%
4. Training Site								
Satisfied	197	93%	78	95%	62	85%	57	98%
Dissatisfied	14	6%	3	4%	10	14%	1	2%
Not applicable	2	1%	1	1%	1	1%	0	0%
5. Inservice Trainer								
Satisfied	172	82%	68	83%	53	76%	51	88%
Dissatisfied	34	16%	12	15%	16	23%	6	10%
Not applicable	4	2%	2	2%	1	1%	1	2%
6. Scheduling								
Satisfied	181	85%	72	88%	61	83%	48	83%
Dissatisfied	25	12%	7	8%	10	14%	8	14%
Not applicable	7	3%	3	4%	2	3%	2	3%
7. Cost								
Satisfied	128	60%	51	62%	37	51%	40	69%
Dissatisfied	11	5%	1	1%	8	11	2	3%
Not applicable	74	35%	30	37%	28	38%	16	28%

Note: Data source for items 1-7 is Appendix D, items 12, 13, 14, 15, 17, 18, and 19, respectively.

TABLE 37

Teachers' Degree of Satisfaction with the Organizational Context of Inservice Activities

(N = Number of inservice activities)

Organizational Context Practice	Total Sample N	Total Sample %	District I N	District I %	District II N	District II %	District III N	District III %
1. Satisfaction with teachers who participated in the inservice with me.								
Satisfied	189	89%	70	85%	39	95%	51	88%
Dissatisfied	6	3%	4	5%	1	1%	1	2%
Not applicable	17	8%	8	10%	3	4%	6	10%
2. Satisfaction with my principal's involvement in the inservice.								
Satisfied	111	53%	43	52%	27	37%	41	71%
Dissatisfied	20	9%	10	12%	10	14%	0	0%
Not applicable	81	38%	29	36%	35	49%	17	29%
3. Satisfaction with the school district/central office administrator's involvement in the inservice.								
Satisfied	101	48%	49	60%	28	40%	24	41%
Dissatisfied	20	9%	7	8%	8	11%	5	9%
Not applicable	90	43%	26	32%	35	49%	29	50%

Note: Data sources for items 1-3 is Appendix D, items 21a, b, and c, respectively.

TABLE 38
Teachers' Degree of Satisfaction with the Governance of Inservice Activities

Governance Practice	Total Sample N	%	District I N	%	District II N	%	District III N	%
1. Satisfaction with the policy-making that led up to this activity.								
Satisfied	124	59%	47	58%	41	56%	36	62%
Dissatisfied	30	14%	12	15%	13	18%	5	9%
No opinion	58	27%	22	27%	19	26%	17	29%
2. Teachers' satisfaction with their involvement in selection and design of the inservice activity.								
Satisfied	96	45%	29	36%	38	53%	29	50%
Dissatisfied	29	14%	14	17%	10	14%	5	9%
No opinion	86	41%	38	47%	24	33%	24	41%
3. Satisfaction with incentives associated with this activity.								
Satisfied	133	64%	39	49%	47	66%	47	81%
Dissatisfied	17	8%	8	10%	6	8%	3	5%
No opinion	59	28%	33	41%	18	26%	8	14%

Note: Data source for items 1, 2, and 3 is Appendix F, items 23, 24, and 26, respectively.

TABLE 39

Teachers' Degree of Satisfaction with the Evaluation of Inservice Activities

Evaluation Practice	Total Sample N	Total Sample %	District I N	District I %	District II N	District II %	District III N	District III %
Satisfaction with the way that student effects associated with the activity were measured.								
Satisfied	71	34%	26	32%	27	38%	18	32%
Dissatisfied	8	4%	4	5%	1	1%	3	5%
Not applicable	129	62%	51	63%	43	61%	35	63%

Note: Data source for this table is Appendix D, item 10.

activities. No more than 19 percent of the activities were considered unsatisfactory on any of the dimensions that were measured. Teachers expressed greatest satisfaction with the effects of the inservice activities on their competence, with the intended effects on their students, with the training site, and with other teachers participating in the activities. They expressed moderate dissatisfaction with the relevance of the inservice content, with the learning processes used in the activities, with inservice policy making, and with the trainer. Teachers in district III generally expressed more satisfaction and less dissatisfaction than the teachers in the other two districts.

Teachers' level of satisfaction with their inservice activities over the past year is mirrored in their overall attitude toward inservice education. As shown in Table 40, only two teachers expressed a negative attitude toward inservice education. All nine of the principals and assistant superintendents in the administrator sample indicated a positive attitude toward inservice education for teachers.

Research Question 5

In the opinion of educators, what constitutes an effective inservice program for improving teachers' basic skills instruction?

Teachers and administrators were asked their opinion of various inservice practices identified as effective by researchers. Emphasis was placed on inservice practices that have been demonstrated to lead to improvements in students' basic skills achievement. Teachers' opinions were solicited in Teacher Interview Schedule II (Appendix E). The opinions of principals and assistant superintendents were solicited in Administrator Interview Schedule II (Appendix H). The data analyses presented here are organized using the dimensions presented in Table 3. These dimensions are grouped under six major headings: teacher objectives, student objectives, delivery system, organizational context, governance, and selection/evaluation.

Also, the results are reported for each group of educators (teachers, principals, and assistant superintendents) rather than by district. The reason for reporting the data in this form is that our main interest was in whether educators in different roles have different opinions about how inservice programs should be constituted.

Table 41 presents the sample's opinion about teacher competencies (dimension 1 in Table 3) that have been found effective in improving students' basic skills achievement. It appears that most teachers and administrators believe that these competencies are effective.

The next analysis concerned educators' beliefs about the importance of basic skills instruction. The results of this analysis are presented in Table 42. Most teachers and administrators believe that basic skills instruction is critically important. A minority of teachers and administrators, however, do not think that basic skills instruction is more important than other curriculum goals.

Table 43 presents the sample's opinions about what type of delivery

TABLE 40
Educators' Attitude Toward Inservice Activities
(N = Number of educators)

Attitude	Total Sample N	Total Sample %	District I N	District I %	District II N	District II %	District III N	District III %
1. (Teachers) Attitude toward activities.								
Positive	29	85%	7	70%	10	91%	12	92%
Neutral	3	9%	2	20%	1	9%	0	0%
Negative	2	6%	1	10%	0	0%	1	8%
2. (Administrators) Attitude toward inservice education for teachers								
Positive	9	100%	3	100%	2	100%	3	100%
Neutral								
Negative								

Note: Data source for item 1 is Appendix B, item 10.
Data source for item 2 is Appendix F, item 10.

TABLE 41

Teacher and Administrator Beliefs About Efficacy of Direct Instruction Techniques in Improving Basic Skills Achievement

(N = Number of Educators)

Techniques for Improving Students' Basic Skills Achievement (BSA)	Teachers N	Teachers %	Principals N	Principals %	Assistant Superintendents N	Assistant Superintendents %
1. Do you believe that allocating more time for basic skills instruction is an effective technique for improving BSA?						
Effective	23	70%	6	100%	3	100%
Not Effective	10	30%	0	0%	0	0%
2. Do you believe that BSA would improve if students stayed on task more often?						
Yes	35	100%	5	83%	2	67%
No	0	0%	1	17%	1	33%
3. Do you believe that BSA would improve if teachers focus their instruction on the content covered on the tests?						
Yes	31	94%	6	100%	3	100%
No	2	6%	0	0%	0	0%
4. Do you believe that math BSA would improve if teachers used Good and Grouws' approach to teaching math?						
Yes	28	85%	6	100%	3	100%
No	5	15%	0	0%	0	0%

Note: Data source for teachers' responses to items 1, 2, 3, and 4 is Appendix E, items 9, 12, 15, and 18, respectively. Data source for administrators' responses to items 1, 2, 3, and 4 is Appendix H, items 9, 11, 13, and 16, respectively.

TABLE 42

Teacher and Administrator Beliefs About the Importance of Basic Skills As a Curriculum Objective (N = Number of Administrators)

Belief	Teachers N	Teachers %	Principals N	Principals %	Assistant Superintendents N	Assistant Superintendents %
1. How important is it for teachers to teach the basic skills?						
Critical	33	94%	5	83%	3	100%
Important	2	6%	1	17%		
Slightly Important						
Unnecessary						
2. How important is it for teachers to teach the basic skills relative to other curriculum goals?						
More Important	25	71%	4	67%	3	100%
Equally Important	10	29%	2	33%		
Less Important						

TABLE 43

Educator Preferences Concerning the Delivery of Inservice Education on Basic Skills Instruction

(N = Number of educators)

Feature of Delivery System	Teachers N	Teachers %	Principals N	Principals %	Assistant Superintendents N	Assistant Superintendents %
1. If you were involved in the Good and Grouws' inservice program, would you want training to start right away?						
Start training right away	11	33%	0	0%	0	0%
First have sessions to address personal concerns	22	67%	6	100%	3	100%
2a. (Teachers) How would you feel about practicing new teaching skills while having someone observe you and give you feedback?						
Positive	31	89%				
Negative	4	11%				
2b. (Principals) How would you feel about observing teachers and giving them feedback on their teaching skills?						
Positive			6	100%		
Negative			0	0%		
2c. (Central Office) How would you feel about principals performing functions described in 2b?						
Positive					3	100%
Negative					0	0%
3. Do you prefer an inservice on basic skills instruction to (a) occur all at once, or (b) begin with initial training and be followed at intervals with further training and refresher experiences?						
All at once	3	9%	1	17%	0	0%
At intervals	31	91%	5	83%	3	100%

TABLE 43
(Continued)

Feature of Delivery System	Teachers N	Teachers %	Principals N	Principals %	Assistant Superintendents N	Assistant Superintendents %
4. Where would you prefer inservice sessions on basic skills instruction to be held? (More than 1 response allowed.)						
At teacher's school	23	66%*	4	67%*	2	67%*
At school district offices	12	34%	3	50%	0	0%
At a university	7	20%	1	17%	1	33%
Other	4	11%	0	0%	1	33%
It doesn't matter	9	26%	1	17%	0	0%
5. Whom would you most prefer to conduct an inservice program on a new approach for teaching the basic skills?						
A teacher	13	37%	0	0%	2	67%
A district specialist	3	9%	1	17%	0	0%
A professor	5	14%	0	0%	0	0%
Other	6	17%	1	17%	0	0%
No preference	8	23%	4	66%	1	33%
6. How acceptable is each of these times for holding inservice meetings?						
a. Early in the morning before classes.						
Acceptable	4	11%	1	17%	3	100%
Unacceptable	31	89%	5	83%	0	0%
b. During regular school hours (assuming a satisfactory replacement is found)						
Acceptable	34	97%	6	100%	2	67%
Unacceptable	1	3%	0	0%	1	33%
c. In the afternoon after school.						
Acceptable	22	63%	4	67%	3	100%
Unacceptable	13	37%	2	33%	0	0%
d. In the evening after school.						
Acceptable	15	43%	3	60%	1	33%
Unacceptable	20	57%	2	40%	2	67%

TABLE 43
(Continued)

Feature of Delivery System	Teachers N	Teachers %	Principals N	Principals %	Assistant Superintendents N	Assistant Superintendents %
e. On inservice days when no classes are scheduled.						
Acceptable	32	91%	6	100%	3	100%
Unacceptable	3	9%	0	0%	0	0%
f. Weekends during school year.						
Acceptable	8	24%	1	17%	1	33%
Unacceptable	26	76%	5	83%	2	67%
g. Just before the start of the school year.						
Acceptable	29	83%	5	83%	3	100%
Unacceptable	6	17%	1	17%	0	0%
h. During the summer.						
Acceptable	19	54%	4	67%	2	67%
Unacceptable	16	46%	2	33%	1	33%

Note: Data source for teachers' responses to items 1, 2a, 3, 4, 5, and 6 is Appendix E, items 21, 23, 25, 26, 27, and 28, respectively. Data source for administrators' responses to items 2b&c, 3, 4, 5, and 6 is Appendix H, items 20, 21, 22, 23, and 24, respectively.

*Denominator is number of respondents (teachers, N=35; principals, N=6; administrators, N=3).

system should be used in basic skills inservice education. The majority of teachers and all the administrators believe that an inservice program should start by addressing teachers' concerns. Their opinion is consistent with recommendations that have emerged from curriculum implementation research (see item 7 in Table 3). The teachers and administrators feel positively about the use of classroom observation and feedback in inservice education. This view is consistent with another set of research findings (item 8 in Table 3). Again, consistent with research findings (item 9 in Table 3), almost the entire sample believes than an inservice program should begin with initial training and should be followed at intervals with further training and refresher experiences.

Table 43 also presents the sample's preferences concerning inservice training sites. A variety of sites are acceptable, with the most desirable site being the teacher's school. Consistent with this preference, some or all of the training in the basic skills experiments described in Chapter 2 occurred in the teacher's own school. The educators have no clear preference about who the trainer should be, nor does any clear recommendation emerge from the research literature. Finally, several times for scheduling inservice sessions are acceptable to teachers: inservice days, regular school hours (assuming a satisfactory substitute teacher), and just before the start of the school year. Weekends and early in the morning are unacceptable to most educators as times for inservice sessions.

Teachers and administrators were asked for their preferences concerning the composition of participants in inservice programs. The results of data analyses are shown in Table 44. The majority of both groups prefer that the inservice program include teachers across different schools. Almost without exception, teachers and principals feel positively about having the principal participate in inservice programs for teachers. Assistant superintendents also feel positively about participating in these programs. The views of these groups are consistent with research findings concerning the role of the principal in teacher inservice education (item 15 in Table 3).

Table 45 presents educators' views about mandatory participation in inservice education under the condition that the school district's goal is to improve students' learning of the basic skills. Most of the teachers and principals, and all of the assistant superintendents, believe that participation should be mandatory under this condition.

