

CHAPTER  
5

Teacher  
Education  
and Reading  
Instruction





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# TEACHER EDUCATION AND READING INSTRUCTION

## Executive Summary

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### Introduction

The analysis of reading and reading instruction involves four interacting factors: students, tasks, materials, and teachers. It has often been the case that research has not focused on teachers; it has emphasized students, materials, and tasks. Recent developments, such as class-size reduction and the development of standards for content areas, have highlighted the need for qualified teachers. In addition, teacher education and professional development emerged as one of the most frequently mentioned areas of concern during the regional meetings. Speakers at meetings of the National Reading Panel (NRP) also emphasized the need for consideration of these topics. Given these concerns, a subgroup was established to survey the research in this area. The following is a summary of that work.

### Background

Teacher education and professional development represent two aspects of the ways in which teachers acquire knowledge. In teacher education programs, prospective teachers are taught in structured programs before being certified as teachers. The experiences these preservice teachers have include coursework in theory and methods as well as supervised teaching. Once teachers are in the field, having assumed teaching positions, the emphasis shifts from teacher education to professional development. This latter context is often referred to as inservice education. Because there are dramatic differences in the amount of time spent, the structure of the program, and the continuity of the education, the NRP has chosen to analyze the two contexts separately.

The analysis was guided by three primary questions:

- How are teachers taught to teach reading?
- What do studies show about the effectiveness of teacher education?
- How can research be applied to improve teacher development?

Two secondary questions were posed before the analysis:

- What findings can be used immediately?
- What important gaps remain in our knowledge?

### Methodology

#### How was the analysis of the research literature conducted?

The NRP conducted extensive and systematic searches for research on preservice and inservice teacher education and professional development. According to the methodology developed by the NRP, only studies that were experimental tests of teacher education or professional development and that had appeared in professional journals were included. Each study that met the initial criteria was coded with variables that allowed for further analysis.

### Results and Discussion

#### What do the results of the analysis of studies on teacher education and reading show?

Despite the fact that there is a much larger body of work on teacher education, only a very small number of studies were found to meet the initial criteria. There were differences between the types of problems studied in preservice and inservice research. Preservice research emphasized the learning of methods and use of materials. Inservice research was much more eclectic, seemingly related to specific curricular needs rather than the general instructional needs at the preservice level.

A second important issue is whether teacher education is effective. For teacher education to be effective, it must change both teacher and student behavior. That is, teachers must adopt new ways of teaching, and students must show appropriate improvement as a result. However, it is only for inservice research that student achievement was measured. For preservice



work, only teacher outcomes were measured. This is not entirely inappropriate because this research does show that teachers adopt the strategies and techniques they are taught.

Of the inservice research studies, one-half measured student outcomes as well as teacher outcomes. In all but a few cases the results showed that the intervention in professional development produced significantly higher student achievement.

Because of the small number of studies that constituted the final sample, the Panel could not answer the question of how research can be used to improve teacher education in specific ways. Rather, it is clear that there is a need for programmatic research to answer this question.

Additional evidence on this issue is available in the report from the Comprehension subgroup. The conclusion with respect to the preparation of teachers for comprehension instruction is that it requires extended training with ongoing support. That only a few studies were found dealing with teacher education and professional development in comprehension supports the conclusion of this analysis that a great deal of research is needed on this issue.

Almost all the research demonstrated positive effects on students, teachers, or both. However, the range of variables was so great for the small number of studies available that the NRP could not reach a general conclusion about the specific content of teacher education programs.

## Conclusions

### What conclusions can be drawn from this analysis of teacher education and studies?

Based on the analysis, the NRP concludes that appropriate teacher education does produce higher achievement in students. Much more must be known about the conditions under which this conclusion holds. Some issues that need to be resolved include determining the optimal combination of preservice and inservice experience, effects of preservice experience on inservice performance, appropriate length of interventions for both preservice and inservice education, and best ways to assess the effectiveness of teacher education and professional development.

### Directions for Further Research

There was little research on how teachers can be supported over the long term to ensure sustained implementation of new methods and student achievement. This is an important issue that needs resolution, given the resource-intensive nature of teacher education and professional development.

The Panel found no research in the sample that addresses the question of the relationship between the development of standards and teacher education or professional development. Given the great interest in developing standards, this is an important gap in our knowledge.



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# TEACHER EDUCATION AND READING INSTRUCTION

## Report

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### Introduction

The analysis of reading and reading instruction involves four interacting factors: students, tasks, materials, and teachers. It has often been the case that research has not focused on teachers, emphasizing students, materials and tasks. Recent developments such as class-size reduction and the development of standards for reading and content areas have highlighted the need for, and difficulty in obtaining, qualified teachers. Although accreditation processes for schools and colleges of education (National Council for Accreditation of Teacher Education, for example) and certification of programs (Association for Childhood Education International and International Reading Association) exercise some control over the quality of teacher preparation, there is a need for the standards utilized by these governing bodies to be validated by and predicated on empirical research. (Versions of standards presently used for accreditation related to reading literacy are found in Appendix C.)

Teacher education and professional development emerged as being among the most frequently mentioned areas of concern during the regional meetings. Speakers at meetings of the National Reading Panel (NRP) also emphasized the need for consideration of these topics. Given these concerns, the NRP agreed to include a survey of the research in this area in its report.

Gordon (1985) believed that teacher education originally (19th century origins) and to date was and is largely designed as vocational training, based on an apprenticeship model of education lending its programs to behavioristic learning, imitation, and repeated practice. In addition, it has been almost an article of faith among many teacher educators that there is a body of knowledge that can (and should) be learned as a major component of learning to be a teacher. (See, for example, Shulman, 1986). In addition, Shulman (1986) called for teacher education to be “research-based.” Whereas most proposals for improving teacher

education have presumed to draw on the research literature, those proposals have not unequivocally called for the research-based evaluation of teacher education itself.

There is a growing body of research that shows correlations between aspects of formal teacher preparation and quality of teaching or student outcomes. In a recent study, Darling-Hammond (2000) showed that teacher quality characteristics such as certification status and degree in the field to be taught are significantly and positively correlated with student outcomes. Darling-Hammond (2000) also reports that “NAEP [National Assessment of Educational Progress] analyses found that teachers who had had more professional training were more likely to use teaching practices that are associated with higher reading achievement on the NAEP tests.”

However, there are important caveats associated with this work. It is correlational and, although suggestive, does not deal with the detail necessary to provide specific recommendations for teaching. There is no way to determine what variables account for the general relationship. Research that demonstrates causal relationships might provide more consistent guidance. Moreover, the work does not give much guidance about what the content of teacher education or professional development programs should be.

Other types of reading intervention have also emphasized teacher education in a variety of ways. Notable among these is Reading Recovery<sup>®</sup>. Jongsma (1990) suggests that teachers go through a type of “retraining” because Reading Recovery<sup>®</sup> introduces new ways of looking at literacy learning. By implication, all new ways of looking at reading would require some professional development. Clay (1991) points out the importance of the initial “training” and subsequent needs for inservice development.

A note on usage is appropriate here. The NRP has chosen to use the phrase teacher education rather than teacher training to reflect what the Panel believes is the professionalization of teachers and teaching. Although it



is possible to “train” teachers to use particular methods to teach, it seems more appropriate to educate teachers in a professional context that will give them control over a wide range of decisionmaking tools.

The Panel also distinguishes between teacher education (largely preservice or prior to certification) and professional development (largely inservice or postcertification). The Panel has done this for two reasons. First, it is conceptually important to distinguish between programs in which participants are essentially full-time students and part-time teachers and those in which participants are full-time teachers and part-time students. The second reason is that the research fell into these distinct categories. Different concerns and different research variables and outcomes were involved in the two different research literatures. Despite the division, the Panel does believe they are clearly related.

Taken together, the many theoretical formulations, empirical findings, and practical concerns suggest how important teacher education is in the teaching of reading. It was deemed appropriate to conduct an analysis of the research on teacher education to determine what can be supported by research.

The analysis was guided by the three primary questions:

1. How are teachers taught to teach reading?
2. What do studies show about the effectiveness of teacher education?
3. How can research be applied to improve teacher development?

Two secondary questions were also posed prior to the analysis:

1. What findings can be used immediately?
2. What important gaps remain in our knowledge?

## Methodology

There is a widespread belief that there is little research on teacher education, despite the great interest in the issue.

Cruikshank and Metcalf express this sentiment:

Literature on the conduct, objectives, and the effectiveness of training in teacher education is sparse . . . . Given the historic brouhaha over training in teacher preparation, it would be expected that a considerable available related literature would exist. Such is not the case (Cruikshank & Metcalf, 1990, p. 491).

## Database

To examine the research related to teacher education and professional development, electronic searches were performed on the ERIC, PsycINFO, OCLC World Catalog, and OCLC Article First databases. The search terms used and numbers of articles returned are included in Appendix A.

The initial selection process identified more than 300 papers; many of these were nonexperimental and were therefore not included. The resultant set of studies was then divided into two categories: research on preservice and research on inservice or professional development. The criteria used were that preservice research was primarily concerned with the training of prospective teachers before certification or full-time work in classrooms, whereas inservice work was concerned with teachers who were already teaching in school environments.

To supplement the electronic searches, the bibliographies of the articles identified in the electronic searches and a recent review of teacher education research in reading (Anders, Hoffmann, & Duffy, 2000) were examined for additional citations that did not appear in the electronic searches themselves. Appropriate citations that had not been identified in the electronic searches were added to the pool of research studies to be examined. There were four studies reviewed in the comprehension subgroup report on preparing teachers to teach reading comprehension. Those four studies were included in the teacher education analysis as well.

A total of 32 studies met the final criteria: 11 preservice and 21 inservice. Because of the way in which the results of some of the underlying research was reported, there were more articles than studies. That is,



there were two instances where two published papers reported on different aspects of the same research project. An additional eight studies focused on inservice on teaching for special education or learning disability students. These have not been coded but are noted here as a subgroup of the inservice studies.

## Analysis

It was determined that to conduct meta-analyses on these data would be inappropriate because there is not a critical mass of studies researching the same variables or theoretical positions. Moreover, although all the studies do address the general problems of improving teacher education, the underlying rationales for the studies represent an eclectic mix of theories and conceptualizations.

## Consistency With the Methodology of the National Reading Panel

The methods of the NRP were followed in the conduct of the literature searches and the examination and coding of the articles obtained. Because a meta-analysis was deemed inappropriate, the data were coded using a subset of the coding scheme adopted by the NRP. These data are contained in Appendix B.

## Some Additional Considerations in Research on Teacher Education

When research is conducted on instructional variables, it is often the case that the participating teachers receive instruction in the instructional interventions. For example, when comprehension strategy research is conducted in classrooms, the instructors (either classroom teachers or the researchers) must be taught to conduct instruction in the appropriate manner. In this sense, almost all of the research the NRP has identified contains some elements relative to teacher education. However, in these circumstances, the focus is almost exclusively on student outcomes, without detailed data on changes in teacher behaviors. Although the NRP recognizes the importance of the more general form of teacher education and professional development, it determined that these factors would not be included in the current analysis because of the lack of teacher performance data.