The data analyses presented in Table 41 indicate that most educators in the sample believe that direct instruction techniques are effective in improving student achievement. This belief does not mean, however, that educators will feel that they need or want inservice education to improve their use of such techniques. Table 46 shows that the percentage of teachers expressing interest in inservice programs varies according to the direct instruction techniques that would be covered. For example, 83 percent of the teachers expressed interest in learning more about how to keep students on task during basic skills instruction. Only 29 percent of them, however, feel positive about participating in any inservice program that would help them bring their instruction in line with the content of standardized or curriculum-referenced achievement tests.

As shown in Table 47, all administrators in the sample advocate the

TABLE 44
Educator Preferences Concerning Organizational Context for Inservice Education in Basic Skills Instruction
(N = Number of educators)

Feature of Organizational Context	Teachers N	Teachers %	Principals N	Principals %	Assistant Superintendents N	Assistant Superintendents %
1a. (Teachers) What is your first preference concerning who your fellow participants will be in an inservice on basic skills instruction?						
i. Just teachers from my own school	8	25%				
ii. Just teachers from other schools	2	6%				
iii. A mix of i and ii	22	69%				
1b. (Administrators) What is your first preference concerning the grouping of teachers for inservice on basic skills instruction?						
Just teachers from same school			0	0%	1	33%
Teachers from different schools			5	100%	2	67%
2a. (Teachers) How would you feel if your principal participated in a basic skills inservice program with you?						
Positive	34	97%				
Negative	1	3%				
2b. (Administrators) How would you feel about participating in a basic skills inservice program with your teachers?						
Positive			6	100%	3	100%
Negative			0	0%	0	0%

Note: Data source for teachers' responses to items 1a and 2a is Appendix E, items 29 and 30, respectively. Data source for administrators' responses to items 1b and 2b is Appendix H, items 25 and 26, respectively.

TABLE 45
Educator Preferences Concerning Required Participation
in Inservice on Basic Skills Instruction
(N = Number of educators)

Participation	Teachers N	Teachers %	Principals N	Principals %	Assistant Superintendents N	Assistant Superintendents %
Suppose that a school district had the goal of improving students' learning of the basic skills. Should teacher participation be mandatory under such circumstances?						
Yes	27	82%	5	83%	3	100%
No	6	18%	1	17%	0	0%

Note: Data source for teachers' responses to the item is Appendix E, item 31. Data source for administrators' responses is Appendix H, item 27.

TABLE 46

Teacher Attitudes Toward Participating in Inservice Education on Direct Instruction Strategies

(N = Number of teachers)

Would you want to participate in inservice education that helped you...	Total Sample N	%
1. Find ways of allocating more time for basic skills instruction?		
Yes	18	51%
No	17	49%
2. Learn teaching techniques to keep students on task during basic skills instruction?		
Yes	29	83%
No	6	17%
3. Bring your basic skills instruction more in line with content of standardized or curriculum-referenced achievement tests?		
Yes	10	29%
No	24	71%
4. Learn how to use Good and Grouws' approach to teaching math?		
Yes	22	63%
No	13	37%

Note: Data source for items 1, 2, 3, and 4 is Appendix E, items 10, 13, 16, and 20, respectively.

TABLE 47

Administrator Attitudes Toward Advocating Inservice Education on Direct Instruction Strategies
(N = Number of administrators)

Attitude	Principals N	Principals %	Assistant Superintendents N	Assistant Superintendents %
1. Would you advocate use of inservice education to help teachers increase their use of direct instruction strategies?				
Yes	6	100%	3	100%
No	0	0%	0	0%
2. Would you advocate the use of inservice education to help teachers learn how to use the Good and Grouws' approach?				
Yes	5	83%	2	67%
No	1	17%	1	33%

Note: Data source for items 1 and 2 is Appendix H, items 15 and 18, respectively.

TABLE 48
Teacher and Administrator Attitudes Toward Measurement of Basic Skills Achievement
(N = Number of educators)

Attitude	Teachers N	Teachers %	Principals N	Principals %	Assistant Superintendents N	Assistant Superintendents %
1. How do you feel about use of standardized tests to measure basic skills achievement?						
Positively	12	44%	4	80%	3	100%
Negatively	15	56%	1	20%	0	0%
2. How do you feel about use of curriculum-specific tests to measure basic skills achievement?						
Positively	11	44%	5	100%	3	100%
Negatively	14	56%	0	0%	0	0%
3. Are you negative toward achievement tests because you feel they will be used to evaluate teachers or hold them accountable?						
Yes, very much so	1	3%	1	17%	0	0%
Yes, somewhat	9	26%	1	17%	0	0%
No	25	71%	4	66%	3	100%

Note: Data source for items 1, 2, and 3 is Appendix E and Appendix H, items 5, 7, and 8, respectively. Low response for teacher sample to items 1 and 2, is due, in part, to lack of familiarity with standardized and curriculum-referenced tests (see Appendix E, items 4 and 6).

use of inservice education to help teachers increase their use of direct instruction techniques. The majority of them are also favorable toward Good and Grouws' inservice program on direct instruction for elementary mathematics. A few administrators and a minority of teachers (see Table 46, item 4), are not positive about an inservice program built around this particular model of direct instruction.

The criterion of effectiveness in recent research on basic skills inservice education has been student gain on achievement tests measuring basic skills (see item 27 in Table 3). The sample of educators was asked how they felt about the use of such tests to measure students' achievement of basic skills. As shown in Table 48, all of the assistant superintendents and most of the principals are positive about the use of these tests. Almost half of the teachers, however, have negative feelings about these tests irrespective of whether they are standardized or curriculum-specific. At least part of their negative attitude can be traced to the fact they feel these tests will be used to evaluate their performance.

Summary. The results presented above indicate that teachers and administrators generally agree with the recommendations that have emerged from research concerning the elements of effective inservice programs for improving basic skills instruction. Agreement with the recommendations, however, does not mean that they desire inservice programs based on the recommendations. Their endorsement of such programs varies depending upon the particular teacher competencies that are the object of training. Also, the results presented in Table 48 suggest that many teachers and some principals would not advocate these inservice programs if they are connected conceptually or in practice with student performance on achievement tests.

CHAPTER 5
Discussion

Four objectives for this research project were stated in the first chapter:

1. To develop a set of dimensions for characterizing inservice programs.

2. To identify dimension-related practices whose effectiveness has been demonstrated through research.

3. To determine the extent to which research-validated inservice practices are present in current inservice activities.

4. To determine the extent to which teachers and administrators have a positive attitude toward research-validated inservice practices and toward current inservice practices.

The following discussion is organized around these objectives.

Research Objective 1
The Dimensional Structure of Inservice Education Programs

The conceptual frameworks developed by the ISTE Concepts Project staff (Joyce et al. 1976), by curriculum implementation researchers (Fullan and Pomfret 1977), and by others proved useful in thinking about how to characterize the structure of inservice education programs. A total of 27 dimensions organized under 6 major headings were identified as involved in the design of an inservice program, however brief or long, however limited or extensive in scope.

This analysis of the multi-dimensional character of inservice education suggests the following three generalizations. First, inservice education forms a complex subsystem within the complex system of schooling. Even a simple inservice activity can involve students, teachers, principals, central office administrators, external trainers, and persons representing various constituencies. A temporal sequence of teacher effects leading to student effects needs to be conceptualized. Organizational context and governance structure must be taken into account. The second generalization is that inservice education is linked in complex ways to the work of schools. It is linked to school goals, to school curriculum, and to school assessment. The third generalization is that inservice programs extend over time and are linked to other systems of schooling that extend over time.

These observations about characteristics of inservice programs seem obvious once stated. We believe, however, that the concepts of system, complexity, and temporality are fundamental to understanding inservice

education. Without these concepts, it is not possible to understand research findings on inservice effectiveness nor is it possible to understand current patterns of inservice practice. Many inservice activities appear simple--for example, an afternoon workshop for district teachers on how to help students take standardized achievement tests. Although simple on the surface, such activities represent a complex convergence of elements from several operating systems within the district and beyond. Also, the compression of the activity to a single afternoon reflects the particular way in which stakeholders in the activity have decided to manage the temporal nature of change processes.

Research Objective 2
Characteristics of Effective Inservice Programs

It should be understood that the effective inservice practices listed in Table 3 are a construction. The list is a synthesis of findings from several lines of research inquiry. Few, if any, current inservice programs incorporate all of these practices in a systematic manner. The major studies included in the review (Anderson, Evertson, and Brophy 1979; Crawford et al. 1978; Good and Grouws 1979; Stallings 1980) are evaluations of experimental inservice programs of brief duration. None of the studies investigated inservice programs within the context of systematic school improvement.

Despite these limitations, the outlines of a model of an effective inservice program for improving basic skills instruction can be discerned. The model assumes a temporal sequence of decision-making. The critical first step is to decide on basic skills achievement as a priority goal for school improvement (dimension 5 in Table 1). This decision may result from a needs assessment of significant stakeholders (dimension 24), from students' achievement being below an expected level (dimension 6), from expectations based on student achievement data (dimension 27), or perhaps from some other set of considerations. In fact, little is known about how improvement of basic skills achievement becomes crystallized as a priority goal by schools.

One of the next steps, if not done previously, must be to select or develop achievement tests to monitor student learning (dimension 27). Without assessment data, administrators have no way of knowing whether their interventions are having an effect. Assessment data on student achievement in this context function much like school budget data. Administrative adjustments need to be made on a continuing basis until school district income and expenses are balanced. Similarly, curriculum and instruction need to be adjusted until student achievement has improved to expected levels (dimension 6).

The logical next step is to examine curriculum and instruction to determine whether they can be improved. For example, recent research suggests that such practices as increasing allocated time for basic skills instruction, keeping students on task more of the time, and monitoring student performance in the classroom (dimension 1) are effective instructional techniques for increasing student achievement (dimension 5). Curriculum changes, such as bringing curriculum content in line with achievement test content, are also effective.

Once these elements of school improvement have been identified, inservice education becomes critical. Inservice programs are necessary to help teachers implement the improvement process. These programs need to be designed so that the improvement process becomes implemented in the intended fashion. Instructional competencies need to be operationalized clearly (dimension 2) and in such a way that teachers understand the performance level expected of them (dimension 4). They also need to understand clearly the expected level of student basic skills achievement (dimension 4) that is the goal of the school improvement process.

The instructional competencies and expectations need to be taught using an effective inservice delivery system (dimensions 7-12). The organizational context must also support the inservice program. Teachers must see each others as allies (dimension 14) working toward the common goal of school improvement through the inservice process (dimension 13). Administrators should also be involved (dimension 15) so that they can provide support for the inservice objectives that teachers are attempting to achieve. It is important, too, for administrators to screen out distractors, including other inservice opportunities (dimension 16), that might deter teachers from working toward the priority goals for school improvement.

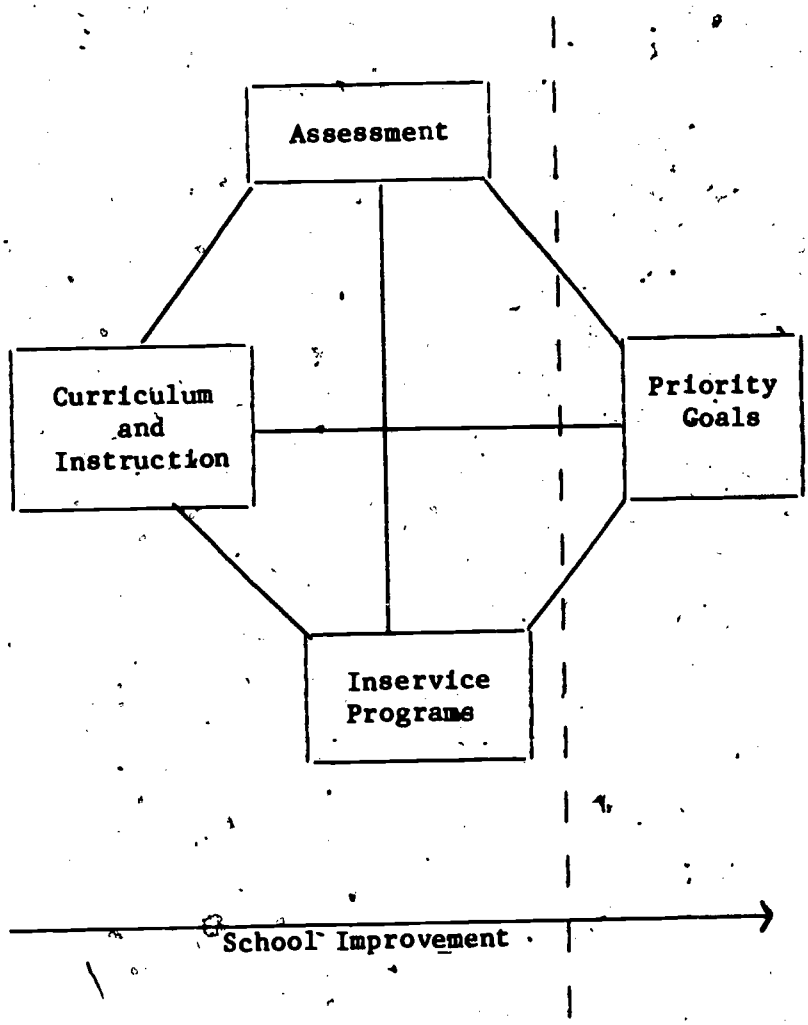
A meaningful governance structure for the inservice program is needed. Participation needs to be mandatory (dimension 19) so that all educators who affect student basic skills achievement are involved. If participation is mandatory, however, teachers need to be involved in governance (dimension 18) and must be given incentives (dimension 20) so that they do not reject the inservice programs. Finally, teachers and other stakeholders need to understand the policy underlying the inservice program (dimension 23) and the relevance of the inservice content to their own situation (dimension 25). Also, they need to have access to assessment data on their teaching performance and student achievement (dimensions 26 and 27) so that they can see for themselves whether the improvement process is working.

This description of an effective inservice program for improving basic skills instruction is a highly rational model. It closely parallels the objectives-based model of curriculum development proposed by Ralph Tyler (1950). It is doubtful whether a school system would follow the exact order of steps described above. Indeed, it is probably much more important that certain elements of the model occur than that they occur in a prescribed sequence. For example, the availability of an effective inservice program for basic skills instruction might trigger the decision to make basic skills improvement a priority goal.

The essence of the model that we see emerging from the research literature is that the three subsystems of (1) curriculum and instruction, (2) assessment, and (3) inservice education must be used in a coordinated fashion to achieve school improvement goals. This point is illustrated by the following figure:

Figure 1

Alterable Subsystems



All parts of the system are related to each other. Any one of the three functional subsystems is probably insufficient to produce significant progress toward priority goals.

This description of effective inservice education is admittedly sketchy. Most of the research on which it is based consists of descriptive research, correlational research, or laboratory-like experiments. In its favor, the description is consistent with practices that are necessary and effective in other goal-based enterprises (Drucker 1974).

Research Objective 3
Characteristics of Current Inservice Programs

The figure at the end of the preceding section provides a framework for describing the current status of inservice education as it is experienced

by elementary teachers. In this section we will examine our survey results to determine whether inservice activities are part of a school improvement process. We will also examine how these activities are articulated with district priority goals, assessment, and curriculum and instruction. Finally, we will examine the effectiveness of current inservice education as a system for delivering instruction to teachers.

Linkage of inservice activities to school improvement. A surprising finding is that only 18 percent of the inservice activities were perceived as being for the purpose of school or district improvement (Table 30, item 1). The majority of the activities (67 percent) were perceived as being for the purpose of personal professional improvement or satisfying credentialling requirements.

Other findings also suggest that inservice activities are weakly linked to a school improvement process. A formal school improvement program is usually justified by a public needs assessment, yet only 24 of 197 of the inservice activities in the sample (Table 32, item 1b) were selected on the basis of a needs assessment.

School improvement programs generally extend over a period of years. If inservice activities were intended to support these improvement programs, we would expect them to extend over substantial time periods, too. The data reveal, however, that almost three-fourths of the activities extend for just one session (Table 16). Ninety percent of them are completed in a school term or less, and 90 percent are completed in four work days (32 hours) or less (Table 15).

Analysis of the inservice activities suggests that the great majority of them have a limited focus. They deal with small elements of curriculum and instruction, for example:

-- learning how to prepare motivational materials in language arts

-- listening to a lecture on right brain/left brain

-- learning about the district's pupil discipline handbook

-- learning how to use artwork to stimulate writing

-- learning how to stimulate student verbalization

These activities and others are uninformed by a larger conception of curriculum and instruction that is articulated across grades within a school and across schools. There are exceptions to this generalization in our sample, for example, involvement of teachers in developing a districtwide language arts curriculum; improving the district's reading program; or introducing Madeline Hunter's Instructional Theory Into Practice program districtwide. The dominant focus of the inservice activities, however, is on small parts of the teacher's work rather than on improving a total system of curriculum and instruction across classrooms or across schools.

We did not deal directly in analyses thus far completed with district sponsorship of teachers' inservice activities. The analyses presented in

Table 30, however, provide indirect evidence that the majority of inservice activities are district-sponsored. Almost 80 percent of the activities involved more than one teacher from the same school (item 4); 65 percent involved teachers from different schools in the district (item 5); 65 percent involved the teacher's building principal (item 6); and more than half involved district administrators (item 7). It is revealing that inservice activities are predominantly district-based, yet they tend to focus on the teacher rather than on school improvement. These results suggest that districts view the teacher rather than the total system of goals, curriculum, assessment, and inservice programs as the locus of change.

Linkage of inservice activities to priority goals. A clear finding of the survey is that inservice activities are fractionated across many goals rather than being focused on a few priority goals. The results shown in Table 20 indicate that the inservice activities are distributed across the entire range of the teacher's work. None of the subjects of the elementary school curriculum are represented in more than 11 percent of the inservice activities. Even the range of categories shown in Table 20 does not represent the full diversity of goals covered by the inservice activities. For example, many different aspects of reading curriculum and instruction are covered by the inservice activities classified as "Reading."

The results displayed in Table 22 further illustrate the lack of priority goals. Most teachers participate in a variety of types of inservice activity rather than concentrating on one type. There are a few priorities, however. All teachers in district I participated in at least one inservice activity involving reading, and almost every teacher in district II participated in at least one inservice activity involving language arts.

The analysis of inservice topics shown in Tables 20-22 does not indicate whether the activities were goal-directed. For example, an inservice activity on reading instruction might focus on improving reading instructional processes, but make no reference to the goal of improved reading achievement. The prevalence of goal-directed inservice activities was reported in Table 27. Only 20 of the 279 inservice activities (7 percent of the total) made any reference to student achievement outcomes, such as improved school grades or test scores.

It appears then that current inservice activities are weakly linked to priority district goals or even to priority district topics. The policy apparently is to cover the entire range of teachers' work. It is left to the teacher to establish personal priorities. The data shown in Table 22 indicate, though, that teachers tend not to select activities on the basis of a few priorities; rather, they sample a range of professional and curriculum topics over the course of a school year.

Linkage of inservice activities to assessment of student outcomes. Table 32 shows that only 13 of the 213 inservice activities (6 percent) included any assessment of student improvement or change connected with the teacher's participation in an inservice activity. Because the interview item was broadly worded, student improvement or change does not necessarily refer to assessment of student achievement outcomes. The actual incidence of student outcome assessment, then, may be even lower than that reported in Table 32.

One reason for the low incidence of inservice-related assessment is that so many of the inservice activities are of very brief duration. The median duration is 4 hours (see Table 15). It is unlikely that self-contained activities of such brief duration would have a detectable impact on measures of student achievement.

Another indication of weak linkage between inservice activities and assessment is teachers' attitudes toward achievement testing. More than half of the teachers in the sample feel negatively about the use of nationally-standardized tests or curriculum-specific tests to measure basic skills achievement (Table 48). Almost a third of the teachers are negative toward these tests because of concern that the tests would be used to evaluate their performance or to hold them accountable. Teachers holding these attitudes would be unlikely to advocate a tight linkage between inservice education and assessment of student achievement.

Although the majority of teachers have reservations about formal assessment procedures, they do make their own personal judgements about the effects of inservice activities on students. As shown in Table 35 (items 4 and 5), they discriminate between those inservice activities that have cognitive or affective impact on students and those activities that do not have such impact.

These various lines of evidence suggest that current inservice education is weakly linked to assessment of student learning outcomes.

Linkage of inservice activities to school curriculum and instruction. A variety of data analyses suggest that inservice activities are closely linked to existing patterns of curriculum and instruction in elementary schools. Almost 90 percent of the inservice activities are perceived as relevant to teachers' work (Table 32, item 2). Almost 85 percent of the activities concern topics directly relevant to curriculum and instruction in elementary schools (Table 20). More than a third of them focus on the basic curriculum areas of reading, math, and language arts (Table 20). Also, a third of the activities were directly tied to a curriculum adoption occurring in the district (Table 30, item 4).

These findings demonstrate that current inservice education is designed around the work of teachers, which involves using various instructional strategies to teach a curriculum to students. The loose linkage of inservice activities to assessment and priority goals, discussed above, suggests that the emphasis is on the process rather than the outcomes of curriculum implementation and instruction. Analysis of teachers' descriptions of the inservice activities reinforces this impression of the relationship between the activities and elementary school curriculum and instruction.

With respect to process, most of the inservice activities appear to emphasize the motivational aspects of curriculum and instruction. Relatively few inservice activities appear to manifest a task orientation to curriculum and instruction. This impression is confirmed by the analysis of training in direct instruction strategies as an objective of inservice activities. Just 8 of the 279 activities made any reference to direct instruction strategies (Table 25, item 1). Also, only one-fourth or so of the teachers reported that they had ever received training in two of the direct instruction

strategies: increasing time allocation for basic skills instruction and increasing the overlap between the content of basic skills instruction and of tests (Table 25, items 2 and 4). The majority of teachers did report that they had received training in keeping students on task at some point in their careers.

Format of current inservice activities. The following is a summary of the format characteristics that most commonly occur in current inservice activities:

1. No readiness activity prior to the inservice (68 percent of the activities; Table 28).

2. No followup activities after the inservice (63 percent of the activities; Table 28).

3. No checking for application (76 percent of the activities; Table 28).

4. Inservice scheduled entirely during working hours (65 percent of the activities; Table 29).

The prevalent format for inservice activities is a single session scheduled during regular working hours, with no prior preparation and no followup. This inservice format is inconsistent with the conditions required for teachers to learn new skills or to implement new curriculum.

Conclusion. In the preceding section, we concluded that effective inservice programs for improving basic skills instruction are embedded in a school improvement process in which the inservice program, assessment procedures, and curriculum and instruction work together in a tightly linked fashion to achieve priority goals. Inservice programs currently in use are quite different from this model. They consist predominantly of isolated inservice activities focusing on teacher development rather than school improvement. The activities are loosely connected to priority goals and to assessment of student outcomes. They are closely linked to school curriculum and instruction; the emphasis, however, is on the process aspects of curriculum and instruction rather than on student achievement.

Research Objective 4
Teacher and Administrator Satisfaction with and Preferences Concerning Inservice Education

One set of data analyses in the preceding chapter concerned the question, "How effective and satisfying is current inservice education as perceived by teachers?" The results of the analyses indicate that teachers are satisfied with most of their inservice activities over the course of a year, and they find them effective. Depending upon the dimension being judged, they express satisfaction with 80 to 90 percent of the activities.

It is not difficult to find reasons for teachers' high level of satisfaction with inservice education. The inservice sessions are usually

scheduled during regular work hours. As shown in Table 31, participation is often voluntary (49 percent of the activities); incentives for participation are provided (55 percent of the activities); sanctions for non-participation are infrequent (25 percent of the activities); and most of the activities involve no or minimal out-of-pocket expenses. Most of the activities (88 percent) are perceived by teachers as relevant to their work. Furthermore, very few of the activities have an evaluation component attached to them. Neither the teacher nor her students are held accountable for results.

An intriguing finding is that teachers felt adequately prepared or more than adequately prepared in the content of many of their inservice activities before the activity began. This generalization applies to two-thirds of their inservice activities (Table 34, item 3). If teachers know the content beforehand, it is unlikely that they will find the activities demanding or challenging. This finding concerning prior preparation, and the other findings mentioned above, indicate that inservice activities are generally designed to be comfortable, undemanding experiences for teachers. Stated another way, they are unintrusive events that do not require teachers to make major changes in their work patterns. This is admittedly an interpretation of the research findings, but it is consistent with our understanding from other sources of how inservice activities generally are designed for teachers.

Earlier in the discussion we concluded that current inservice education for elementary teachers is loosely connected to priority goals, assessment procedures, and student achievement, but it is closely linked to the process aspects of curriculum and instruction. Teachers apparently are satisfied with this arrangement, given the fact that they express satisfaction with 80 to 90 percent of the activities in which they engage over a year's period of time.

The findings of research question 5 in the preceding chapter suggest that teachers are willing to make some changes in this arrangement of linkages, but not others. Most teachers endorse the importance of basic skills instruction (Table 42) and agree that direct instruction strategies would be effective in improving the teaching of basic skills (Table 41). At the same time, a significant proportion of the teachers would not want to participate in inservice activities whose content was linked to particular aspects of this instructional approach (Table 46). They are especially resistant to the notion of inservice activities designed to help them bring their basic skills instruction in line with the content of standardized or curriculum-referenced achievement tests. Seventy-one of the teachers in the sample would not want to participate in inservice education of this type (Table 46).

The teachers are generally favorable to an inservice delivery system that incorporates research-validated training procedures. The majority of teachers favor starting with sessions to address personal concerns (Table 43); having the training extend over time rather than all at once (Table 43); being observed and receiving feedback (Table 43); including the school principal in the inservice program (Table 44); and imposing mandatory participation (Table 45).