There are also notable programs where teacher education or professional development is an important component of the intervention. Reading Recovery<sup>®</sup> is one example of such a program; Success for All is another. However, most of the research studies on these programs do not include measures of teacher changes in their results. Again, as in most instructional research, the focus is on the specific interventions and student outcomes rather than teacher change. The Panel did not find studies that met the NRP criteria that were in either of the two categories.

One reason that teacher education has been ignored in these research contexts is that researchers believe that any changes in student outcomes are attributable to the intervention, which is, in turn, delivered by the participating teachers. This would logically imply that teachers had learned to deliver the instruction in the way the research program dictated. This is, in part, the criterion of fidelity to the intervention. However, the issue goes well beyond fidelity of teaching to the many other variables that relate to teaching rather than to learning.

Although these studies have *not* been analyzed as part of the pool of studies, they have some relevance to the interpretation of the analysis. Consequently, recommendations at the end of the analysis have been influenced by these concerns.

## Results

In the presentation of results, the research on preservice teacher education has been separated from that on professional development with inservice teachers. The Panel believes this is fundamentally appropriate because different quality criteria and outcome measures can be applied to the research studies. In particular, the criteria of success are different for the two sets of studies.

That is, for preservice studies, the focus is almost entirely on changing teacher behavior, without a concomitant focus on the outcomes of students who are (eventually) instructed by those teachers. The Panel found no instances of research in the pool that continued with preservice teachers as they moved into full-time teaching positions. There is no inherent reason why this is the case. The reasons seem, instead, to be pragmatic and related to the complexities of research that would be introduced in attempting to follow



teachers into full-time teaching. Although the lack of student data limits the conclusions one can draw about the results of this research, it does provide an important background for other teacher education and professional development research. If teacher behaviors cannot be transformed by changes in the curriculum in preservice programs, it is unlikely that teacher behaviors can be changed later.

For inservice research, the ultimate test of success is whether students benefit from instruction delivered by teachers as a result of that intervention. Consequently, the Panel invoked a strong criterion that student outcomes must be part of the research on inservice teachers. However, another criterion is also critical. If there is no change in teachers as a result of the intervention, it is not possible to attribute changes in student outcomes to the teacher development intervention. Other factors must be invoked to account for the changes in students. Consequently, the NRP must have both teacher changes and student changes to agree that inservice interventions are effective. Although the Panel believes that preservice and inservice research form two different bodies of work, they are related in that preservice does provide evidence for the efficacy of producing teacher change. Those changes can be important in designing inservice interventions.

### Preservice Studies

Eleven preservice studies met the criteria for this portion of the NRP analysis. These preservice studies, with coded information, are grouped in Table 1 in Appendix B. Table 2 in Appendix B lists two studies that involved preservice interventions as well as inservice interventions. Most of the preservice research (ten studies) focused on elementary reading instruction. Two (of the ten) studies had a broad range of grade samples, spanning grade levels from K through 8 and 1 through 6. For one study it was not possible to determine the grade level.

The content of the teacher education in these studies is a primary variable in distinguishing among studies. The 11 studies can be classified into the following four categories. For each category, the number of studies is indicated in parentheses.

- **Comprehension and strategy instruction:** Questioning techniques (2)

- **General methods:** Directed Reading-Thinking Activities (DRTA); teaching word recognition skills; Directed Reading Activity (DRA); Informal Reading Inventory (IRI) (4)
- **Materials:** Estimating readability levels; teacher decisionmaking and awareness of materials (2)
- **Others:** Case method; study skills; theoretical orientations to reading (3)

The majority of the preservice studies reviewed (10 of 11) reported improvements in teacher knowledge. Of these ten, two reported mixed or modest effects. Only one study, which looked at the accuracy of teachers in estimating the readability levels of materials, did not report any effect from having either theoretical knowledge of reading or teaching experience, or both, compared with a control group with neither theoretical knowledge nor teaching experience.

The duration of the studies reviewed here ranged from 5 to 6 weeks to about a year, which corresponds closely to the structure of university-based coursework. Although these studies show that preservice courses improved prospective teachers' knowledge, there is no way of knowing whether this increased knowledge actually translates into effective teaching because none of the studies reports data on the teachers after their participation in the experimental program.

In the NRP sample, no studies of larger scale interventions at the program level were found. For example, there were no experimental studies that looked at changes in the format of teacher education programs like the use of professional development sites or the use of standards-based programs.

### Inservice Studies

There were 21 inservice studies that met the criteria for this review. These studies are listed in Appendix B: Coding of Studies. There are four groupings: studies that involved both inservice and preservice interventions (Table 2), studies that measured only teacher outcomes (Table 3), studies that measured both teacher and student outcomes (Table 4), and studies that measured only student outcomes (Table 5).



The first analysis of the data was to determine the grade levels of the teachers who participated in the inservice work. For 18 of the studies, it was possible to do so. Because the studies often involved multiple grade levels, there was a total of 70 different samples of teachers represented in the 18 studies. These data are represented in Figure 1 on the next page.

It is evident that the inservice instruction is targeted at the elementary grades with approximately equal emphasis. The numbers of studies across grades 1 through 5 are equal. There are far fewer studies at the middle and high school grade levels, with only a single study at each of the high school grades.

A second analysis examined the focus of inservice instruction for teachers of reading. Compared with the work in preservice programs, inservice instruction seems to be more eclectic, ranging from training in specific methods (e.g., how to use reading groups) to more extensive instruction encompassing ways to teach reading, classroom management, and lesson design. The topics fell into the following categories, with the number of studies indicated in parentheses.

- **Comprehension and strategy instruction:** Higher order questioning, explicit instruction in using reading skills strategically; questioning and student-teacher interactions; Transactional Strategy Instruction (TSI); questioning and response guidance cues (8)
- **General methods:** Skills vs. Language Experience Approach (LEA); DRA; whole language; phonics, question-and-answer, and giving feedback; teaching a language arts/integrated curriculum (5)
- **Classroom management:** Small groups; reading groups; conducting cooperative learning activities; using performance assessment; translating Madeline Hunter's Instructional Theory Into Practice, focusing on effective classroom management, motivation and lesson design (5)
- **Improving teachers' attitudes:** Teaching writing as a process to facilitate change in teachers' attitudes to language; improving content area teachers' skills and attitudes to teaching reading; enthusiasm training. (3)

It appears to be the case that the emphasis is on specific methods of teaching reading, rather than the general methods that characterize preservice research. There is much less emphasis on the general aspects of teaching reading. Three studies investigated ways in which to improve teacher attitudes, reflecting the needs of teachers on the job.

### Effectiveness of Inservice Instruction

Only 11 studies in the NRP pool measured *both* teacher and student outcomes. Six other studies measured only teacher outcomes, whereas four measured only student outcomes. As noted above, it is necessary to have both teacher and student outcomes to be able to determine whether teacher education is effective. If it is, it must change both teacher and student behavior. That is, teachers must adopt new ways of teaching and students must show appropriate improvement if the results are to be attributed to the new ways of educating teachers.

The measures of teacher change and student outcomes used in this body of research were a combination of informal, researcher-designed assessments and standardized evaluations. As a generalization, the teacher outcome measures were all researcher-designed, whereas the student measures tended to be standardized instruments. At times, student outcomes were measured with a combination of researcher-designed and standardized measures. Given that the researchers designed the treatments, standardized measures of outcomes often did not exist, necessitating the development of researcher-designed instruments.

Another set of analyses examined the duration of the project and the number of hours of instruction delivered. Figure 2 presents the data on the duration of projects.

Of the 21 studies, only 4 had durations of 6 months or less. However, the duration of the project is not necessarily the crucial variable. Where possible, the total amount of time spent in instruction was also examined. It was possible to determine the number of hours of instruction in 11 studies. For many of the studies, the number of hours of instructional intervention is not specified; these studies were not included in this analysis. Often what are reported are phrases like “a monthly meeting” or “weekly workshops.” No attempt

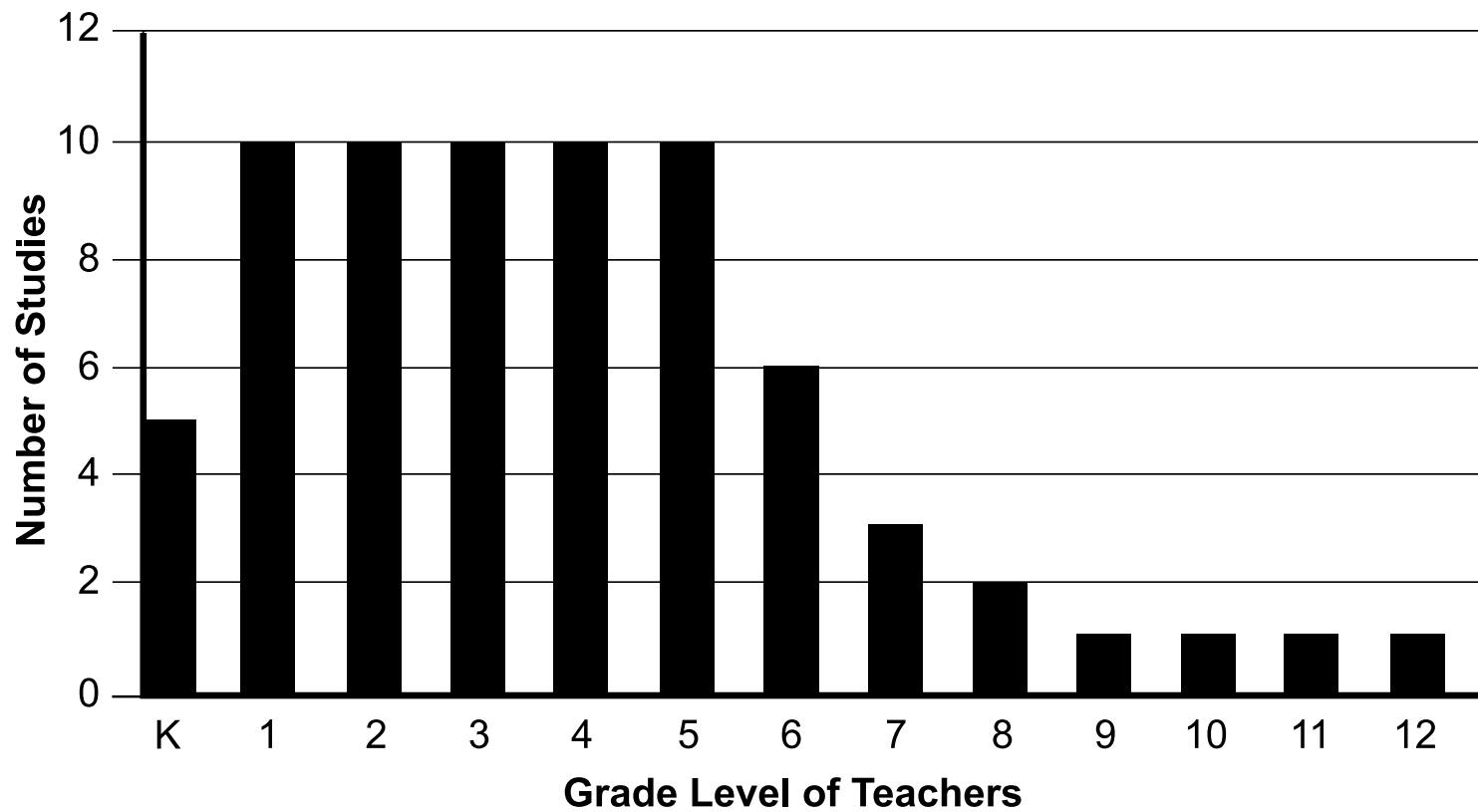




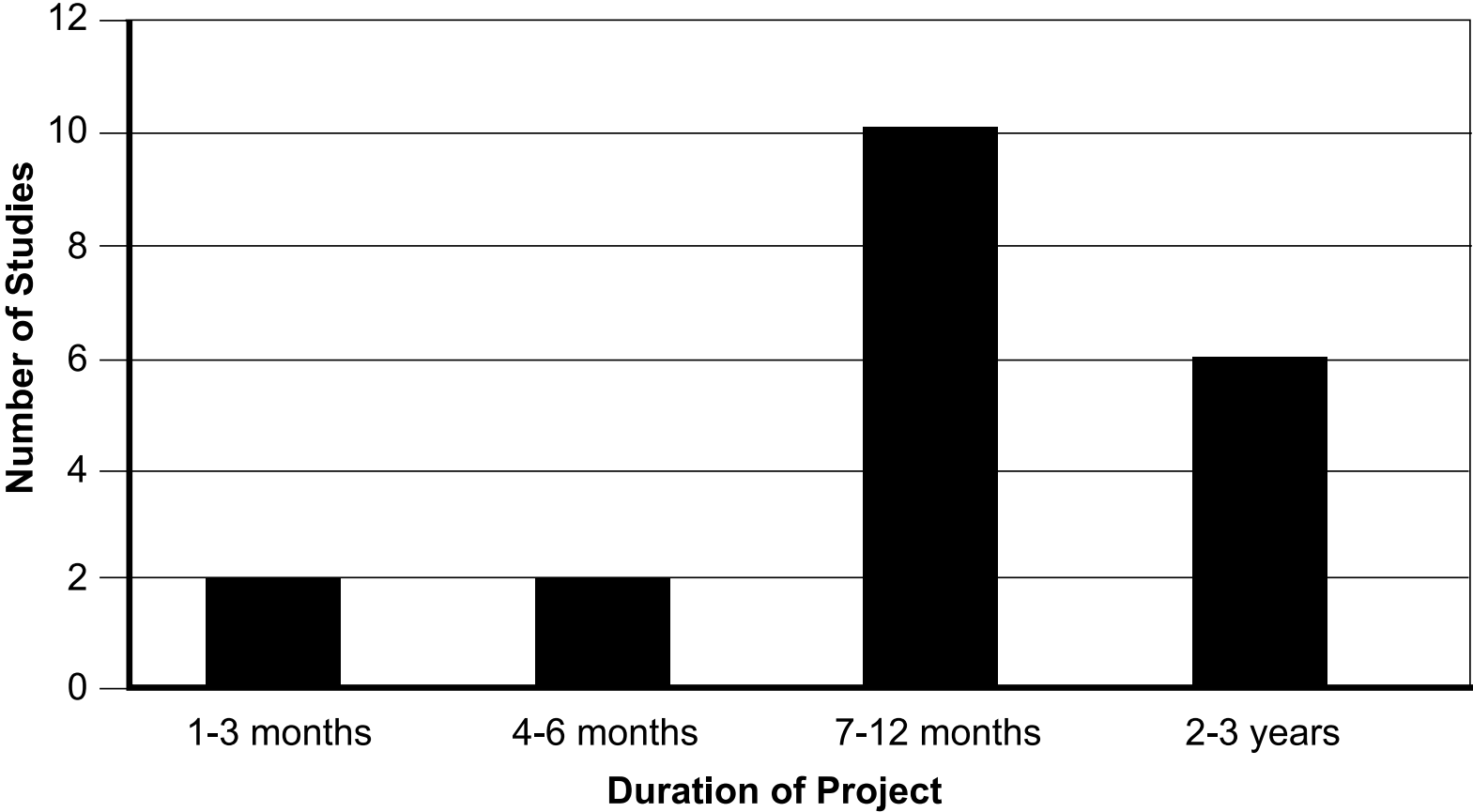
was made to interpret these; only those studies for which unambiguous determinations could be made were analyzed. The data for instructional time are presented in Figure 3.

Figure 3 shows that for the 12 studies for which instructional time could be determined, the greatest number of hours of instruction was 60. The majority of the studies (8 of 12) presented 15 or fewer hours of instruction.

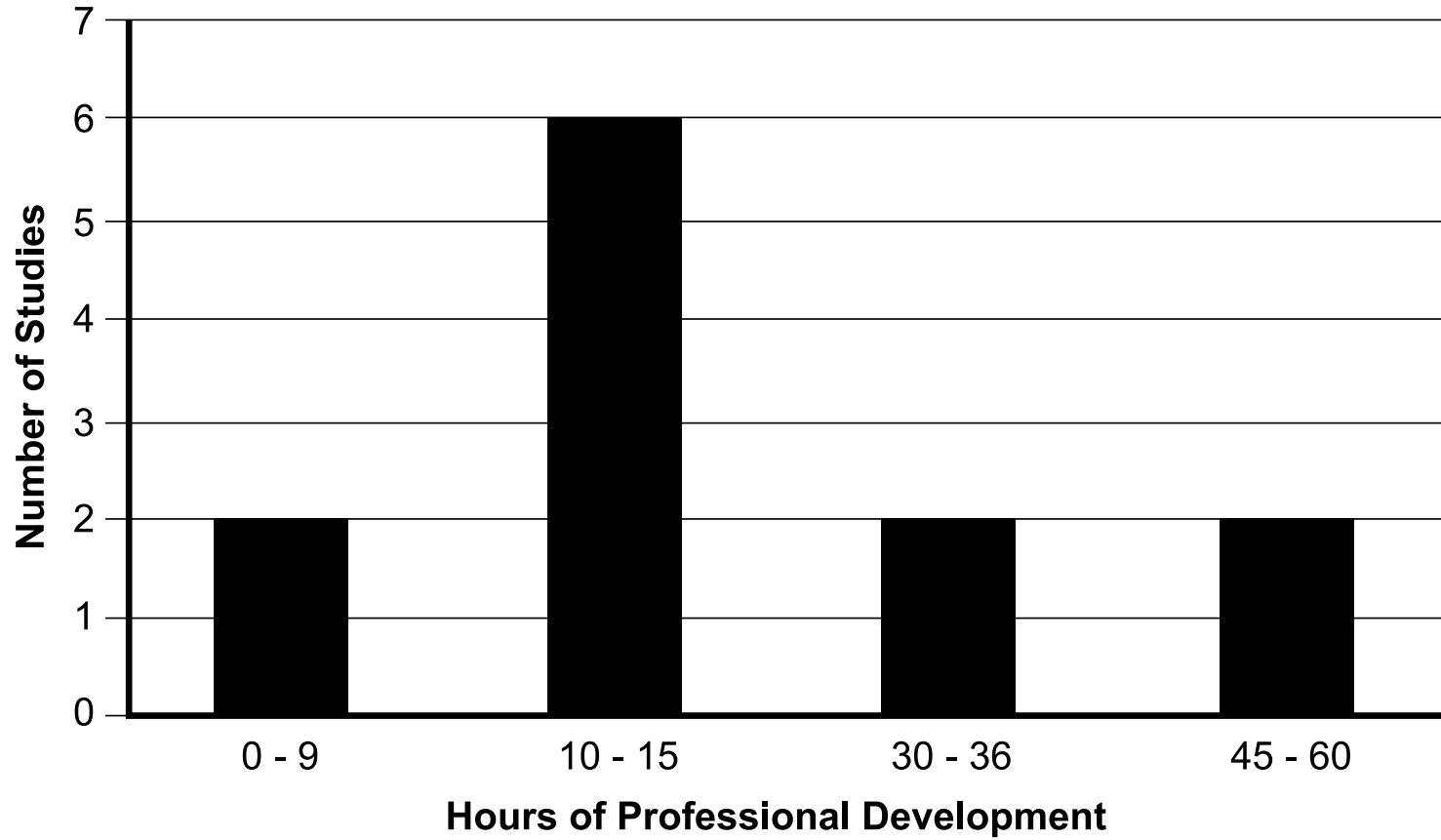
**Figure 1. Number of Studies as a Function of Grade Levels of Teachers for Inservice Research (18 Studies with 70 Grade Samples)**



**Figure 2. Number of Studies as a Function of Duration of Inservice Projects (N=20)**



**Figure 3. Number of Studies as a Function of Amount of In-Service Professional Development, (N=12)**





## Studies Reporting Positive Changes in Teacher Outcomes

Seventeen out of the 21 studies reviewed measured teacher outcomes. Fifteen of these studies reported significant or modest improvements in teachers' knowledge or practice. Out of the fifteen studies that measured student outcomes, 13 reported improvements in student achievement. One clear trend in the data is that where teacher outcomes showed significant improvement, so did student achievement. In studies where no gains are reported for the teachers, no gains are reported for the students in the same study. In general, one can conclude that inservice professional development does lead to improved teacher knowledge and practice and improved student achievement. Because the content of each of these studies is widely divergent, it is not possible to reach a specific conclusion about the content of instruction.

## Studies Reporting No Change in Teacher Outcomes

Three studies (Coladarci & Gage, 1984; Morrison, Harris, & Auerbach, 1969; Stallings & Krasavage, 1986) reported no change in teacher outcomes, in at least some of the conditions in the research projects. In two of these studies, where student outcomes were measured, student achievement did not improve either.

A closer look at these studies reveals two interesting points. First, one study (Coladarci & Gage, 1984) did not involve *any* formal instruction for teachers. Instead, teachers in the treatment group were given "teacher education packets" consisting of materials on a diverse range of topics, including behavior management, large-group instruction, use of question-and-answer, phonics, questioning, and feedback strategies.

Second, all three studies were long-term projects. The study in which teachers received no formal instruction lasted about a year. The other two were 3 years in duration. Morrison and colleagues (1969) caution against using short-term results to validate teacher education efforts because, in the course of their 3-year study, they found that teachers and administrators reverted to what they had been doing before the project began. Stallings and Krasavage (1986), at the end of their 3-year study, also reported that teacher and student outcome measures actually declined although gains by teachers and students were reported during the first 2 years of the study.