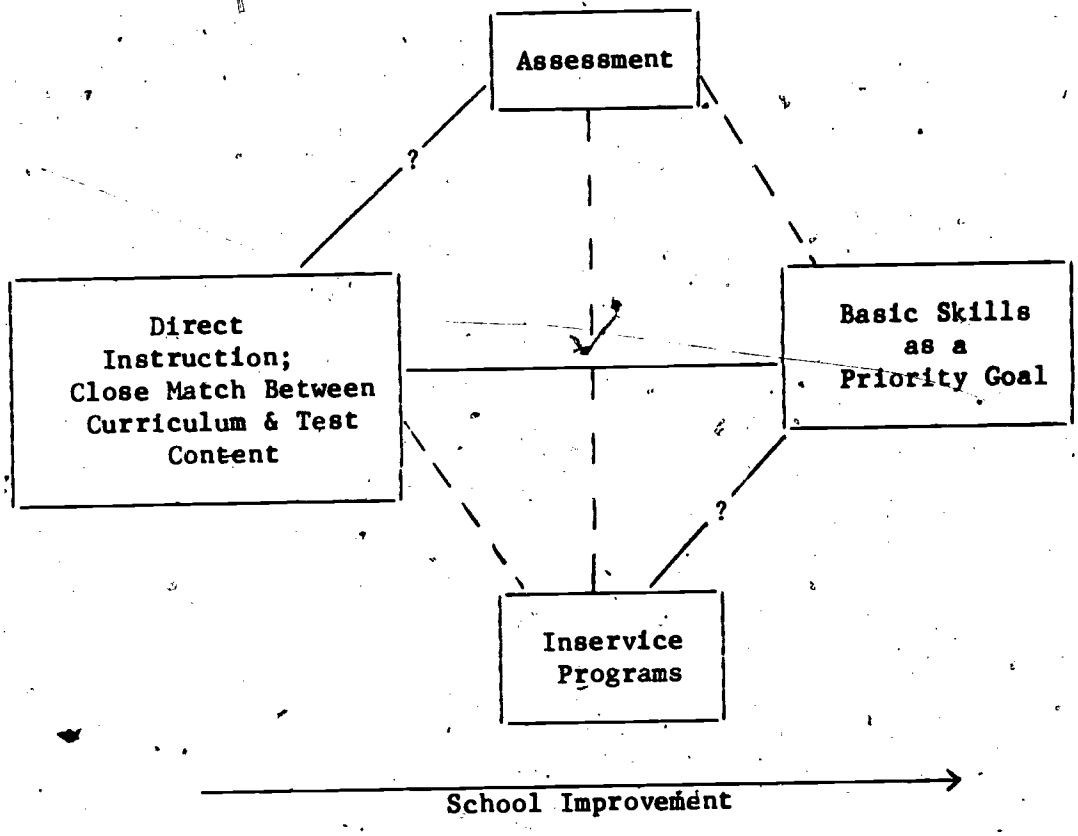
The teachers were not asked their opinion about linking inservice education to assessment procedures. It was determined, however, that the

majority of the teachers (56 percent) feel negatively about the use of standardized or curriculum-specific tests to measure basic skills achievement (Table 48). Based on this finding, it seems unlikely that the majority of the teachers would favor a close linkage between inservice education and assessment of student achievement.

The teachers were not asked whether they would favor consolidating their inservice efforts on a few priority goals oriented to school improvement. Thus, at this point we do not know directly whether teachers would be willing to give up breadth of inservice content in order to gain depth of skill in a few areas of the curriculum.

To summarize, teachers apparently approve of basic skills as a curriculum priority. They also think that task-oriented, goal-directed instruction is effective, but many of them have reservations about participating in inservice education on this instructional approach. Many of them would probably also resist close linkage between inservice education and assessment of student achievement. This set of conditions is represented by the following figure:

Figure 2

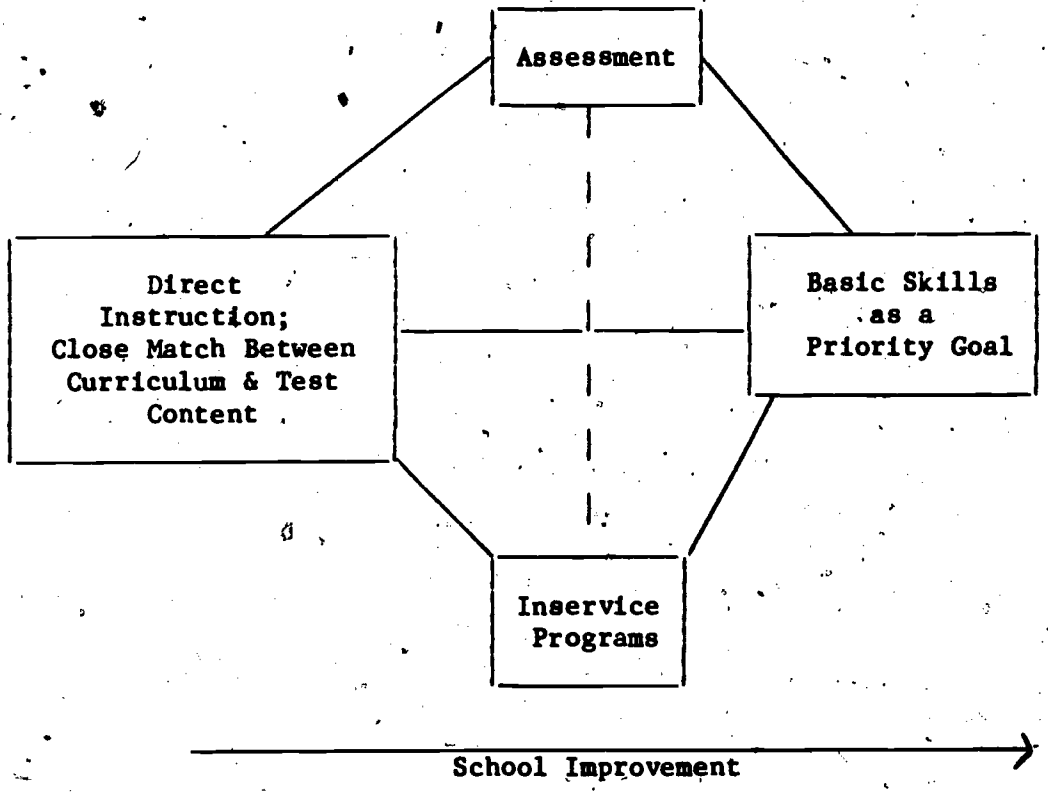


The straight line in the figure indicates teachers' perception of a cause-and-effect relationship. The broken lines indicates teachers' perception that particular subsystems of schooling should not be closely linked to each other. The lines with question marks indicate unresearched connections between subsystems.

An interesting finding from this set of data analyses is that the administrators in the sample endorse more of the linkages than do teachers. All of the principals and assistant superintendents advocate use of inservice education to help teachers increase their use of direct instruction strategies (Table 47). Sixty-three percent of the teachers (Table 46) but 83 percent of the principals (Table 47) are in favor of inservice education to help teachers learn how to use Good and Grouws' direct instruction approach to elementary mathematics education. Forty percent of the teachers but 100 percent of the administrators feel positively about the use of curriculum-specific tests to measure basic skills achievement (Table 48). Also, all but one of the administrators feel positively about the use of standardized tests for this purpose (Table 48). Most of the administrators generally advocate the same type of inservice delivery system as do teachers.

The set of conditions that we think exists for administrators can be diagrammed as follows:

Figure 3



The figure illustrating administrator perceptions shows more close linkages between schooling subsystems than the preceding figure illustrating teacher perceptions.

Limits to Validity and Generalizability

The primary method of data collection was structured interviews. Our sense is that this method is much more effective than use of questionnaires in soliciting data about teachers' inservice experiences. Use of this method may account for the much higher incidence of reported inservice activities than was found in a previous questionnaire survey (Schalock 1977). At the same time the interview method may miss important inservice phenomena that could be detected using direct observation methodology. For example, the objectives of the activities probably could be more accurately determined by observing the activity and materials (including syllabus) associated with it.

The distinction between intended and actual outcomes of inservice activities was not sharply drawn in this study. Teachers were told:

> Think about the specific information, skills, or attitudes that you learned directly from this activity. Keep in mind, we don't want to know what was covered in the activity; we just want to know what you think you learned, if anything.
>
> (Appendix C, p. 1)

We are not certain that teachers always kept this distinction in mind while responding. There may be value in recording both types of information: what teachers believe they learned; and what was actually covered in the activity.

The sample of districts, teachers, principals, and assistant superintendents was voluntary. The bias created by the voluntary nature of the sample was probably in the direction of more favorable attitudes toward and greater participation in inservice education than would be the case in the population. The only way to determine the parameters of this bias, if any, would be to replicate the study using randomly selected samples. The volunteer sample is useful, though, because it probably represents what happens under optimal conditions. If there are problems in inservice education in this type of sample, the problems will be probably be accentuated in more typical samples of teachers and schools.

The study involved intensive analysis of a small sample of school districts in one region of the country. No large urban districts or very low-achieving schools were included in the sample. Again, replication is needed to determine the generalizability of the patterns observed in this sample.

An important limitation of the study is that a one-year time frame was chosen for observation. There were indications that the patterns of inservice education in the sample districts change from year to year. Interest in inservice education appears to be growing yearly. Also, the particular character of inservice education in a district appears to depend, to some extent, on key personnel. As these individuals enter or leave the district, the patterns of inservice education may change. The time frame used in this study was not long enough to determine the extent or pattern of change in inservice education over time.

Conclusion

A descriptive survey of this type yields a large number of specific results. We think the results provide valuable, empirically-based descriptions of the surface phenomena of inservice education as it functions in school districts, in schools, and in the lives of individual teachers. The task before us is to understand the underlying meaning of the observed events, especially the policy that drives inservice education in its current forms.

The starting point of this study was the set of four experiments on basic skills inservice education described in the first two chapters. We were intrigued by the success of each of these experiments in demonstrating causal links betwen (1) an inservice intervention, (2) change in teacher performance, and (3) improvement in students' achievement of the basic skills. These demonstrations relate well to a production model of education and to the work of researchers attempting to understand administrative options for improving production functions in education (Duckworth 1981).

The findings of the present study provide strong evidence that current inservice education is not based on a production model of education. There is some evidence from the study that administrators favor such a model, but teachers are generally negative to key elements of it, especially the use of public, standardized measures to assess student achievement. The current state of inservice education appears to be based on an entirely different set of premises than those that guide a production model of education.

The figures and language that we used in the preceding section to describe the findings accord well with a "loose coupling" interpretation of educational organizations (Weick 1976). The practice of inservice education seems tightly coupled to present school curriculum and instruction, but loosely coupled to assessment, priority goals, educational R&D, and improvement of schools as systems. Weick has noted the advantages of loose coupling to maintenance of school organizations, but there are risks as well. The major risk of loosely coupled inservice programs is that they can be easily eliminated when school budgets must be trimmed. Another risk is that school improvement programs may be instituted by mandate without linking them to an inservice education process.

If this interpretation is correct, it means that much or all of current inservice education is not designed to improve student achievement or to improve the total school organization. What then is the purpose of inservice education? We can only speculate on the answer to this question here. 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.

The findings of the study raise intriguing questions about control of

inservice education. There is a great range of inservice topics across districts and across teachers. This finding suggests a voluntary view of inservice education based on individual choice both of participants and of sponsors. Half of the inservice activities require mandatory participation, though, so there does appear to be some constraint on choice. We wonder about the utility of mandatory participation, however, because there is little followup after the activities have ended and there is no mechanism for mandatory implementation of which we are aware.

The issue of control over curriculum also surfaces in our cursory analysis of inservice content. Administrators appear to favor use of inservice education to encourage teachers to adopt a centralized view of curriculum that is uniform across the district and articulated across grades. In practice, the majority of inservice education topics appear to focus on classroom-based aspects of curriculum that do not require articulation with larger units of school organization. We have little idea at this point of how and by whom inservice agendas get set. Analysis of open-ended interview data from the study may yield some insight into this problem.

Finally, we are puzzled about the individual differences observed in the study. The largest differences are at the teacher level. There is great variation in amount and type of inservice participation across teachers. Much less variation across school districts is found, except for a few dimensions (scheduling, Table 29; incentives, Table 31). Only a few school-level analyses were done, but these also revealed variation (frequency of inservice activities, Table 13; hours of inservice participation, Table 17). What consequences do these between-district, between-school, and between-teacher variations have for students? We have no way of knowing at this time, but it does seem to be a question worth pursuing.

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Appendix A

Table A-1

Key Instructional Behaviors in Missouri

Mathematics Effectiveness Project

Daily Review (first 8 minutes except Mondays)

(a) review the concepts and skills associated with the homework
(b) collect and deal with homework assignments
(c) ask several mental computation exercises

Development (about 20 minutes)

(a) briefly focus on prerequisite skills and concepts
(b) focus on meaning and promoting student understanding by using lively explanations, demonstrations, process explanations, illustrations, etc.
(c) assess student comprehension
  (1) using process/product questions (active interaction)
  (2) using controlled practice
(d) repeat and elaborate on the meaning portion as necessary

Seatwork (about 15 minutes)

(a) provide uninterrupted successful practice
(b) momentum--keep the ball rolling--get everyone involved, then sustain involvement
(c) alerting--let students know their work will be checked at end of period
(d) accountability--check the students' work

Homework Assignment

(a) assign on a regular basis at the end of each math class except Fridays
(b) should involve about 15 minutes of work to be done at home
(c) should include one or two review problems

Special Reviews

(a) weekly review/maintenance
  (1) conduct during the first 20 minutes each Monday
  (2) focus on skills and concepts covered during the previous week
(b) monthly review/maintenance
  (1) conduct every fourth Monday
  (2) focus on skills and concepts covered since the last monthly review

From: T. L. Good and D. A. Grouws. The Missouri Mathematics Effectiveness Project: An Experimental Study in fourth-grade classrooms. Journal of Educational Psychology, 1979, 71, 355-362.

Table A-2

Instructional Behaviors Positively and Negatively Correlated with Achievement in Stallings and Needels' Study

Partial Correlations of Reading Activities and CTBS Scores

	Phase I (N = 16)		Phase II (N = 29)	
	r	p	r	p
Interactive On-Task Instruction				
Discussion/Review	.40	.001	.83	.001
Reading aloud	.59	.001	.28	.05
Drill and practice	.00	N.S.	.38	.01
Praise and support, reading task*	.29	.05	.54	.001
Supportive corrective feedback*	.50	.001	.28	.05
Noninteractive On-Task Instruction				
Classroom management	−.24	.05	−.30	.05
Silent reading	−.23	.05	−.40	.01
Sustained silent reading	−.20	.10	−.44	.001
Written assignments	.00	N.S.	−.41	.001
Off-Task Activities				
Organizing	−.34	.05	−.27	.05
Social interactions	−.52	.001	−.30	.05
Negative interactions	−.29	.05	.00	N.S.

*These variables are interaction variables.

From: J. Stallings. Allocated academic learning time revisited, or beyond time on task. Educational Researcher, 1980, 9, 11-16.

Table A-3

Rosenshine's List of Elements of Direct Instruction

Elements	Suggested Positive Correlates	Suggested Negative Correlates
Time and Activities	Time structured by the teacher	Time spent on arts, crafts, dramatic play, active play, stories
	Time spent on number and reading activities using textbooks and academic workbooks, or in verbal interactions on reading and mathematics	Gamelike activities
		Number of interest centers
		Large number of different, concurrent activities
	Time spent in seatwork with academic workbooks through which the pupils proceeded at their own pace	Hours of unstructured time
		Frequent socialization
Work Groupings	Students worked in groups supervised by the teacher	Free work groups
		Children working independently without supervision of teacher
Teacher Directions and Questions	Teacher directs activities without giving pupils choice of activities or reasons for the selection of activities	Teacher joins or participates in pupil's activities
		Teacher organizes learning around pupil's own problem
	Learning is organized around questions posed by the teacher	Teacher approaches subject matter in an indirect, informal way
	Teacher asks narrow question	Teacher encourages pupil to express himself freely
	Teacher asks direct questions that have only a single answer	Teacher permits pupil to suggest additional or alternative answers

Table A-3 (Continued)

Elements	Suggested Positive Correlates	Suggested Negative Correlates
	Adult commands, requests, or direct questions that had an academic focus	Pupil initiates activities
		Pupil has freedom to select activities
		Teacher commands and requests, nonacademic
		Teacher open-ended questions, nonacademic
Student Responses	Students give a high percentage of correct answers both in verbal interaction and in workbooks	Child open-ended questions and nonacademic commands
	Students are encouraged to attempt to answer questions (rather than saying "I don't know")	Adult nonacademic commands or requests, or open-ended questions
		Child nonacademic responses
		Child general comments to adults or among children
Adult Feedback	Teacher immediately reinforces pupil as to right or wrong	Adult feedback on nonacademic activities (e.g., play, music)
	Adult feedback had an academic focus	
	Teacher asks new question after correct answer	
	Teacher gives answer after incorrect answer	

Sources: Stallings and Kaskowitz, *Follow Through Classroom Observation Evaluation: Soar. Follow Through Classroom Process Measurement and Pupil Growth:* Jere E. Brophy and C. M. Evertson, *Process-Product Correlations in the Texas Teacher Effectiveness Study: Final Report*, (Austin, Tex.: The University of Texas, 1974).

From: B. Rosenshine. Classroom Instruction. In N. L. Gage (Ed.) The Psychology of Teaching Methods. (75th Yearbook of the National Society for the Study of Education). Chicago: University of Chicago Press, 1976.

TEACHER INTERVIEW SCHEDULE I
PART ONE

Teacher's Name _____
School _____
Date _____

Give teacher a copy of this form.

As you know, the purpose of this project is to learn about your inservice experiences. In this first interview I want to learn about your inservice experiences over the past year. Before we start, though, I'd like to get some background information about you. Please keep in mind that you are free to not answer any of these questions if you so wish.

Circle the appropriate answer.

1. Sex [M | F]

2. Years of regular teaching experience _____

3. Age (21-25) (26-30) (31-40) (41-50) (51+)

4. Grade level 1, 2, 3, 4, 5, 6,

5. Ability level of your students:
   Very low low medium ability high very high

6. How difficult is this class to teach?
   Very difficult difficult medium easy very easy

7. Please describe your school as a climate for promoting your development as an educator. Are there opportunities for professional development? Are your colleagues supportive of change and development? (Classify the school climate based on the teacher's response.)

   Highly supportive Supportive Neutral Unsupportive Highly unsupportive

8. Read this aloud to the teacher:

   Before we start our review, we will need a definition of inservice education.

   By inservice education we mean any activity that is intended to improve your capacity as a professional educator. The activity can be very brief, (like hearing a guest speaker or attending a school meeting) or extend over a school year or longer (like attending a series of workshops to help you learn how to implement a new curriculum in your school). For it to be an inservice activity you should be in the role of a learner. You can learn new knowledge, attitudes, or skills. You may or may not have learned anything from the inservice activity, but for the activity to be included in this definition, the presenters should have intended learning outcomes for the participants.

   Probe (if required): provide some examples.

One other point about our definition of inservice education. Inservice activities can involve a variety of purposes: your personal professional development (for example, learning how to manage stress; preparing for a new educator role). Another purpose might be to improve your teaching ability in the classroom. Still another purpose might be to be involved in a school or district improvement project (for example, learning to implement a schoolwide discipline project; learning about a district achievement testing program).

Does this give you an idea about what we mean by inservice education? Any questions?

To review, an inservice activity can be short or long; it can be informational, attitudinal, or skill-oriented; and it can be for a variety of purposes.

9. Now let's do a month-by-month review beginning June 1981. Do you recall anything that month?

   Write responses on next page. Continue up to present month. It's not important that activities be recalled accurately in terms of the month or months they occurred.

   Why don't you just think a minute more? Can you think of any other activities in which you participated?

10. I'd like to ask about your attitude toward inservice activities. Generally, how do you feel about inservice? To what extent do you seek them out?

    Ask follow-up questions. Then make a judgement about the teacher's attitude, and make a rating.

    Very positive___ positive___ neutral___ negative___ very negative___

11. I'd like to get some idea of other activities you've engaged in over this time period - activities that are more informal in nature, but which contributed to your development as a teacher. In other words, interests that you have been able to incorporate into your classroom teaching or professional life. These activities might include such things as informal talks with other teachers, informal reading, or perhaps a hobby that relates to your work.

    Write responses on page 4. Ask the teacher to estimate how often each such activity occurred.

*Decide (with teacher if necessary) on a discrete inservice activity and begin PART TWO.

Pitfall: Watch time! Don't go into detail at this stage. Give same activity number to activities grouped as a discrete inservice program.

Activity #	Month	FORMAL INSERVICE ACTIVITY
	June '81	
	July	
	August	
	September	
	October	
	November	
	December	
	January '82	
	February	
	March	
	April	
	May	

PROBES: Names of magazines, journals, etc; travel; community involvement; extra curricular; entertainment; recreational; clubs and associations; summer break activities, etc.

	INFORMAL PROFESSIONAL ACTIVITIES	F = Frequently O = Occasionally S = Seldom
1.		F, O, S
2.		F, O, S
3.		F, O, S
4.		F, O, S
5.		F, O, S
6.		F, O, S
7.		F, O, S
8.		F, O, S
9.		F, O, S
10.		F, O, S

APPENDIX C

TEACHER INTERVIEW SCHEDULE I

PART TWO

Teacher's Initials _____
Date _____

Remember: All the following questions in PART TWO and PART THREE relate to the discrete activity identified on this page.

Activity # _____ Titled: _____

A. TEACHER OBJECTIVES

1. TARGET COMPETENCIES. We want the teacher to focus here on increases in teacher competence (knowledge, attitudes, and skills).

   We want to find out what you learned from this inservice activity. Think about the specific information, skills, or attitudes that you learned directly from this activity. Keep in mind, we don't want to know what was covered in the activity; we just want to know what you think you learned, if anything.

   Steer the teacher away from student objectives or process activities.

   i. K A S _____

   _____

   _____

   ii. K A S _____

   _____

   _____

   iii. K A S _____

   _____

   _____

   iv. K A S _____

   _____

   _____

   v. K A S _____

   _____

   _____

Before moving to next interview item, be sure to ask: Any other information skills or new attitudes you acquired during this activity?

2. SIDE- or LONG-TERM EFFECTS. Did the activity have any effects on you, other than those intended by the trainer? Circle: yes/no.

If NO, probe: sometimes the effects may appear over a short or long period - the learning you engaged in may have lead to new insights, feelings or motivation to do something differently.

If YES, record effects using same procedures as in item 1.

i. K A S _____

ii. K A S _____

iii. K A S _____

iv. K A S _____

v. K A S _____

3. OPERATIONALIZATION. I want to know now how clearly the objectives of the inservice activity were communicated to you. Was it clear what information, attitudes, or skills you were supposed to learn? Circle Yes/No.

If YES: How were these communicated to you?

4. EXPECTED LEVEL OF COMPETENCE. Were you given criteria for knowing when you achieved an objective? For example, were you told a minimum score that your pupils should get on a test; or how often you should use a particular skill; or how much time you should spend doing a particular activity in the classroom; or how much you should interact with particular students? Circle: yes/no response. If yes, ask: Can you explain your response?

5. COMPLEXITY. New professional learning can be complex because of the amount you're expected to master, or because it requires you to learn something entirely new, or because you have to adapt what you learned to your particular classroom situation? How complex was your inservice activity in these respects? After answer, probe: Why?

6. RATIONALE. You may have been given reasons why you should learn the particular information, attitude, or skills for some reason. What reasons were you given, if any?

Focus on what the trainer or sponsor gave as reasons, rather than on the teacher's own reasons.

*Before proceeding the teacher should answer rating form A. TEACHER OBJECTIVES (see PART THREE). Pitfall: Prevent completion of any other rating forms.

B. STUDENT OBJECTIVES

7. NEEDS ASSESSMENT. Did anyone ask you whether you needed the training provided by this inservice activity? Circle: yes/no.

   Are you aware of whether this inservice activity was selected as a result of a formal needs assessment of teachers? Circle: yes/no.

   If yes, ask How was this conducted?

8. TARGET OBJECTIVES. We want to find out what effect the inservice activity was supposed to have on your students. Many inservice activities claim to help teachers help their students learn better or learn certain curriculum content, or have better attitudes. Was this true of your inservice activity? Circle: yes/no. What were the specific intended effects?

   i. _____

   _____

   ii. _____

   _____

   iii. _____

   _____

   Probe: Anything else? Can you be more specific?

9. MEASUREMENT OF STUDENT OBJECTIVES. Sometimes an inservice trainer or sponsor will give a test or some other assessment device like a questionnaire to your students. The purpose of this assessment is to determine whether the students changed or improved in some way as a result of you participating in the inservice activity. Did such an assessment occur? Circle: yes/no. If yes, ask for an explanation.

10. EXPECTED LEVEL OF PROFICIENCY. Ask this question only if the teacher answered "Yes" to question #9. Did the inservice trainer or sponsor convey any expectation to you about how much of a gain or change on this assessment measure would be as a result of your participation in the inservice activity? Circle: yes/no. If "Yes," ask, What was the expectation?

11. SIDE- OR LONG-TERM EFFECTS. The inservice activity may have had effects on your student other than those intended. These effects may have occurred right away or over a longer period of time. Did you notice any such effects? Circle: yes/no. If yes, ask: What were the effects? If NO, ask: Why?

*Have the teacher complete rating form B. STUDENT OBJECTIVES.

C. DELIVERY SYSTEM

12. READINESS ACTIVITIES. Readiness activities may include helping you become aware of the need for the inservice activity; or securing your agreement and ownership in the inservice activity; or dealing with your concerns about the inservice activity. Did you participate in any such readiness activities? Circle: yes/no. If "yes," ask: What were the readiness activities?

13. (a) INSTRUCTIONAL PROCEDURE/MODE. Please describe briefly the instructional format that was used to present the inservice activity.

(b) LEARNING PROCESS. What learning process do you feel you were involved in during the inservice activity? e.g. (small group project, discussion, hands-on activities).

14. (a) MAINTENANCE/MONITORING. Were there any follow-up activities to help you maintain or increase what you learned during the initial set of inservice activities? Circle: yes/no. If yes, ask: Please describe them.

(b) Did anyone check after the initial set of inservice activities to see whether you were applying what you learned? Circle: yes/no. If yes, ask: Please describe how this checking process was carried out.

15. TRAINING SITE. Where did the inservice activity occur? Be sure to determine whether there was more than one training site.

16. RELEVANCE. Please comment on how relevant the inservice activity was to your professional responsibilities. In other words, did the inservice activity pertain to your work as a teacher? Circle: yes/no. Why?

17. TRAINER. Did the inservice activity involve a trainer, leader, facilitator, speaker, or other person or persons? Circle: yes/no. If yes, ask: Please describe this person or persons briefly. Be sure to elicit the person(s)'s affiliation.

18. SCHEDULING. What time or times of day was the inservice activity scheduled?

(a) morning __ afternoon __ evening __ all day__

(b) morning recess __ lunch break __ prep. time __ teaching period __
weekend __ summer break __ term break __ other? _____

(c) Did the inservice activity occur all at once, or over a period? _____
(e.g. week/s, term/s, year/s) _____

(d) Starting and ending date (approximately) of the activity? began _____
ended _____

(e) Approximately how much of your time was spent directly participating in this inservice activity?
days _____
hours _____

(f) What percentage of this time was during your regular working hours? __%

19. COSTS. Did it cost you anything out-of-pocket to participate in this activity? Circle: yes/no. If yes, ask: How much did it cost, including materials, tuition, special travel, and lodging? _____
If no, ask, Who paid?

*Have the teacher complete rating form C. DELIVERY SYSTEM.

D. ORGANIZATIONAL CONTEXT

20. PURPOSE FOR PARTICIPATION. We'd like to know the primary reason why you got involved in this inservice activity. Please explain WHY?

Probe for an open ended response then confirm according to: personal professional development/school improvement/credentialling/a chance for a break from the classroom/others _____

22. CONCURRENT ORGANIZATIONAL CHANGE. (a) Was your building principal involved in the inservice activity in any way? Circle: yes/no. If yes, ask: How was he or she involved?