However, three long-term inservice programs reported by Talmage, Pascarella, and Ford (1984), Miller and Ellsworth (1985), and Duffy and coworkers (1987a) showed gains by teachers and significant or partial achievement gains by students. Because of this discrepancy, the Panel could find no relationship between the amount of instructional time (or duration of programs) and student outcomes. This may be a function of the limited number of research studies for which the Panel could make the relevant determinations.

It is difficult to compare the studies reviewed here in terms of the duration of instruction that the teachers received. Hence, it is not possible to draw specific conclusions about the relationship between length or intensity of instruction and outcomes. The duration of the inservice intervention depends on the specific objectives and requirements of the program. Sometimes the intervention consisted of the dissemination by mail of a manual (Coladarci & Gage, 1984) or two meetings and the discussion of a teaching manual (Anderson, Evertson, & Brophy, 1979). It could take the form of a series of workshops or meetings spread over 2 days (Scheffler, Richmond, & Kazelskis, 1993) or a year (Shepard, Flexer, Hiebert, Marion, Mayfield, & Weston, 1996) or three workshops spread over 3 summers (Spanjer and Layne, 1983). It could also take the form of a systematic 3-year staff development program (Stallings, Robbins, Presbrey, & Scott, 1986; Stallings & Krasavage, 1986). The studies do not report the duration of the intervention in a consistent manner: some report the number of hours of instruction, whereas others report the overall duration of the project or duration of the staff development program.

Two other issues were difficult to assess. The Panel was unable to determine the amount of resources (personnel, equipment, and materials) from the reports of the research. This amount would have a direct bearing on the ultimate effectiveness of the interventions. It was also not possible to find any experimental research on inservice professional development that related to the issues surrounding standards-based education.

The NRP did not conduct a separate analysis of the research on preparation of teachers for comprehension instruction. An extensive analysis of this research is included in the report from the comprehension subgroup.



## Results: Vocabulary Instruction Methods

### Summary of Findings

The NRP is encouraged by the fact that there is a growing body of experimental research on teacher education and professional development. Although this body of research does not, at present, converge on highly explicit and specific recommendations for teacher education, it does suggest that teacher education is successful in most contexts. It also clearly indicates that when teacher education is successful, student performance improves as well.

At the outset of the review, five questions were listed that guided this analysis. In the following summary, there are first some general comments about what was found with regard to each of the questions. Following that is a more interpretive summary.

### Summary Answers to the Specific Questions for the Review

Unfortunately, the Panel was unable to answer all five questions with the same level of confidence, simply because the data were insufficient. The following paragraphs summarize the information from the analysis relevant to each of the questions.

- **How are teachers taught to teach reading?**

The Panel found no single method that produced results that clearly indicated unquestioned superiority. Rather, an eclectic mix of methods was found that ranged from macro to micro in their focus. There was an emphasis on methods at the preservice levels contrasted with an emphasis on particular instructional problems at the inservice level. As indicated above, there were simply too many approaches in this small sample to allow conclusions about any one specific method.

- **What do studies show about effectiveness of teacher education?**

The set of results for these studies shows overwhelmingly that interventions in teacher education and professional development are successful. That is, teachers can learn to improve their teaching in ways that have direct effects on their students. Although this was demonstrated only for inservice interventions, there is no reason to believe this is not the case for preservice

teachers. There is simply no research that demonstrates this in a positive fashion. Because most of the research demonstrates the effectiveness of teacher education interventions, there is no reason to envisage a different outcome for preservice teachers.

## Implications for Reading Instruction

### How can research be applied to improve teacher development?

Although there is no single, consistent set of findings that points to specific conclusions, the research has some general implications for effective teacher education and development. First, research can determine which of the interventions in teacher education are most effective. Moreover, characteristics of successful teacher education interventions are beginning to emerge. This research suggests that there is a need, particularly at the inservice level, for extensive support (both money and time) on a continuing basis for teacher education efforts. It is also the case that the support must be continued for an extended period of time. The report on Teacher Preparation by the comprehension subgroup reaches similar conclusions.

### What findings can be used immediately?

The studies analyzed in this report do not converge on specific findings with regard to content. Rather, the research suggests that teachers can and do learn to change and improve their teaching. So long as the interventions themselves are based on solid research findings, the interventions in teacher education should produce positive results for teachers and for their students. The research does have implications for the manner in which teacher education is conducted. These implications are discussed more thoroughly in subsequent sections.

### Additional Conclusions About Teacher Education and Professional Development

The most obvious conclusion about the research reviewed is that it clearly demonstrates that teachers can be taught, in both preservice and inservice contexts, to improve their teaching. For preservice teachers, this means that prospective teachers do adopt the teaching methods and attitudes they acquire during the course of their education. Inservice teachers not only demonstrate



improvement in their teaching; this improvement leads directly to higher achievement on the part of their students. These findings were demonstrated in an overwhelming majority of the research studies reviewed.

However, there is insufficient research to draw exact conclusions about the content of teacher education and professional development programs. Rather, a wide range of techniques and content seemed to produce improvement in teaching and in student outcomes. The body of research on these topics is fragmented when it comes to this level of questioning. There are studies of specific methods of teacher education with specific content as well as more general studies that offer no guidance on content.

Teacher attitudes do change as a result of intervention in both preservice and inservice contexts. This is an important finding because it is the predisposition of teachers to change that makes change possible. Without a change in attitude, it is extremely difficult to effect changes in practice. Most of the research that measured attitudes demonstrated that attitudes did change as a result of the interventions, indicating that at least one of the major prerequisites for teacher change can be taught.

Teacher practices improve as a result of education, but it is not clear for how long these changes are sustained. Teachers may use the new methods only when observed. Although some of the studies in this sample were long term, exceeding 2 years, there is little evidence on the sustainability of the interventions. That is not to say that the interventions were not sustained, but that in most of the studies there was simply no evidence presented that spoke to this issue.

Student achievement outcomes can be improved as a result of teacher development. For inservice studies that measured both teacher and student outcomes, this was a clear finding. These studies represent the most effective types of research, recognizing the need to assess both teachers and students. However, even in these studies, sustainability of the student improvements is an issue that was not addressed.

## Directions for Further Research

### What important gaps remain in our knowledge?

Perhaps the most apparent feature of the research analyzed in this study is that there are significant gaps in our knowledge of teacher education and development across the board. Part of the difficulty is that high-quality teacher education research is expensive and requires intensive collaborative efforts from all the stakeholders. In subsequent sections, the Panel details what it considers the most important questions that need to be resolved.

The Panel found no studies in the sample that addressed questions related to the development of standards. Therefore, it makes no conclusion about the efficacy of establishing either content standards for students or for teaching teachers on the basis of those standards. Many of the interventions clearly include elements that are also contained in many standards-based programs. However, too many other factors are involved to be able to attribute causal relationships.

The Panel also found that the reporting of studies was inconsistent. Many studies were not described in sufficient detail to make comparisons. Foremost was a lack of consistent attention to the amount of instruction and the frequency of instruction in the description of the studies, which makes it difficult to tell whether it was reasonable to expect either success or failure in individual studies. Some studies reported only the number of sessions, others only the amount of instruction, and still others neither.

Another important oversight was a description of the resources (personnel, time, money, facilities, etc.) required to implement particular programs. It was often impossible to tell what it would take to implement some of the interventions. Consequently, no assessment could be made about the cost-effectiveness of most of the programs or interventions.

There is a large body of nonexperimental literature that addresses teacher education issues. Under the guidelines established for the review, this literature was to be used to help interpret findings from the analysis of



the experimental literature. However, because of the lack of convergence in the experimental research, the Panel was unable to bring this nonexperimental literature to bear on the current analysis.

The NRP believes that the nonexperimental literature is a rich source for future research programs. Teacher education research involves particularly complex problems. Doing the research is expensive and time consuming. Therefore, one particular contribution of the nonexperimental literature may be to provide a source of problems to be studied under more controlled conditions. That is, the descriptive literature could be brought to bear to reveal current practices, variables, and so forth, that seem promising (or not) under general conditions. Such insights could guide research that looks more closely at causal relationships or in more specific situations. In addition, the Panel refers the reader to the conclusions of the Text Comprehension report, in the belief that the principles underlying them apply more broadly to other subject areas and could also serve to guide future research in teacher preparation.

The small set of experimental studies reviewed does not allow us to address all the questions that originally guided the analysis. Some of these remain unanswered because of the eclectic nature of the work found. Many are unanswered because they were not addressed specifically in the experimental body of research. There was a great deal of nonexperimental research that fell outside the scope of the experimental domain examined. This research addresses a few of the relevant questions that are listed below, but not all and certainly not definitively. A general conclusion here is that although we have a great deal of knowledge about teacher education, much more remains to be learned.

Many of the questions are unanswered because of the resource intensity of teacher education research. It takes a great deal of time and money to do teacher education research in ways that will yield appropriate answers. It takes a commitment from stakeholders, and it takes a great deal of coordination among them. Rarely do all of these elements come together in a way that admits of experimental research.

However, simply providing money and time is insufficient. High-quality teacher education research must bring together persons who are engaged in quite different endeavors in school contexts. They are used

to having control over their own domains and often do not want to relinquish control to any outside influences. Moreover, new “alliances” need to be formed. For example, to answer the questions about effectiveness of preservice education, graduating teachers will need to be followed as they assume teaching jobs. Those who do the preparation of teachers will have to work with persons in the new locations where the graduates work. (Because schools rarely hire teachers en masse, the alliances may have to span districts or other geographic locations to be able to study teachers in sufficient numbers.)

To accomplish the kind of reforms that accompany teacher education improvement requires years of sustained effort at keeping all elements of the system in balance. All of this must take place against a backdrop where the participating individuals may change over the course of a research project. Placed against the other demands (tenure, teaching, publication) on many academic researchers, commitments to the long-term nature of teacher education research often seem daunting.

In addition to the appropriate resources, stronger and more coherent conceptualizations of teacher education and professional development are needed. These conceptualizations need to combine research from a wide variety of perspectives and paradigms to provide the most coherent description of teacher education possible. Such conceptualizations will guide research in more systematic ways, rather than allowing the highly eclectic forms of investigations that characterize current teacher education research. There are excellent examples of good teacher education research; more are needed, as is better reporting of the results as they are disseminated so that subsequent research can build on completed research rather than begin anew with each effort.

We need to find out how teachers can be supported over the long term to ensure sustained implementation of new methods or programs, as well as the sustainability of student achievement. There is a trend in the research analyzed that suggests that teachers may revert to their original methods of teaching; it is important to determine how best to have teachers maintain any improvements they make in their teaching abilities.





Another problem that needs to be addressed in teacher education research is the precise nature of the interventions. In the literature the NRP analyzed, there is only sparse information on the precise content of what teachers were taught. Rather, there is a mix of techniques, methods, theories, and materials that are often confounded with each other in the instructional contexts. Some of the instructional methods focus on teacher attitudes while others focus on the use of specific materials. This question should be addressed in a systematic way.