Probe: Prior to the activity? During? Following? Informally? (through classroom visits, casual conversation, formal/informal reports)

(b) Colleagues/others (e.g. parents, pupils, community personnel).

(c) Were school district administrators involved in the inservice activity in any way? Circle: yes/no. If yes, ask: Who was involved? Then ask, How were they involved?

(d) Then ask: Were any curriculum or other changes being made in your school or school district that were related to the inservice activity? Circle: yes/no. If yes, ask: What were these changes?

*Have the teacher complete rating form D. ORGANIZATIONAL CONTEXT.

E. GOVERNANCE

23. GOVERNANCE STRUCTURE. There probably was an individual or group which was responsible for making key decisions concerning your inservice activities. This individual or group was probably involved in selection of inservice objectives, design of activities, and allocation of resources. Who was this individual or group?

24. TEACHER PARTICIPATION IN GOVERNANCE. To what extent did you participate in making decisions about what your inservice activity would cover, and how it would be run?

If the teacher indicates some participation, ask: Can you give a few examples of your participation?

25. INCENTIVES. We'd like to know whether you received any incentives, compensation, personal pay-off, or other rewards for participating in this inservice activity. Did you receive any? Circle: yes/no. If yes, ask: What were they?

26. SANCTIONS. Sometimes there are negative consequences, real or threatened, associated with an inservice activity. These negative consequences may be associated with refusing to participate in the activity; for poor performance in the activity, or for not implementing the training. Were you given notice about these or did you experience such negative consequences? Circle: yes/no. If yes, ask? What were the negative consequences?

*Have the teacher complete the "Governance" rating form.

*Put the teacher's last name on all the rating forms. Staple or paper-clip them to this interview schedule.

*Arrange date for next interview (if required).

APPENDIX D

TEACHER INTERVIEW SCHEDULE I

PART THREE

Initials: _____
Date: _____
Activity # 1, 2, 3, 4, 5

Rating Form A

TEACHER OBJECTIVES

Please CIRCLE your choice:

1. I was Very Satisfied / Satisfied / Dissatisfied / Very Dissatisfied with what I was supposed to learn from this activity.

2. How negative or positive were the effects of this activity on you?

(a) Side-effects
Very negative
Negative
Positive
Very positive
None

(b) Long-term effects
Very negative
Negative
Positive
Very positive
None

3. How clear were the objectives of the activity to you?

Very unclear Unclear Clear Very clear

4. How pertinent was this activity to help you instruct children in the basic skills of language, reading, and arithmetic?

Not pertinent Pertinent Very pertinent

5. How complex was what you were expected to learn from the activity?

Very simple Simple Complex Very complex

Initials: _____
Date: _____
Activity # 1, 2, 3, 4, 5

Rating Form B

STUDENT OBJECTIVES

Please CIRCLE your choice:

8. I was
- Very Satisfied
- Satisfied
- Dissatisfied
- Very dissatisfied
- Not applicable

with the intended effects of this inservice activity on my students.

9. How positive or negative were the effects of this activity on your students?

(a) Side-effects
- Very negative
- Negative
- Positive
- Very positive
- None

(b) Long-term effects
- Very negative
- Negative
- Positive
- Very positive
- None

10. I was
- Very satisfied
- Satisfied
- Dissatisfied
- Very dissatisfied
- Not applicable

with the way that the student effects associated with this inservice activity were measured.

Initials: _____
Date: _____
Activity # 1, 2, 3, 4, 5

Rating Form C

DELIVERY SYSTEM

Please CIRCLE your choice:

12. Readiness Activities

Not Applicable	Very Satisfied	Satisfied	Dissatisfied	Very Dissatisfied

13. Learning Process

Not Applicable	Very Satisfied	Satisfied	Dissatisfied	Very Dissatisfied

14. Follow-up Activities

Not Applicable	Very Satisfied	Satisfied	Dissatisfied	Very Dissatisfied

15. Training Site

Not Applicable	Very Satisfied	Satisfied	Dissatisfied	Very Dissatisfied

16. Relevance of Content

Not Applicable	Very Satisfied	Satisfied	Dissatisfied	Very Dissatisfied

17. Inservice Trainer(s)

Not Applicable	Very Satisfied	Satisfied	Dissatisfied	Very Dissatisfied

18. Scheduling

Not Applicable	Very Satisfied	Satisfied	Dissatisfied	Very Dissatisfied

19. Cost

Not Applicable	Very Satisfied	Satisfied	Dissatisfied	Very Dissatisfied

Initials: _____
Date: _____
Activity # 1, 2, 3, 4, 5

Rating Form D

ORGANIZATIONAL CONTEXT

Please CIRCLE your choice:

20. My primary immediate purpose for participation:
To improve myself professionally
To help improve my school
To help improve my school district
To satisfy a credentialling requirement

Please CHECK ALL that apply:

21a. I did the inservice activities
By myself___
With other teachers from my school___
With other teachers from different schools in my district___
With other teachers at my grade level___
With other teachers at other grade levels___

Please CIRCLE your choice:

21b.I was Very satisfied / Satisfied / Dissatisfied / Very dissatisfied / Not applicable with the group of teachers who participated in this inservice activity with me.

22a.I was Very satisfied / Satisfied / Dissatisfied / Very dissatisfied / Not applicable with my principal's involvement in the inservice activity.

22b.I was Very satisfied / Satisfied / Dissatisfied / Very dissatisfied / Not applicable with my school district/central office administrator's involvement in the inservice activity.

Initials: _____
Date: _____
Activity # 1, 2, 3, 4, 5

Rating Form E

GOVERNANCE

Please CIRCLE your choice:

23. I was Very satisfied / Satisfied / Dissatisfied / Very dissatisfied / No opinion with the policy-making that led up to this inservice activity.

24. I was Very satisfied / Satisfied / Dissatisfied / Very dissatisfied / No opinion with my involvement in the selection and design of this inservice activity.

25. My involvement in this inservice activity was:
Voluntary
Required
Not required, but felt pressure to participate

26. I was Very satisfied / Satisfied / Dissatisfied / Very dissatisfied / No opinion with the incentives associated with this activity.

27. This inservice activity had _____ effects on my competence as a teacher.
very negative effects / negative effects / no effects / positive effects / very positive effects

28a. This inservice activity helped me to promote the cognitive growth of my students:
very negative effect / negative effect / no effect / positive effect / very positive effects

28b. This inservice activity helped me to promote the affective growth of my students:
very negative effect / negative effect / no effect / positive effect / very positive effects

28c. Prior to the inservice I possessed a/an _____ degree of knowledge/skills/attitude on the inservice topic.
More than adequate / Adequate / Less than adequate

APPENDIX E

TEACHER INTERVIEW SCHEDULE II

Meredith D. Gall
Fay Haisley
Rob Baker

University of Oregon, College of Education
Center for Educational Policy and Management

Name _____

Date _____

Teacher Interview

The purpose of this interview is to get your perceptions about teaching the basic skills to your students. We want to learn two things: how you feel about teaching the basic skills; and how you feel about the possible use of inservice education to improve your teaching of the basic skills.

When I say "basic skills," I am referring to basic skills in reading, math, and language arts.

I. BASIC SKILLS AS A GOAL OF SCHOOLING

1. How important do you think it is to teach the basic skills to your students?

   Critical Important Slightly important Unnecessary

   Explain your response:

2. How important do you think it is to teach the basic skills relative to other goals of the curriculum?

Much more important	More important	Equally important	Less important	Much less important

   Explain your response:

3. How satisfied are you with your students' progress in learning the basic skills?

Reading	Math	Language Arts
Very satisfied	Very satisfied	Very satisfied
Satisfied	Satisfied	Satisfied
Dissatisfied	Dissatisfied	Dissatisfied
Very dissatisfied	Very dissatisfied	Very dissatisfied

Explain your response:

II. MEASUREMENT OF BASIC SKILLS IN READING, MATH, LANGUAGE ARTS

4. The basic skills are usually measured by the use of standardized achievement tests. Are you familiar with such standardized tests as the Stanford Achievement Test, the Comprehensive Test of Basic Skills (CTBS), or the Metropolitan Achievement Test?

Circle: Yes No

(If yes, ask question 5, otherwise skip to question 6)

5. If "yes" to 4; how do you feel about the use of such tests to measure your students' achievement of the basic skills?

Very positively Positively Negatively Very negatively

Explain your response:

6. The basic skills are sometimes measured by the use of achievement tests developed by school district staff. These tests are developed to measure the specific objectives of the district's curriculum. Are you familiar with the use of such locally-developed tests in your district or in other districts?

   Circle: Yes No

   (If yes, ask question 7; otherwise skip to question 8.)

7. If "yes" to 6: how do you feel about the use of such tests to measure your students' achievement of basic skills?

   Very positively Positively Negatively Very negatively

   Explain your response:

8. Some teachers feel negatively about the use of standardized achievement tests or achievement tests developed by their district. They are negative because they feel that the achievement scores will be used to evaluate their teaching performance and to hold them accountable for their students' achievment. Do you have such feelings?

   Yes, very much so Yes, somewhat No

   Explain your response:

6. The basic skills are sometimes measured by the use of achievement tests developed by school district staff. These tests are developed to measure the specific objectives of the district's curriculum. Are you familiar with the use of such locally-developed tests in your district or in other districts?

Circle: Yes No

(If yes, ask question 7; otherwise skip to question 8.)

7. If "yes" to 6: how do you feel about the use of such tests to measure your students' achievement of basic skills?

Very positively Positively Negatively Very negatively

Explain your response:

8. Some teachers feel negatively about the use of standardized achievement tests or achievement tests developed by their district. They are negative because they feel that the achievement scores will be used to evaluate their teaching performance and to hold them accountable for their students' achievment. Do you have such feelings?

Yes, very much so Yes, somewhat No

Explain your response:

III. TEACHING MODELS FOR BASIC SKILLS OF READING, MATH, LANGUAGE ARTS

Researchers have tried in recent years to discover effective ways of teaching the basic skills. I want to mention some of the teaching ideas that researchers claim to have found effective in improving students' scores on the achievement tests in basic skills.

9. Researchers say that students' learning of the basic skills would improve if teachers allocated more time for basic skills instruction. Do you think this is an effective technique?

   Very effective Effective Not effective Detrimental

   Explain your response:

10. Would you want to participate in inservice education that helped you find ways of allocating more time for instruction in the basic skills of reading, math, and language arts?

    Yes, very much Yes No No, definitely not

    Explain your response:

11. Have you ever received inservice education to help you find ways to allocate more time for basic skills instruction?

    Circle: Yes No

12. Researchers say that students will learn the basic skills better if they stay on task. Examples of staying on task are listening to and watching your demonstrations, answering your questions, and doing seatwork exercises. Examples of off task behavior are daydreaming, fooling around with classmates, waiting for help from the teacher. Do you think it is true that if students stay on task more of the time, they will learn the basic skills better?

Yes, definitely true Yes No No, definitely not true

Explain your response:

13. Would you want to participate in inservice education that helped you learn teaching techniques that keep students on task more of the time during basic skills instruction?

Yes, very much Yes No No, definitely not

Explain your response:

14. Have you every received inservice education to help you keep students on task more of the time during basic skills instruction?

Circle: Yes No

15. Researchers say that students' scores on achievement tests will improve if teachers focus their instruction on the basic skill content that is covered on these tests. Do you think this is true?

Yes, definitely true Yes No No, definitely not true

Explain your response:

16. Would you want to participate in inservice education that helped you bring your basic skills instruction more in line with the content that is covered on standardized or district-developed achievement tests?

Yes, very much Yes No No, definitely not

Explain your response:

17. Have you ever received inservice education to help you increase the overlap between what you teach in the basic skills areas and what is included on standardized or district-developed achievement tests?

Circle: Yes No

PLEASE NOTE: I'd like you to read a brief description of a teaching approach that research has found may be effective in improving students' learning of basic skills in mathematics. [Ask teacher to read the description of Good and Grouws' model on the next page.]

An Approach to Teaching Mathematics in Elementary School

Daily Review (first 8 minutes except Mondays)
- (a) review the concepts and skills associated with the homework
- (b) collect and deal with homework assignments
- (c) ask several mental computation exercises

Development (about 20 minutes)
- (a) briefly focus on prerequisite skills and concepts
- (b) focus on meaning and promoting student understanding by using lively explanations, demonstrations, process explanations, illustrations, etc.
- (c) assess student comprehension
  - (1) using process/product questions (active interaction)
  - (2) using controlled practice
- (d) repeat and elaborate on the meaning portion as necessary

Seatwork (about 15 minutes)
- (a) provide uninterrupted successful practice
- (b) momentum--keep the ball rolling--get everyone involved, then sustain involvement
- (c) alerting--let students know their work will be checked at end of period
- (d) accountability--check the students' work

Homework Assignment
- (a) assign on a regular basis at the end of each math class except Fridays
- (b) should involve about 15 minutes of work to be done at home
- (c) should include one or two review problems

Special Reviews
- (a) weekly review/maintenance
  - (1) conduct during the first 20 minutes each Monday
  - (2) focus on skills and concepts covered during the previous week
- (b) monthly review/maintenance
  - (1) conduct every fourth Monday
  - (2) focus on skills and concepts covered since the last monthly review

18. Now that you've read the description, I'd like to ask you a few questions about your reaction to it. First, do you think students" math achievement scores would improve if teachers followed this teaching approach?