There is a need to develop and refine the ways in which we study the link between teacher education and student outcomes. Only a few inservice studies looked at both teacher and student outcomes. None of the preservice research made the link between teacher outcomes and ultimate student performance. Although all the inservice research that reported improved teacher outcomes also reported improvement in student achievement, there is no evidence that this is true for preservice programs.

Because teacher education is a labor-intensive endeavor, new ways of instruction need to be developed that make it possible for instruction to be more effective. In the sample of studies, the Panel found a total of seven preservice and inservice research studies that used various forms of technology to improve teacher education. This is a promising direction. Computer technology has made the use of video modeling and simulation even more available than it has been. The use of either simulated or real teaching cases, linked with appropriate instruction, can provide supplemental experiences to classroom instruction in teaching.

The list of questions that remains is a long one. However, there is a growing consensus on many elements of the problems in teacher education and professional development. The technology to improve teacher knowledge and performance exists. Positive changes in teacher education have been demonstrated by a wide variety of interventions. Further studies are needed to address the problems that remain.

## References

- Anders, P., Hoffmann, J., & Duffy, G. (2000). Teaching teachers to teach reading: Paradigm shifts, persistent problems, and challenges. In M. Kamil, P. Mosenthal, P.D. Pearson, & R. Barr (Eds.). Handbook of Reading Research, Vol. 3. (pp. 721-744). Mahwah, NJ: Lawrence Erlbaum Associates.
- Clay, M. M. (1991). Why is an inservice programme for Reading Recovery teachers necessary? Reading Horizons, 31(5), 355-372.
- Cruickshank, D. R., & Metcalf, K. K. (1990). Training within teacher preparation. In W. R. Houston (Ed.), Handbook of Research on Teacher Education (pp. 469-497). NY: Macmillan Publishing Company.
- Gordon, B. (1985). Teaching teachers: "Nation at risk" and the issue of knowledge in teacher education. Urban Review, 17, 33-46.
- Darling-Hammond, L. (2000). Teacher quality and student achievement: A review of state policy evidence. Education Policy Analysis Archives [On-line], 8(1). Available: <http://epaa.asu.edu/epaa/v8n1/>
- Jongsma, K. S. (1990). Training for Reading Recovery teachers (questions and answers). Reading Teacher, 44(3), 272-275.
- Shulman, L. S. (1986). Those who understand: Knowledge growth in teaching. Educational Researcher, 15(2), 4-14.



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# TEACHER EDUCATION AND READING INSTRUCTION

## Appendices

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### Appendix A Studies Analyzed

- Anderson, L. M., Everson, C. M., & Brophy, J. E. (1979). An experimental study of effective teaching in first-grade reading groups. Elementary School Journal, 79(4), 193-223.
- Baker, J. E. (1977). Application of the in-service training/classroom consultation model to reading instruction. Ontario Psychologist, 9(4), 57-62.
- Block, C. C. (1993). Strategy instruction in a literature-based reading program. Elementary School Journal, 94(2), 139-51.
- Book, C. L., Duffy, G. G., Roehler, L. R., Meloth, M. S., & Vavrus, L. G. (1985). A study of the relationship between teacher explanation and student metacognitive awareness during reading instruction. Communication Education, 34(1), 29-36.
- Brown, R., El-Dinary, P.B., Pressley, M., & Coy-Ogan, L. (1995). A transactional strategies approach to reading instruction (National Reading Research Center). Reading Teacher, 49(3), 256-58.
- Brown, R., Pressley, M., Van Meter, P., & Schuder, T. (1996). A quasi-experimental validation of transactional strategies instruction with low-achieving second-grade readers. Journal of Educational Psychology, 88(1), 18-37.
- Coladarci, T., & Gage, N. L. (1984). Effects of a minimal intervention on teacher behavior and student achievement. American Educational Research Journal, 21(3), 539-555.
- Conley, M. M. W. (1983). Increasing students' reading achievement via teacher inservice education. Reading Teacher, 36(8), 804-808.
- Copeland, W. D., & Decker, D. L. (1996). Video cases and the development of meaning making in preservice teachers. Teaching and Teacher Education, 12(5), 467-481.
- Duffy, G. G., Roehler, L., Meloth, M. S., Vavrus, L. G., Wesselman, R., Putnam, J., & Bassiri, D. (1986). The relationship between explicit verbal explanations during reading skill instruction and student awareness and achievement: a study of reading teacher effects. Reading Research Quarterly, 21(3), 237-252.
- Duffy, G. G., Roehler, L. R., Sivan, E., Rackliffe, G., Book, C., Meloth, M. S., Vavrus, L. G., Wesselman, R., Putnam, J., & Bassiri, D. (1987). Effects of explaining the reasoning associated with using reading strategies. Reading Research Quarterly, 22(3), 347-368.
- Dupuis, M. M., Askov, E. N., & Lee, J.W. (1979). Changing attitudes toward content area reading: the content area reading project. Journal of Educational Research, 73(2), 65-74.
- Greenberg, K. H., Woodside, M. R., & Brasil, L. (1994). Differences in the degree of mediated learning and classroom interaction structure for trained and untrained teachers. Journal of Classroom Interaction, 29(2), 1-9.
- Hoover, N. L., & Carroll, R. G. (1987). Self-assessment of classroom instruction: an effective approach to inservice education. Teaching and Teacher Education, 3(3), 179-191.
- Johnson, C. S., & Evans, A. D. (1992). Improving teacher questioning: A study of a training program. Literacy Research, 10.



Klesius, J. P., Searls, E. F., & Zielonka, P. (1990). A comparison of two methods of direct instruction of preservice teachers. Journal of Teacher Education, 41(4), 34-44.

Levin, B. B. (1995). Using the case method in teacher education: The role of discussion and experience in teachers' thinking about cases. Teaching and Teacher Education, 11(1), 63-79.

Miller, J. W., & Ellsworth, R. (1985). The evaluation of a two-year program to improve teacher effectiveness in reading instruction. Elementary School Journal, 85(4), 485-496.

Morrison, C., Harris, A. J., & Auerbach, I. T. (1969). Staff after-effects of participation in a reading research project: a follow-up study of the craft project. Reading Research Quarterly, 4, 366-395.

Olson, M. W., & Gillis, M. (1983). Teaching reading study skills and course content to preservice teachers. Reading World, 23(2), 124-133.

Reid, E. R. (1997). Exemplary Center for Reading Instruction (ECRI). Behavior and Social Issues, 7(1), 19-24.

Scheffler, A. J., Richmond, M., & Kazelskis, R. (1993). Examining shifts in teachers' theoretical orientation to reading. Reading Psychology, 14(1), 1-13.

Shepard, L. A., Flexer, R. J., Hiebert, E. H., Marion, S. F., Mayfield, V., & Weston, T. J. (1996). Effects of introducing classroom performance assessments on student learning. Educational Measurement: Issues and Practice, 15(3), 7-18.

Spanjer, R. A., & Layne, B. H. (1983). Teacher attitudes toward language: Effects of training in a process approach to writing. Journal of Educational Research, 77(1), 60-62.

Stallings, J., & Krasavage, E. M. (1986). Program implementation and student achievement in a four-year Madeline Hunter follow-through project. Elementary School Journal, 87(2), 117-138.

Stallings, P., Robbins, P., Presbrey, L., & Scott, J. (1986). Effects of instruction based on the Madeline Hunter model on students' achievement: findings from a follow-through project. Elementary School Journal, 86(5), 571-587.

Streeter, B. B. (1986). The effects of training experienced teachers in enthusiasm on students' attitudes toward reading. Reading Psychology, 7(4), 249-259.

Talmage, H., Pascarella, E. T., & Ford, S. (1984). The influence of cooperation learning strategies on teacher practices, student perceptions of the learning environment, and academic achievement. American Educational Research Journal, 21(1), 163-179.

Tyre, B. B., & Knight, D. W. (1972). Teaching word recognition skills to preservice teachers: An analysis of three procedures. Southern Journal of Educational Research, 6(3), 113-122.

Wedman, J. M., Hughes, J. A., & Robinson, R. R. (1993). The effect of using systematic cooperative learning approach to help preservice teachers learn informal reading inventory procedures. Innovative Higher Education, 17(4), 231-241.

Wedman, J. M., & Moutray, C. (1991). The effect of training on the questions preservice teachers ask during literature discussions. Reading Research and Instruction, 30(2), 62-70.

Wedman, J. M., & Robinson, R. (1988). Effects of a decision-making model on preservice teachers' decision-making practices and materials use. Reading Improvement, 25(2), 110-116.

Westermarck, T. I., & Crichlow, K. A. (1983). The effect of theoretical and situational knowledge of reading on teachers' estimates of readability. Reading Psychology, 4(2), 129-139.

Wham, M. A. (1993). The relationship between undergraduate course work and beliefs about reading instruction. Journal of Research and Development in Education, 27(1), 9-17.

## Appendix B

### Search Details

<b>Search Terms Used and Number of Articles Returned: November 12, 1998</b>				
Key Term	OCLC - World Cat	OCLC - Article First	PsycINFO	ERIC
Reading teacher education		4	4	1,350
Teacher education reading	558	4	5	
Preservice reading teachers				
Training reading teachers	733	4	5	



Search Terms Used and Number of Articles Returned: April 13, 1999										
SEARCH	Teacher Education	Preservice Teacher Education	Inservice Teacher Education	Teacher Training	Teacher Preparation	Inservice	Preservice	Teacher Education Program Evaluation	Staff Development	Professional Development
PsycLIT 1887- 1999										
Development										
Teacher Education	3,562									
Preservice Teacher Education	33	33								
Inservice Teacher Education	625	1	625							
Teacher Training	541	1	89	1,181						
Teacher Preparation	174	1	6	28	319					
Inservice	709	3	625	118	17	1,704				
Preservice	366	33	35	52	5	165	885			
Teacher Education Program Evaluation	2	0	0	0	0	0	0	2		
Staff Development	84	0	53	14	3	75	17	0	445	
Professional Development	138	5	39	12	8	106	35	0	90	1947
Reading	213	5	44	85	27	84	76	0	25	51
Writing	94	5	9	19	5	27	35	0	9	43
Literacy	55	3	6	11	9	25	26	0	6	22



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## **Search Terms Used and Number of Articles Returned**

### **Additional Searches:**

Professional development <and> teacher - 247

Reading <and> inservice <and> teacher education - 52

Reading <and> writing <and> literacy -438

Reading <and> preservice <and> teacher education -35

Reading <and> writing <and> literacy <and> teacher education -14

Reading <and> writing <and> literacy <and> teacher education program evaluation - 0