    Circle: Yes No

    Explain your response:

19. Would you feel comfortable using this teaching approach?

Circle: Yes No

Explain your response:

20. Would you want to participate in inservice education that helped you learn how to use this teaching approach?

Circle: Yes No

Explain your response:

IV. DELIVERY SYSTEM FOR INSERVICE IN BASIC SKILLS OF READING, MATH, LANGUAGE ARTS

21. Suppose that you were to participate in an inservice program to learn the math teaching approach that you just read about. Would you want to start training right away? Or would you want to participate in one or more sessions with a trainer and other teachers to address your concerns about this teaching approach?

    Start training right away
    Participate in sessions to address personal concerns

    Explain your response:

22. If teacher selected "Participate in sessions" in #21, ask what concerns they would want to discuss.

23. Researchers have found that a teacher learns new teaching skills better if someone observes the teacher practicing the skills in his or her own classroom and then gives the teacher feedback based on the observational data. How would you feel about practicing new teaching skills while having someone observe you and give you feedback?

    Very positively Positive Negative Very negative

    Explain your response:

24. If someone were to observe you and give you feedback while you were learning a new teaching approach, who would you most like that person to be? (Classify as role of the person.)

25. Would you prefer to learn a new teaching approach for improving your basic skills instruction all at once? Or would you want an initial inservice experience followed up at intervals by further training and refresher experiences?

All at once
Further training and refresher sessions

Explain your response:

26. If you were to participate in inservice meetings to help you improve your basic skills instruction, where would you like these meetings to be held? CHECK ALL THAT APPLY (and explain your response).

At my school _____
At the school district offices _____
At a university _____
Other _____
It doesn't matter _____

27. Whom would you most prefer to conduct an inservice program on a new approach for teaching the basic skills? (Explain your response.)

Another teacher _____
A district specialist _____
A professor _____
Other _____
No preference _____

28. Inservice meetings can be held at different times of the day and different times of the year. How acceptable do you find each of the following times? Assume that inservice attendance is part of your paid duties.

Complete all the following:

		Very Acceptable	Acceptable	Not Acceptable	Very Unacceptable
a.	early in the morning before classes start	___	___	___	___
b.	during regular school hours (if satisfactory replacement found)	___	___	___	___
c.	in the afternoon after school	___	___	___	___
d.	in the evening after school	___	___	___	___
e.	on inservice days when no classes are scheduled	___	___	___	___
f.	weekends during the school year	___	___	___	___
g.	just before the start of the school year	___	___	___	___
h.	during the summer	___	___	___	___

V. ORGANIZATIONAL CONTEXT FOR INSERVICE IN BASIC SKILLS

29. Groups of teachers often participate together in inservice programs to improve their basic skills instruction. What is your first preference concerning who your fellow participants will be? Your second preference?

Prefer just to learn with teachers from my own school _____
Prefer just to learn with teachers from other schools _____
Prefers to learn with a group that includes teachers from my school and teachers from other schools _____

Explain your response:

30. How would you feel if your school principal participated in a basic skills inservice program with you?

Very positive Positive Negative Very negative

Explain your response:

VI. GOVERNANCE OF INSERVICE IN BASIC SKILLS

31. Suppose that a school district had the goal of improving students' learning of the basic skills and that it was supported by the administrators who felt all teachers should be involved.

Do you think that teacher participation in the inservice should be mandatory under such circumstances?

Yes, definitely so Yes No No, definitely not

Explain your response:

32. What rewards and incentives would you want for participating in a basic skills inservice program for making improvements in your basic skills instruction?

Explain your response:

APPENDIX F

ADMINISTRATOR INTERVIEW SCHEDULE I

PART ONE

Meredith D. Gall
Fay Haisley
Robert Baker
Gavin Bird

University of Oregon, College of Education
Center for Educational Policy and Management

This interview schedule is in two parts. This is Part I. Use Part Two to collect data on each inservice activity identified in Part I.

Administrator's Name _____

School (or district) _____

Date _____

As you know, the purpose of this project is to learn about inservice experiences that your school district provides for its teachers. More specifically, I want to learn about your possible involvement in sponsoring and designing these experiences over the past year. Before we start, though, I'd like to get some background information about you. Please keep in mind that you are free to not answer any of these questions if you don't wish to.

1. Sex [M] [F]

2. Years of experience as a professional educator ____

3. Age (21-25) (26-30) (31-40) (41-50) (51+)

4. Present assignment _____

5. Years as an administrator ____

6. Years in this district as an administrator ____

7. Ability level of students at your school

very low	low	medium ability	high	very high

8. How difficult is this school to administer?

very difficult	difficult	medium	easy	very easy

9. Please describe your school district as a climate for promoting inservice education of teachers. Are other administrators supportive of inservice education in the district? (Classify the district climate based on the respondent's response.)

Highly Unsupportive	Unsupportive	Neutral	Supportive	Highly Supportive

10. Now I'd like to ask about your attitude toward inservice education for teachers. To what extent do you favor it? (Ask follow-up questions. Rate response on this scale.)

Very Negative	Negative	Neutral	Positive	Very Positive

11. I want to review any inservice experiences you were involved in administering over the past school year and the preceding summer. I want to start from the end of classes in June 1981 and go month by month up to the present time.

Before we start our review, we will need a definition of inservice education.

By inservice education we mean any activity that is intended to improve a teacher's capacity as a professional educator. The activity can be very brief (like sponsoring a guest speaker or a school inservice meeting). Or the inservice activity can extend over a school year or longer. To be classified as an inservice activity, it should involve the teacher in new learning. The learning can involve new knowledge, attitudes, or skills. Also, the inservice activity can be done for a variety of purposes - for example, to improve an individual teacher's instruction (clinical supervision) or as part of a school improvement project.

We are only interested in inservice activities that you have had a hand in sponsoring or administering. Is this clear to you? Also, we are only interested in inservice activities that involved at least some elementary teachers.

12. Now let's do a month-by-month review. (Write responses on next page.) June 1981 - do you recall anything that month? July 1981? (Continue up to present month. It's not important that activities be recalled accurately in terms of the month or months they occurred.) Now that we've completed the review, are there any inservice activities that you overlooked?

(Pitfall: Watch time! Don't go into detail at this stage.)

Month	No.	FORMAL INSERVICE ACTIVITY
June '81		
July		
August		
September		
October		
November		
December		
January '82		
February		
March		
April		
May		

(After the interview assign numbers to each separate focus of inservice activity. Get Part II Interview schedules ready. Use one for each inservice activity. The major criterion for deciding whether to group a set of inservice activities as a single unit is whether the administrator views them as highly related to each other.)

APPENDIX G

ADMINISTRATOR INTERVIEW SCHEDULE I

PART TWO

Meredith D. Gall
Fay Haisley
Robert Baker
Gavin Bird

University of Oregon, College of Education
Center for Educational Policy and Management

Use a separate form for each inservice activity identified in Part I.

Administrator's Name _____

Date _____

Brief description of inservice activity # __.

A. TEACHER & STUDENT OBJECTIVES

1. What were teachers supposed to learn from this inservice activity? Think about the specific knowledge, skills, or attitudes that were taught to teachers.

   (Steer away from student objectives or process activities. Probe after the initial response, e.g., Anything else? Can you be more specific? Circle whether each item is K (knowledge), A (attitude), or S (skill).)

   i. K A S _____

   _____

   _____

   ii. K A S _____

   _____

   _____

   iii. K A S _____

   _____

   _____

   iv. K A S _____

   _____

   _____

   v. K A S _____

   _____

   _____

2. In what way were you involved in selecting these objectives?

3. Why were these objectives chosen?

4. Can you identify any unintended effects of this activity?

5. Many inservice activities claim to help teachers help their students to learn better or to learn certain curriculum content, or to have better attitudes. Was this true of this inservice activity? (Circle: yes/no. If yes, ask: What were the specific intended effects?)

i. _____

_____

ii. _____

_____

iii. _____

_____

6. How pertinent were these objectives to helping teachers instruct children in the basic skills of language, reading, and mathematics?

Not Pertinent	Pertinent	Very Pertinent

C. DELIVERY SYSTEM

9. An inservice activity is a process that has many components. I will name these components. For each component, please tell me whether you were involved in making decisions about it. If yes, I'll ask you to indicate what these decisions were, and why you made them.

9a. READINESS ACTIVITIES. Yes/No

9b. INSTRUCTIONAL PROCEDURE/MODE. Yes/No

9c. LEARNING PROCESS. Yes/No

9d. MAINTENANCE/MONITORING. Yes/No

9e. TRAINING SITE. Yes/No

9f. TRAINER. Yes/No

9g. SCHEDULING. Yes/No

9h. BUDGET. Yes/No

9i. If money was expended on this inservice activity, where did it come from?

D. ORGANIZATIONAL CONTEXT

10. Were you involved in the actual inservice process in some way? (Circle yes/no.) If yes: Please describe the nature of your involvement.

10a. If yes to 10: Why were you involved in the ways that you described?

E. GOVERNANCE

11. Did you involve teachers in selecting or designing the inservice activity? (Circle: yes/no.) If yes: In what way and for what reasons did you involve the teachers?

12. Were you involved in deciding whether teacher participation in the inservice activity would be voluntary or mandatory? (Circle: yes/no.) If yes: What decision did you make, and why?

13. Were you involved in deciding incentives or negative consequences that would be used to motivate teachers' participation in the inservice activity? (Circle: yes/no.) If yes: What decisions did you make, and why?

F. PERCEPTIONS OF THE INSERVICE ACTIVITY

14. What aspects of this inservice activity, if any, do you feel positively about?

15. What aspects of this inservice activity, if any, do you feel negatively about?

16. Is there any other information about this activity which you feel should be recorded?

APPENDIX H

ADMINISTRATOR INTERVIEW SCHEDULE II

Meredith D. Gall
Fay Haisley
Rob Baker
Gavin Bird

University of Oregon, College of Education
Center for Educational Policy and Management

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Name_____

Date_____

Administrator Interview

The purpose of this interview is to get your perceptions about basic skills. We want to learn two things: how you feel about basic skills instruction and how you feel about the possible use of inservice education to improve teachers' basic skills instruction.

When I say "basic skills," I am referring to basic skills in reading, math, and language arts.

If you are a principal - when I say "teachers" and "students" I am referring to the teachers and students in your schol.

If you are a district administrator - when I say "teachers" and "students" I am referring to the elementary teachers and elementary students in your school district.

I. BASIC SKILLS AS A GOAL OF SCHOOLING

1. How important do you think it is for teachers to teach the basic skills to students?

   Critical Important Slightly important Unnecessary

   Explain your response:

2. How important do you think it is for teachers to teach the basic skills relative to other goals of the curriculum?

Much more important	More important	Equally important	Less important	Much less important

   Explain your response:

3. How satisfied are you with the progress of your students in learning the basic skills?

Reading	Math	Language Arts
Very satisfied	Very satisfied	Very satisfied
Satisfied	Satisfied	Satisfied
Dissatisfied	Dissatisfied	Dissatisfied
Very dissatisfied	Very dissatisfied	Very dissatisfied

Explain your response:

II. MEASUREMENT OF BASIC SKILLS IN READING, MATH, LANGUAGE ARTS

4. The basic skills are usually measured by the use of standardized achievement tests. Are you familiar with such standardized tests as the Stanford Achievement Test, the Comprehensive Test of Basic Skills (CTBS), or the Metropolitan Achievement Test?

Circle: Yes No

(If yes, ask question 5, otherwise skip to question 6)

5. If "yes" to 4; how do you feel about the use of such tests to measure your students' achievement of the basic skills?

Very positively Positively Negatively Very negatively

Explain your response:

6. The basic skills are sometimes measured by the use of achievement tests developed by school district staff. These tests are developed to measure the specific objectives of the district's curriculum. Are you familiar with the use of such locally-developed tests in your district or in other districts?

Circle: Yes No

(If yes, ask question 7; otherwise skip to question 8)

7. If "yes" to 6: how do you feel about the use of such tests to measure your students' achievement of basic skills?

Very positively Positively Negatively Very negatively

Explain your response:

8. Some administrators feel negatively about the use of standardized achievement tests or achievement tests developed by their district. They are negative because they feel that the achievement scores will be used to evaluate teachers' performance and to hold them accountable for students' achievement. Do you have such feelings?

Yes, very much so Yes, somewhat No

Explain your response:

III. TEACHING MODELS FOR BASIC SKILLS OF READING, MATH, LANGUAGE ARTS

Researchers have tried in recent years to discover effective ways of teaching the basic skills. I want to mention some of the teaching ideas that researchers claim to have found effective in improving students' scores on achievement tests in basic skills.

9. Researchers say that students' learning of the basic skills would improve if teachers allocated more time for basic skills instruction. Do you think this is an effective technique?

Very effective Effective Not effective Detrimental

Explain your response:

10. Are you familiar with any inservice programs to help teachers find ways to allocate more time for basic skills instruction?

Circle: Yes No

11. Researchers say that students will learn the basic skills better if they stay on task. Examples of staying on task are listening to and watching the teacher's demonstrations, answering the teacher's questions, and doing seatwork exercises. Examples of off task behavior are daydreaming, fooling around with classmates, waiting for help from the teacher. Do you think it is true that if students say on task more of the time, they will learn the basic skills better?

    Yes, definitely true Yes No No, definitely not true

    Explain your response:

12. Are you familiar with any inservice programs to help teachers keep students on task more of the time during basic skills instruction?

    Circle: Yes No

13. Researchers say that students' scores on achievement tests will improve if teachers focus their instruction on the basic skill content that is covered on these tests. Do you think this is true?

    Yes, definitely true Yes No No, definitely not true

    Explain your response:

14. Are you familiar with any inservice programs to help teachers increase the overlap between what they teach in the basic skills areas and what is included on standardized or district-developed achievement tests?