Reading <and> writing <and> literacy <and> teacher training -1

## Appendix C

### Coding of Studies

**Table 1: Preservice Studies**

Author, Date, & Publisher	Exp/Quasi	Control: Yes/No	Pre & Post: Yes/No	Pre/In-service	Type of Teacher Training & Duration	Gr	Dependent Measures: Teacher (Tr) & Student (St)	Findings
Copeland, W.D., & Decker, D.L. (1996). <i>Teaching and Teacher Education</i> , 12(5), 467-481.	Q	No	Yes	Pre 9	Group-based discussion experience with video of DRTA with 4th grade students 6 weeks	4*	Tr: How teachers interpreted (meaning-making) video data & improved after group discussion. Analyzed by topics. St: None	More than one-third of the topics discussed were adopted, transformed, or created by the respondents to describe their own meaning-making 3 weeks later.
Johnson, C.S., & Evans, A.D. (1992). <i>Literacy Research</i> , 10.	Q	No	Yes	Pre 22	Questioning techniques: a) shared inquiry; b) basal reader questions c) question & answer relationships (QAR). Six class sessions of 100 minutes = 100 minutes	Ele	Tr: Type of questions designed by trs after training. St: None	Number & percentage of restricted thinking and literal questions decreased while related and extended thinking questions (esp. critical thinking) increased.
Klesius, J.P, Searls, E.F., & Zielonka, P. (1990). <i>Journal of Teacher Education</i> , 41(4), 34-44.	E	Yes + Random	No	Pre 37	Directed Reading Activity (DRA) [vocabulary, background, & motivation, guided silent reading, & comprehension questions] instruction via lecture & discussion vs instruction via video & simulation 1 semester (inferred)	Ele	Tr: Classroom observations of teachers St: None	There were no short-term differences in performance between the 2 instructional groups, but those instructed with videotape and simulation retained and used the information better for a longer period of time.
Olson, M.W., & Gillis, M. (1983). <i>Reading World</i> , 124-133.	E	Yes + Random assign-ment of teachers in existing program	No	Pre 121 n = ? attrition not reported	Learning study skills and content (topic: fundamentals of reading) concurrently. 1 semester (inferred)	Not stated	Tr: 1) Survey of Study Habits & Attitudes 2) Vocabulary: Stanford Diagnostic Reading Test 3) Compre: Stanford DRT 4) Researcher-designed MCQ course content test St: None	Experimental group had significant gains on survey of study habits and attitudes and course content. The control group tutored children in an elementary school. This suggests that preservice teachers lack proficient reading habits but can improve with lessons on study skills taught at the same time as content instruction.







<p>Tyre, B.B. &amp; Knight, D.W. (1972). <i>Southern Journal of Educational Research</i>, 6(3), 113-122.</p>	<p>E</p>	<p>Yes. 3 Groups + random</p>	<p>Yes</p>	<p>Pre 72</p>	<p>Teaching word-recognition skills G1: classroom instruction supplemented with compiling an annotated list of teaching techniques G2: instruction supplemented with basal readers, preparing lesson plans, &amp; viewing videos of teaching G3: studying basals, preparing lesson plans, &amp; teaching children. Duration not reported.</p>	<p>Ele (infer-red)</p>	<p>Tr: 1) Phonics Test for Teachers 2) Test of Phonics Principles 3) California Phonics Survey St: None</p>	<p>Phonics Test for Teachers and Test of Phonics Principles indicated significant gain in knowledge of word recognition skills for all groups. No significant gain reported when measured by California test. This supports the use of tutorial or practicum experiences together with learning of theory in preservice methods courses.</p>
<p>Wedman, J.M., Hughes, J.A., &amp; Robinson, R.R. (1993). <i>Innovative Higher Education</i>, 17(4) 231-241.</p>	<p>E</p>	<p>Yes. Assigned to treatment &amp; control based on GPA. Control n=30; treatment n=47</p>	<p>No</p>	<p>Pre 77</p>	<p>Using cooperative learning approach to help preservice teachers learn Informal Reading Inventory (IRI) concepts and procedures. 3 weeks.</p>	<p>1-6</p>	<p>Tr: 2 measures a) Researcher-designed MCQ based on Analytical Reading Inventory (Woods &amp; Moe, 1981). Administered end of 3 weeks. b) Questions on participants' perceptions of the systematic cooperative learning approach. Treatment group only. St: None</p>	<p>Treatment group scored significantly higher than control group on IRI learning outcomes measure. The lecture method, used alone, appears significantly less effective for helping students learn skills and procedures. But cooperative learning alone is not sufficient as 32% of the participants perceived listening in class as an effective way to learn. A balance between traditional lecture method and various cooperative learning activities should be used.</p>
<p>Wedman, J.M., &amp; Moutray, C. (1991). <i>Reading Research and Instruction</i>, 30(2), 62-70.</p>	<p>E</p>	<p>Yes. 3 groups (A, B, C). Assignment by GPA. Equal numbers of low, middle, &amp; high. Probably randomized</p>	<p>No</p>	<p>Pre 36</p>	<p>Questioning: Literal, text-based inferential questions (TBIQ) and Prior Knowledge-based inferential questions (PKBIQ) A: Literal &amp; inferential questions taught. B: Lower &amp; higher level questions in basals were taught. C: No instruction in questioning. Instruction on classroom uses of literature. 8-week project.</p>	<p>Jr ele</p>	<p>Tr: Written questions &amp; audio record of questions generated during discussions St: None</p>	<p>Both Groups A &amp; B generated TBIQ with higher overall frequency &amp; percentage than C. As more practice was provided, frequency of TBIQ increased for all groups' questions. Group B performed significantly higher than A or C for TBIQ. All groups formulated PKBIQ. Group C asked more general questions than A or B.</p>

**Table 1: Preservice Studies (continued)**

Wedman, J.M., & Robinson, R. (1988). <u>Reading Improvement</u> , 25(2), 110-116.	Q	No	Yes	Pre 27	Teachers' knowledge of reading and its effects on decisionmaking practices and awareness of materials. 1 semester (inferred)	Ele	Tr: Measures of decisionmaking (problem-solution and analysis by "thought units" and perception) (3-point scale). St: None	Participants' decision-making practices and materials use changed from pretest to posttest. Posttest thought units related to decisions addressed practices requiring instructional reevaluation or change. The number of materials mentioned substantially increased from pretest to posttest.
Wham, M.A. (1993). <u>Journal of Research &amp; Development in Education</u> , 27(1), 9-17.	Q	No	Yes	Pre	Methods of teaching reading K-8. Undergraduate coursework + student teaching experience with cooperating teachers. N=35 Final phase of the study examined changes in orientation from pre-coursework to post-student teaching. Duration: about 3 semesters	K-8	Tr: DeFord's Theoretical Orientations to Reading Profile (TORP) 6/35 teachers were videotaped to ensure consistency between reading instruction and responses to TORP. St: None	More than half (54%) did not experience any change in theoretical orientation throughout the course. This finding appears to support the view (Lortie, 1975) that the major influence shaping future teachers' conceptions of teaching is past experience as pupils. The current study suggests that the methods courses and the student teaching experience are only modestly related to changes in the theoretical orientations of preservice teachers.





**Table 2: Studies of Both Preservice and Inservice**

Authors, Date, & Publisher	Exp/ Quasi	Control: Yes/No	Pre & Post: Yes/No	Pre/ In-S	Type Of Teacher Training & Duration	Gr	Dependent Measures: Teacher (Tr) & Student (St)	Findings
Levin, B.B. (1995). <u>Teaching and Teacher Education</u> , 11(1), -63-79.	Q Participants from existing program.	Yes. Not reported whether there was random assignment. Each group had equal numbers of student, beginning, and experienced teachers.	Yes	8 pre 16 in	Case method in teacher education. 2 cases: teaching writing in 4th grade Reading & writing about case vs. reading, discussing, & writing. About 5 weeks	4*	Tr: analyses of written response to cases St: None	Opportunity to read, write, and discuss a case affected teachers' thinking about the case. For experienced teachers, discussion was a catalyst for reflection and metacognition. Less experienced teachers and preservice teachers were able to clarify and elaborate their thinking. Only reading and writing about a case provided little stimulus for teachers to elaborate their understanding or increase their perspectives on issues in the case.
Westermarck, T.I., & Crichlow, K.A. (1983). <u>Reading Psychology: An International Quarterly</u> , 4, 129-139.	Q	Yes. Not random: 4 groups (1, 2, 3, and 4) from existing enrollment	No	72: 36 pre + 36 in	Estimating readability levels G1: Theoretical & situational knowledge of reading G2: Situational knowledge only G3: Theoretical knowledge only G4: No knowledge of theory or practice. 1 semester (inferred)	Ele	Tr: Accuracy in estimating readability subjectively compared to actual reading level of materials. St: None	No effect. Teachers vary widely in estimating readability. All groups estimated readability equally accurately, and accuracy decreased as readability levels increased for all groups.

Table 3: Inservice Studies with Teacher Outcome Measures Only								
Author/s, Date & Pub	Exp/ Quasi	Control: Yes/No	Pre & Post: Yes/- No	Pre/ In-S	Type of Teacher Training & Duration	Gr	Dependent Measures: Teacher (Tr) & Student (St)	Findings
Dupuis, M.M., Askov, E.N., & Lee, J.W. (1979). <u>Journal of Educational Research</u> , 73(2), 65-74.	Q	Yes. Non-random assignment. Control group consisted of teachers from the same school but not part of the project.	Yes; teachers only.	In 127	Teaching content area teachers how to teach reading (diagnosis, motivation, organization for instruction, materials selection, skills development, evaluation, etc.). Also aimed to improve attitudes toward teaching reading in the content area classroom. Videotapes used. Duration: 1 year. Training hours: about 45 hours.	Jr high	Tr: Teacher attitude toward teaching reading, teacher morale, teacher skill level in teaching reading, and staff ratings of teacher change. St: None.	The attitude gains made by the experimental groups were significantly greater than those of the comparison groups. Morale appeared not to have been a significant factor in determining teachers' attitudes to integrating reading instruction in content areas. Significantly more experimental group teachers changed from nonmastery to mastery at posttest. The interrater reliability of judging teacher change cannot be determined. Ratings (observations) seemed to indicate that changes were reflected in classroom practice. But overall, teachers' knowledge of reading skills did not improve as much as hoped.
Greenberg, K.H., Woodside, M.R., & Brasil, L. (1994). <u>Journal of Classroom Interaction</u> , 29(2), 1-9.	Q	Yes. Not random. Existing classrooms used.	No	In 27	Questioning & teacher-student interactions (tr- questions, st-answers, tr-sustaining/ terminating feedback). COGNET: Cognitive Enrichment Network. Explored relationship between mediated learning interactions (based on Vygotsky & Feuerstein) and question dyad variables. Duration: 3 years. More than 60 hours of training.	K, 1, 2, 3	Tr: Observational analysis based on Mediated Learning Experience Observational Analysis System (Greenberg, 1990); Brophy & Good's Teacher-Child Dyadic Interaction System (1969). St: None	The degree to which teachers provided mediated learning was based on knowledge and skills on how to facilitate the learning process. Experimental group showed higher levels of use of mediated learning, e.g., asking more process questions and accepting partially correct answers. They were able to ask questions requiring children to choose between responses and encouraged them to think more deeply through rephrasing and giving clues. Limitation: small sample.





**Table 3: Inservice Studies with Teacher Outcome Measures Only (continued)**

Author/s, Date, & Publisher	Exp/ Quasi	Control: Yes/No	Pre & Post: Yes/No	Pre/ In-S	Type of Teacher Training & Duration	Gr	Dependent Measures: Teacher (Tr) & Student (St)	Findings
Hoover, N.L., & Carroll, R.G. (1987). <u>Teaching &amp; Teacher Education</u> , 3(3), 179-191.	Q	No	Yes; teachers only	In 53	Training in using reading groups was provided. Teachers were also trained to use a self-assessment checklist to evaluate their own reading instruction on videotape. Duration: about 6 months. 32 hours of training.	K-7	Tr: Random selection of video taped data (37%) was made and audited by the researchers using the self-assessment checklist. St: None	Pre- and posttest data showed that the self-assessment procedure was effective in helping teachers improve instruction. Teachers reported significant improvements in their teaching behavior, which is supported by the quantitative data. Unanswered question: whether the impact of self-assessment procedure is sustainable.
Morrison, C., Harris, A.J., & Auerbach, I.T. (1969). <u>Reading Research Quarterly</u> , 4, 366-395.	Q	Yes	Yes	In 92	Project was designed for teaching beginning reading instruction to disadvantaged urban children.  Two approaches consisting each of two methods: a) skills approach (basal reader & phonovisual method); b) Language Experience Approach (LEA & LE Audio-Visual; d) Pilot (combination of LEA & word recognition). Duration: 3 years. Training hours: not reported.	1, 2, 3	Tr: Attitude inventory & interviews St: N = 1378 (started); replication study, N = 679 St: None	Results indicated that teachers were no longer using the experimental materials in the same way they did when the study was in progress and had, in fact, reverted to a pattern of instruction similar to what they had been doing. Administrative policies pertaining to grouping also reverted back to what they were. The study cautions against using short-term results to validate teacher education efforts.
Scheffler, A.J., Richmond, M., & Kazelskis, R. (1993). <u>Reading Psychology: An International Quarterly</u> , 14(1), 1-13.	Q	No	Yes. Teachers only. Pre-test, post-test, and delayed--posttest	In 55	Whole language. Duration: 2.5 months 2 day-long workshops. About 12-16 hours of training.	K-8	Tr: Theoretical orientation to reading as measured by the DeFord Theoretical Orientation to Reading Profile (TORP) St: None	A significant main effect was found among the pre-, post-, and delayed-post-trial scores for the total TORP scores. As a group, the subjects moved significantly closer to a whole language orientation from the pre- to the delayed-post-trial measure.

**Table 3: Inservice Studies with Teacher Outcome Measures Only (continued)**

Author/s, Date, & Publisher	Exp/ Quasi	Control: Yes/No	Pre & Post: Yes/No	Pre/ In-S	Type of Teacher Training & Duration	Gr	Dependent Measures: Teacher (Tr) & Student (St)	Findings
Spanjer, R.A., & Layne, B.H. (1983). <u>Journal of Educational Research</u> , 77(1), 60-62.	Q	No	Yes. Teachers only	In 78	Teaching writing as a process to facilitate a change in teachers' attitude to language. Workshop curriculum adapted from Berkeley's Bay Area Project (1977). Duration: 3 years. 3 workshops over 3 summers. Training hours not reported.	38 elem.-mid-sch.; 41 sec.-post-sec.	Tr: Teachers' attitudes were assessed using the Language Inquiry (Frogner, 1969) inventory. The instrument covers standards in using American English. and on language study & teaching. 1 missing pretest score, n=78 St: None.	The posttest mean was significantly greater than the pretest mean. The process approach to writing may influence teachers' attitudes toward language (i.e., less rule bound & prescriptive, more sensitive to usage according to purpose and context).





Table 4: Inservice Studies with Teacher and Student Outcome Measures								
Author/s, Date, & Publisher	Exp/ Quasi	Control: Yes/No	Pre & Post: Yes/No	Pre/ In-S	Type of Teacher Training & Duration	Gr	Dependent Measures: Teacher (Tr) & Student (St)	Findings
Anderson, L.M., Everton, C.M., & Brophy, J.E.. (1979). <u>Elementary School Journal</u> , 79(4), 193-223.	Q	Yes. Not truly random. 10 treatment (observed); 10 control; 7 treatment (not observed). All in each school assigned to control or treatment.	No	In 27	Instructional model for promoting effective instruction in small groups in the early grades. Duration: 1 year. Minimal training. Teachers read a manual and 2 meetings were held. Training hours: None.	1	Tr: Observations over 1 year to ensure implementation of the model. St: Class means were reported. 27 classes. Measures of student readiness (Metropolitan Readiness Tests, Level 1) and reading achievement.	The treatment classes (whether observed or unobserved) had higher adjusted achievement scores. Differences in teachers' behaviors in the control and experimental groups were observed, but not all can be attributed to the treatment. The treatment teachers exhibited more of those behaviors associated with achievement. Overall, the content of the treatment probably had effects on student achievement, but other effects (e.g., school effects) cannot be ruled out.
Baker, J.E.. (1977). <u>Ontario Psychologist</u> , 9(4), 57-62.	Q	Yes (students only). Not random. N = 18 (control) and N = 18 (treatment)	Yes; students only	In 18	Classroom consultation model (IS/C) to improve reading instruction for underachieving readers. Strategies include: 1) stimulus variation 2) reinforcement techniques 3) response guidance cues 4) questioning techniques. Videotapes (of elementary & secondary teachers & their students) used for training. Duration: 4.5 months. 10 workshops (+ 6 attended previously) About 10-15 hours of training	4	Tr: N = 18. Teachers' ratings of relevance of the inservice sessions and written evaluations, indicating changes in attitudes, values and behavior. St: N = 36 (underachieving readers taught by 3 teachers) Dependent measures: Gilmore Oral Reading Test (Accuracy & Comprehension subtests); Schonell Graded Word Reading List; Metropolitan Achievement Test (MAT); Elementary Spelling Subtest.	Changes in the teachers included increased awareness of questioning techniques, improvement in planning skills and introducing concepts sequentially, requiring and illustrating principles of thinking, utilizing oral discussions to encourage student writing, allowing time for concrete presentations of concepts. The results were significant in student performance for three of the four dependent measures. The MAT (spelling test) did not show significant differences between treatment and control subjects.

**Table 4: Inservice Studies With Teacher and Student Outcome Measures (continued)**

Author/s, Date, & Publisher	Exp/ Quasi	Control: Yes/No	Pre & Post: Yes/No	Pre/ In-S	Type of Teacher Training & Duration	Gr	Dependent Measures: Teacher (Tr) & Student (St)	Findings
Book, C.L., Duffy, G.G., Roehler, L.R., Meloth, M.S., & Vavrus, L.G.. (1985). <u>Communication Education</u> , 34(1), 29-36.	E	Yes. Randomly assigned.	No	In 22	Direct Explanation method. Teachers were trained in the use of explicit explanations of reading skills and processes. Low reading groups. Duration: not reported. 3 training sessions. Number of training hours not reported.	5	Tr: Teachers in control and experimental groups observed and rated on explicitness of their explanations, using a rating scale developed by the researchers. St: After each lesson, at least 5 students were interviewed on strategy awareness: - What did you learn? - Why is it important? - How do you do it? No measures of student strategy usage or reading achievement.	Students of treatment teachers scored significantly higher than students of control teachers on strategy awareness. Treatment teachers were rated as significantly more explicit in their explanations than control teachers. Treatment teachers also became more explicit in their explanations over time. There was a significant positive relationship between student metacognitive awareness and teacher explanation, i.e., as teachers became more explicit in their explanation, students' ratings of awareness increased.
Brown, R., Pressley, M., Van Meter, P., & Schuder, T. (1996). <u>Journal of Educational Psychology</u> , 88 (1), 18-37	Q	Yes. Teachers were not randomly assigned.	Yes (for students)	In 10 teachers 60 students	Transactional Strategies Instruction (TSI), emphasizing joint construction of text interpretations and student strategy usage. Students read below 2nd grade level. Duration: 1 academic year. Training hours: not reported. The experimental group teachers did not receive training for this study. All had extensive prior experience with TSI.	2	Tr: No formal measures were used although lessons were observed. Treatment classes were observed to have more prominent discussion of strategies than comparison reading groups. St: a) Strategies interview to assess awareness of comprehension and problem-solving strategies. b) Retelling questions to assess students' retelling and sequencing of 2 stories. c) Think-aloud task to determine whether students were more text- or reader-based in their responses to probes. d) Standardized subtests of reading comprehension and word skills (Stanford Achievement Test [SAT]).	Students of treatment teachers scored significantly higher than students of control teachers on the comprehension and word skills subtests of SAT. They also showed significantly greater improvement on these measures over the course of the study. Students of the treatment teachers recalled more literal information and were significantly more interpretive in their retelling of the stories. Students of treatment teachers reported more awareness of comprehension and word-level strategies than did the students of control teachers.







**Table 4: Inservice Studies With Teacher and Student Outcome Measures (continued)**

Author/s, Date, & Publisher	Exp/ Quasi	Control: Yes/No	Pre & Post: Yes/No	Pre/ In-S	Type of Teacher Training & Duration	Gr	Dependent Measures: Teacher (Tr) & Student (St)	Findings
Coladarci, T., & Gage, N.L. (1984). <i>American Educational Research Journal</i> , 21(3), 539-555.	E	Yes	Yes; pre and post for teachers & students. 28 classes (data available)	In 32	Teacher education packets (TEP) by Crawford et al., 1978 were given to treatment and control group teachers. TEP consisted of a) behavior management & discipline b) large-group instruction, use of Q&A, & phonics exercises in reading; c) questioning and feedback strategies. There was no formal training; teachers were asked to follow what was given in the guidelines. Duration: About 1 year. Formal training: None.	4,5,6	Tr: Classroom observation pre- and posttreatment. Observation records yielded rough estimates of the extent to which teacher behavior reflected TEP recommendations. St: Comprehensive. Test of Basic Skills was used.	As an experiment, this study failed to corroborate the positive results obtained previously in similar classroom-based experiments. Toward the end of the school year, the experimental group teachers did not show appreciably greater conformity to the TEP recommendations, nor did their classes improve in end-of-year academic achievement.
Conley, M.M.W. (1983). <i>Reading Teacher</i> , 36(8), 804-808.	E	Yes. Teachers in each school were randomly assigned	Yes, for students only	In 32	Comprehension instruction (literal, inferential, critical, and creative). Included higher order questioning techniques. Note: Students were all black & from low socioeconomic backgrounds. They were selected because they read below the national norm for their age level. Duration: 6 months. About 10-15 hours of training.	Grade 6 materials were used; students were ungraded	Tr: Ongoing formative evaluation. St: Gates-MacGinitie Reading Test (level E)	Teachers benefited (evident from qualitative data during inservice evaluations and feedback), but more important were significant comprehension gains for students.