    Circle: Yes No

15. Would you advocate the use of inservice education: (a) to help teachers bring their basic skills instruction more in line with the content that is covered on standardized or district-developed achievement tests; (b) to help teachers learn teaching techniques that keep student on task; and (c) to help teachers find ways of allocating more time for basic skills instruction?

    Yes, very much Yes No No, definitely not

    Explain your response:

PLEASE NOTE: I'd like you to read a brief description of a teaching approach that research has found may be effective in improving students' learning of basic skills in mathematics. [Ask teacher to read the description of Good and Grouws' model on the next page.]

An Approach to Teaching Mathematics in Elementary School

Daily Review (first 8 minutes except Mondays)
- (a) review the concepts and skills associated with the homework
- (b) collect and deal with homework assignments
- (c) ask several mental computation exercises

Development (about 20 minutes)
- (a) briefly focus on prerequisite skills and concepts
- (b) focus on meaning and promoting student understanding by using lively explanations, demonstrations, process explanations, illustrations, etc.
- (c) assess student comprehension
  - (1) using process/product questions (active interaction)
  - (2) using controlled practice
- (d) repeat and elaborate on the meaning portion as necessary

Seatwork (about 15 minutes)
- (a) provide uninterrupted successful practice
- (b) momentum--keep the ball rolling--get everyone involved, then sustain involvement
- (c) alerting--let students know their work will be checked at end of period
- (d) accountability--check the students' work

Homework Assignment
- (a) assign on a regular basis at the end of each math class except Fridays
- (b) should involve about 15 minutes of work to be done at home
- (c) should include one or two review problems

Special Reviews
- (a) weekly review/maintenance
  - (1) conduct during the first 20 minutes each Monday
  - (2) focus on skills and concepts covered during the previous week
- (b) monthly review/maintenance
  - (1) conduct every fourth Monday
  - (2) focus on skills and concepts covered since the last monthly review

16. Now that you've read the description, I'd like to ask you a few questions about your reaction to it. First, do you think students' math achievement scores would improve if teachers followed this teaching approach?

    Circle: Yes No

    Explain your response:

17. Would you feel comfortable advocating the use of this teaching approach by your teachers?

Circle: Yes No

Explain your response:

18. Would you advocate the use of inservice education to help teachers learn how to use this teaching approach?

Circle: Yes No

Explain your response:

IV. DELIVERY SYSTEM FOR INSERVICE IN BASIC SKILLS OF READING, MATH, LANGUAGE ARTS

19. Suppose that you were to participate in designing an inservice program to help teachers learn the math teaching approach that you just read about. Would you want to start training right away? Or would you want teachers to address their concerns about this teaching approach first?

Start training right away
Participate in sessions to address personal concerns

Explain your response:

20. Researchers claim that a teacher learns new teaching skills better if someone observes the teacher practicing the skills in his or her own classroom and then gives the teacher feedback based on the observational data. How would you feel about observing teachers and giving them feedback on their teaching skills? (If you are a district administrator, how would you feel about district principals performing these functions?)

Very positively Positive Negative Very negative

Explain your response:

21. Would you prefer to have teachers learn a new teaching approach for improving their basic skills instruction all at once? Or would you prefer an initial inservice experience followed up at intervals by further training and refresher experiences?

All at once
Series of inservice sessions

Explain your response:

22. If you were to participate in designing inservice meetings to help teachers improve their basic skills instruction, where would you like these meetings to be held? CHECK ALL THAT APPLY (and explain your response).

At the teachers' school(s) _____
At the school district offices _____
At a university _____
Other _____
It doesn't matter _____

23. Whom would you prefer to conduct an inservice program on a new approach for teaching the basic skills? (Explain your response.)

A teacher _____
A district specialist _____
A professor _____
Other _____
No preference _____

24. Inservice meetings can be held at different times of the day and different times of the year. How acceptable do you find each of the following times for holding inservice meetings? Assume that inservice attendance is part of teachers' paid duties.

Complete all the following:

	Very Acceptable	Acceptable	Not Acceptable	Very Unacceptable
a. early in the morning before classes start	_____	_____	_____	_____
b. during regular school hours (if satisfactory replacement found)	_____	_____	_____	_____
c. in the afternoon after school	_____	_____	_____	_____
d. in the evening after school	_____	_____	_____	_____
e. on inservice days when no classes are scheduled	_____	_____	_____	_____
f. weekends during the school year	_____	_____	_____	_____
g. just before the start of the school year	_____	_____	_____	_____
h. during the summer	_____	_____	_____	_____

V. ORGANIZATIONAL CONTEXT FOR INSERVICE IN BASIC SKILLS

25. Groups of teachers can be organized together in inservice programs to improve their basic skills instruction. What is your first preference concerning the grouping of teachers? Your second preference?

    (a) Prefer to organize an inservice group that just includes teachers from the same school _____
    (b) Prefer to organize an inservice group that includes teachers from different schools in the district _____

26. How would you feel about participating in a basic skills inservice program with your teachers?

    Very positive Positive Negative Very negative

    Explain your response:

VI. GOVERNANCE OF INSERVICE IN BASIC SKILLS

27. Suppose that a school district had the goal of improving students' learning of the basic skills. Do you think that teacher participation in the inservice should be mandatory under this circumstance?

    Yes, definitely so Yes No No, definitely not

    Explain your response:

28. What rewards and incentives, if any, would you advocate for teachers who participate in an inservice program to make improvement in their basic skills instruction?

    Explain your response:

APPENDIX I

The Relationship Between Inservice Practices and Productivity in Basic Skills Instruction. (Gall/Haisley/Baker/Perez)

CODE BOOK

for

Interview Schedule 1.

(Part Two)

Topics of Inservice Activities

Coding by Gall/Baker

Center for Education Policy
and Management,
University of Oregon,
EUGENE, OREGON.

November, 1982.

Description of procedures:

Step One Transcription

From the interview Schedule 1 (part two) write a brief summary of all the activities obtaining information from the following:

- title of the activity(written as a one sentence description of the inservice).
- A.Teacher Objectives listed as:
    1. Target competencies according to knowledge, attitude or skills focus.
    2. Side or long term effects according to knowledge, attitude or skills emphasis.

Step Two: Code the brief summaries according to:

A. Topics covered

B. Links with direct instruction strategies

C. Links with district curriculum

D. Links with achievement test scores

(See Table One for coding scores)

Rules for Coding

A Topics:

1. If an inservice activity covers more than one topic, code the activity for each topic covered. For example, an activity in which teachers learn to use art in social studies

would be scored twice (exception is language arts - see rule #4)

Teacher I.D. No:	Activity No:	Topic No:
21	01	01
21	01	15

2. Score I.T.I.P. (Madeline Hunter Teaching Method), school effectiveness, computer education, learning centers and similar activities as 03 (general academic), unless there is a specific reason to do otherwise.

3. If a code topic becomes "clarified" when additional information is supplied from a later source, then return and re-code all previous scores for this activity. (note: exception to this in rule 5)

4. If an activity contains more than one language arts topic (eg. writing and reading) score as 05 (language arts) NOT as separate scores of 13 (reading) and 17 (writing).

5. When scoring for Topic, Link with direct instruction or Link with tests, coding should be done only on the basis of data provided by the teacher and included in the transcription summary. Even if data is known about this topic score only on the basis of data provided. (note: this does not apply to scoring C Links with district curriculum)

B Links with direct instruction strategies

1. Score "1" for those activities which describe:

(a) monitoring behavior - in which a teacher asks pupils to perform a desired "basic Skill" (eg. work book practice accompanied by teacher monitoring)

(b) reactive/corrective behavior - to help a student when he or she is unable to provide the desired response.

(c) instructional variables:

(i) allocated time

(ii) engagement rate

(iii) student engaged time

(iv) taking into account students' prior learning

(v) instructional overlap - match between instructional content and achievement test content.

2. See under A. Topics rule # 5.

C Links with district curriculum

1. Curriculum refers to district or school mandated programs.

2. Score "1" for those activities which describe topics clearly linked to a district responsibility for the curriculum

(eg. adoption of a program such as Holt Reading Program or Math Their Way).

3. Score curriculum objectively. That is, if you can infer the activity is being used to support school or district curriculum implementation score it as "1". Inferences usually are made when another teacher activity provides data which can be related to the activity currently being coded. (note: exception rule # 5 Topics)

4. I.T.I.P. is a district - wide adopted curriculum in this project.

D Links with test scores

1. Score "1" for those activities which are designed to improve test scores or pupil grades generally. (note: exception rule # 2).

2. Do not score "1" for those activities which describe tests for diagnostic or placement purposes. For example, do not include subject tests (reading, mathematics) which are part of a regular program.

3. "Tests" do not have to be only standardized tests such as C.A.T., S.A.T. or C.T.B.S. but need only have an achievement or outcome orientation.

TABLE ONE

Column (s) (for use with S.O.S. computer editor file)	Code Score	Category or Code Name	Examples of Coding - direct quotations
Columns 1,2		Teachers' I.D. Number	
3,4		Inservice Activity No:	
5,6		A. TOPICS	
192	01	Art	eg.(i) A workshop on how to use left over scraps to make art projects. (ii)Two workshops on art and oceanography
"	02	District/School policies	eg.(i) Inservice on school budget to help answer public questions. (ii)District and building orientation to learn about policy regulations. (iii)Meeting on school tax base.
"	03	General Academic	eg.(i) To train teachers in the mechanics of standardized tests. (ii)A lecture on 'total school environment research. (iii)Inservice on the microcomputer - company rep. (iv)A lecture on the right/left brain and how it affects my teaching. (v) I.T.I.P. - Madeline Hunter program - district wide.

TABLE ONE (cont'd)

Column(s) (for use with S.O.S. computer editor file)	Code Score	Category or Code Name	Examples of Coding - direct quotations
Columns 5,6	04	Handwriting	eg.(i) Inservice on adoption of handwriting program - learned not to join two S's. (ii)Inservice on interfacing italic and cursive handwriting learned that the two are not in conflict.
"	05	Language Arts	eg.(i) How to do direct instruction in language arts and reading. (ii)"Step ahead" inservice - to develop motivational materials for reading and writing.
"	06	Career Education	eg.(i) Learned about the role of career ed in special ed. (ii)Inservice on career ed. - learned how to help students feel good about their career choices.
"	07	Management/Discipline	eg.(i) An inservice on time - management techniques for teachers. (ii)An inservice on discipline - strategies for achieving positive classroom behavior.
"	08	Mathematics	eg.(i) "Math Their Way" - a district sponsored inservice (ii)An E.S.D. sponsored program called "Thursday Math". (iii)An informal inservice to discuss the mechanics of a pilot program in math and problem solving strategies.

TABLE ONE (cont'd)

Column(s) (for use with S.O.S. computer editor file)	Code Score	Category or Code Name	Examples of Coding - direct quotations
Columns 5,6	09	Music	eg.(i) A P.E. workshop combined with music. (ii) A music workshop led by the district (iii) A music and P.E. workshop to listen to rhythm and movement in music.
"	10	Mental Hygiene	eg.(i) Inservice on mental health and stress to help myself and my student to relax. (ii) A workshop on how to help students cope with a loss eg. death of a parent or family split up.
"	11	Personal/General Professional	eg.(i) A workshop for SELCO representatives to learn how SELCO "takes care of employees". (ii) Rape awareness - how to protect myself at home and at night. (iii) Two U. of O. sessions on discrimination. (iv) Mental health and stress for teachers.
"	12	Physical Educ.	eg.(i) A P.E. workshop on how to use the teachers' guide and how to do P.E. exercises with music. (ii) A U. of O. workshop for school coaches. (iii) A P.E. workshop put on by district teachers.

TABLE ONE (cont'd)

Column(s) (for use with S.O.S. computer editor file)	Code Score	Category or Code Name	Examples of Coding - direct quotations
Columns 5,6	13	Reading	eg.(i) The new Holt Reading Program - 4 district sponsored sessions. (ii) An informal school level inservice to develop reading. (iii) A series of 3 workshops put on by International Reading Assoc. (iv) Managing reading by objectives.
"	14	Science/Energy/ Environment	eg.(i) An inservice program on science and energy run by E.W.E.B. (ii) An E.S.D. - E.W.E.B. workshop on "Wasty Watt" curriculum kit for K-2. (iii) Two workshops on art and oceanography.
"	15	Social Studies	eg.(i) State inservice on Indians - learned how Indian culture dovetails with social studies texts. (ii) Human relations inservice on South East Asian cultures to help E.S.L. kids feel accepted. (iii) Inservice on multi-cultural awareness.
"	16	Spelling	eg.(i) Inservice on the adoption of spelling program - learned that 10-20% is phonetic and rest is irregular.

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TABLE ONE (cont'd)

Column(s) (for use with S.O.S.computer editor file)	Code Score	Category or Code Name	Examples of Coding - direct quotations
Columns 5,6	17	Writing Composition	eg.(i) Three all-day sessions "Teaching Kids to Write Right". (ii)Inservice on the improvement of students writing - learned about wholistic writing and how to implement it. (iii)Inservice on creative story-writing.
"	18	Special Education/ Gifted and Talented	eg.(i) Learned about the role of career ed. in special ed. (ii)Conference on sight impaired children and what the world looks like to one of my h/cap children. (iii)Talented and gifted conference.
Column 7	B.	Links with direct instruction	
"	0	No link with direct instruction	
"	1	Linked with direct instruction	
Column 8	C.	Links with district curriculum	
"	0	No link	
"	1	Linked with curriculum	

TABLE ONE (cont'd)

Column(s) (for use with S.O.S. computer editor file)	Code Score	Category or Code Name	Examples of Coding - direct quotations
Column 9	D.	Links with achievement tests	
"	0	No Link	
"	1	Linked with tests	