**Table 4: Inservice Studies With Teacher and Student Outcome Measures (continued)**

Author/s, Date, & Publisher	Exp/ Quasi	Control: Yes/No	Pre & Post: Yes/No	Pre/ In-S	Type of Teacher Training & Duration	Gr	Dependent Measures: Teacher (Tr) & Student (St)	Findings
Duffy, G.G., Roehler, L.R., Meloth, M.S., Vavrus, L.G., Book, C., Putnam, J., & Wesselman, R. (1986). <u>Reading Research Quarterly</u> , 21(3), 237-252.	E	Yes; randomly assigned	1) Yes: Baseline data on teacher effectiveness through observations + post-treatment observations. 2) Yes: students were measured pre- and post- on standardized test.	In 22	Explicit instruction and explanation in using reading skills strategically. Low reading groups. Duration: 7 months. 1 meeting & presentation + 10 hours of training.	5	Tr: Ratings of teachers' instructional explanations (transcripts) St: Ratings of "awareness" after lessons (transcripts): 5 students interviewed per teacher. Gates-MacGinitie Reading Test (1978) Time taken for control and treatment groups to do the test.	Teachers who were trained were rated significantly higher than those in the control group in explicit strategy instruction. Students in the experimental groups showed significantly more awareness of reading strategies. But there were no achievement gains in comprehension. The qualitative data from 3 good teachers and 3 less effective teachers showed the former producing significantly greater growth in achievement. Students in the treatment group took longer to complete the posttest.
Duffy, G.G., Roehler, L.R., Sivan, E., Rackliffe, G., Book, C., Meloth, M.S., Vavrus, L.G., Wesselman, R., Putnam, J., & Bassiri, D. (1987). <u>Reading Research Quarterly</u> , 22 (3), 347-368.	E	Yes. Randomly assigned.	Yes	In 20 148 students	Direct Explanation with a focus on explaining the reasoning associated with skill and strategy usage. Low reading groups. Duration: 1 academic year. Training hours: 12	3	Tr: Researcher-designed rating instrument was used to rate transcripts of teachers' explanations for explicitness. St: a) SAT (comprehension & word skills subtests) b) Michigan Educational Assessment Program (MEAP) [delayed posttest] c) Lesson interviews (immediately following a lesson) & concept interviews (at the end of the year) d) Supplemental Achievement Measure (SAM) [researcher-designed] e) Modified Graded Oral Reading Paragraph (GORP)	The treatment teachers were found to be more explicit in explaining the reasoning associated with using reading skills than were the control teachers. On SAT, students of treatment teachers scored significantly higher than students of control teachers on word skills, but not on comprehension. Students of treatment teachers scored significantly higher than students of control teachers on MEAP. Students of treatment teachers scored higher also in -Lesson interviews -Concept interviews -SAM (Part 2 only, not Part 1) -Modified GORP test.



**Table 4: Inservice Studies With Teacher and Student Outcome Measures (continued)**



Author/s, Date, & Publisher	Exp/ Quasi	Control: Yes/No	Pre & Post: Yes/No	Pre/ In-S	Type of Teacher Training & Duration	Gr	Dependent Measures: Teacher (Tr) & Student (St)	Findings
Miller, J.W., & Ellsworth, R. (1985). <i>Elementary School Journal</i> , 85(4), 485-496.	Q & E	Yes. a) Not random for N = 143 b) Random for N = 33	1) Yes for teachers 2) No complete pretest data for students, but baseline was established through pretest scores of equivalent students.	In 141/143	Four semester-long courses aimed at improving reading instruction: a) assessment of reading levels & skill need b) differentiation of instruction c) use of diverse instructional materials d) Directed Reading Activity (DRA) as basic format for lesson preparation; e) story discussion techniques f) promotion of recreational reading & developing student reading interests. Duration: 2 years. Training hours: not reported.	2-5	Tr: a) Knowledge of reading assessed by the Inventory of Teacher Knowledge of Reading (Artley & Hardin, 1975). N = 143. Not random. b) Measurement of actual teacher behavior. Classroom observation. N = 16 (exp). N = 17 (control). Random. St: California Achievement Test. (N = 511). Post-inservice training program comparison of participating and non-participating teachers' students.	Teachers who had more knowledge of reading, but less experience and fewer college degrees, opted to participate in the inservice course. Teacher attitudes toward reading instruction showed significant differences on three (adjusted) posttest means: 1) grouping children on the basis of interests has no place in a reading program (trained teachers disagreed more strongly); 2) if a child does not respond to phonics instruction, he should be taught to read by sight (trained teachers agreed more strongly); 3) reading is a skill and must be practiced if proficiency is to be achieved (trained teachers agreed more strongly). Trained teachers (N = 16) demonstrated higher implementation levels of desired behaviors in all six areas than did a sample of nonparticipating teachers (N = 17). A posthoc analysis showed that there were significant differences in student achievement at 0.05 level.
Stallings, J., Robbins, P., Presbrey, L., & Scott, J. (1986). <i>Elementary School Journal</i> , 86(5), 571-587.	Q	Yes. Not random.	1) Yes, teachers were observed before training. 2) Yes for students	In 13 teachers; 208 students	Madeline Hunter's Instructional Theory into Practice to improve instruction and classroom management. Funding was given by NIE to improve reading and math of Chapter 1-eligible children. 2 selected schools had the highest percentage of Chapter 1-eligible children in their school districts (50% & 55%). Reports data from 1982-1983 (II), 1983-1984 (III). Duration: 3 years. Training hours: not reported.	1-4	Tr: Quality and quantity of program implementation were measured by Instructional Skills Observation Instrument (ISOI) & Time-Off-Task Observation System, questionnaires & interviews. Designed by the researchers. St: a) Reading and math achievement scores. b) Rate of student engagement as measured by Time-Off-Task system.	Teachers improved in their instructional skills significantly over 4 months. The range in teacher performance was reduced. Students made significant gains in reading during Phases II & III of the study and in math during Phase II, but instructional skills and engaged rate did not correlate with gain. Limited English-speaking (LES) students benefited from the program. Their gains each year in reading and math were more than those of the other children in the study.

**Table 4: Inservice Studies With Teacher and Student Outcome Measures (continued)**

Author/s, Date, & Publisher	Exp/ Quasi	Control: Yes/No	Pre & Post: Yes/No	Pre/ In-S	Type of Teacher Training & Duration	Gr	Dependent Measures: Teacher (Tr) & Student (St)	Findings
Stallings, J., & Krasavage, EM. (1986). <u>Elementary School Journal</u> , 87(2), 117-138.	Q	Yes. Not random	Yes for teachers & students	450 students	As above. Reports data from 1984-5 (IV). Schools selected had the highest percentage of Chapter 1-eligible students. Duration: as above. Training hours: as above.	1-4	As above	Seven of ten teachers' reading and math ISOL scores dropped in 1985. Student engaged rates in reading and math dropped significantly in 1985. Comparisons with matched control schools on standardized tests showed greater gains among control students from 1984-1985. LES students gained more than English-speaking students. Inconsistencies in teacher behaviors and student reading achievements in all years of the study. Evidence is not strong for a link between implementation of the Hunter model and student achievement.
Streeter, B.B. (1986). <u>Reading Psychology: An International Quarterly</u> , 7(4), 249-259	E	Yes. Teachers were randomly assigned	Yes	In 19	Enthusiasm training for teachers. Videotapes used for postconferencing. Duration: 2 weeks. 10 hours of training.	1-5	Tr: Teachers were observed pre- and posttraining. Variables include vocal delivery, eyes, gestures, movements, facial expressions, word selection, acceptance of ideas, and overall energy. St: Attitudes to reading measured by the SRA Primary Level (pre and post).	The control group showed some gains, but not as much as the experimental group. Training led to increased levels of observable teacher enthusiasm. Only one of the four dimensions of the student measure showed significant change. There was a drop in the "Expressed Reading Difficulty" dimension, showing less perceived difficulty with reading. Hence, teachers' higher levels of enthusiasm posttraining had an effect on students' attitudes to reading.





**Table 4: Inservice Studies with Teacher and Student Outcome Measures (continued)**

Author/s, Date, & Publisher	Exp/ Quasi	Control: Yes/No	Pre & Post: Yes/No	Pre/ In-S	Type of Teacher Training & Duration	Gr	Dependent Measures: Teacher (Tr) & Student (St)	Findings
Talmage, H., Pascarella, E.T., & Ford, S. (1984). <u>American Educational Research Journal</u> , 21(1), 163-179.	Q	Yes. Not random	Yes. Teachers and students (except 1st grade)	In 107	Increasing teachers' skills in conducting cooperative learning activities. Duration: 3 years. Training hours: not reported.	2-6	Tr: Classroom observations, interviews and pre- and postmeasures of teaching practices and teacher attitudes were used. St: 1) Students' perceptions of their classroom learning environment were obtained. 2) Reading Comprehension & Language Arts achievement measured by district standardized tests (Science Research Associates, Inc.)	Cooperative learning strategies can be learned effectively by teachers through long-term inservice programs. There were positive effects of teacher experience with cooperative grouping on student perceptions of cooperation. There were some effects on students' reading scores but not for language arts. Some ambiguity still exists in accounting for the influence of cooperative learning on achievement. There are probably other unmeasured outcomes of the project that helped raise student achievement.

Table 5: Inservice Studies With Student Outcome Measures Only								
Author/s, Date, & Publisher	Exp/ Quasi	Control: Yes/No	Pre & Post: Yes/No	Pre/ In-S	Type of Teacher Training & Duration	Gr	Dependent Measures: Teacher (Tr) & Student (St)	Findings
Block, C. (1993). <u>Elementary School Journal</u> , 94(2), 139-151.	E	Yes. Classes were randomly assigned.	Yes (for students)	Research assistants were used. No. not reported. 352 students	Strategy instruction in a student-centered curriculum, i.e., student choice of objectives and materials. Duration: 8 months. Training hours: not reported.	2-6	Tr: None St: a) Iowa Test of Basic Skills was administered posttest. It was not reported whether this was used at pretest. b) Observations: The last lesson taught in each experimental and control class was videotaped and rated for levels of comprehension and thinking abilities seen in discussions. c) Students' self-esteem, idea generation, and reflective thinking ability were assessed pre- and posttest. d) Reasoning ability was measured using the California State Department of Education Statewide Assessment Test (1989).	Experimental students scored significantly higher than controls on the posttests for reading comprehension, vocabulary, and total battery scores. No significant differences were found between the two groups' scores on the English grammar posttest. On the basis of videotaped lesson observations, raters ranked students in experimental classes as "better thinkers" than controls. Experimental students did better than controls on measures of self-esteem, idea generation, ability to transfer thinking skills to real-life situations, reflective thinking, reasoning, and problem-solving.
Brown, R., El-Dinary, P.B., Pressley, M., & Coy-Ogan, L. (1995). <u>Reading Teacher</u> , 49(3), 256-258.	Q	Yes. Not random: used teachers from existing classrooms	No	In 10 teachers 12 students	Students "were experiencing at least some difficulty learning how to read." 1-year study. Training hours: not reported.	2	Tr: None St: Several measures of reading & strategic processing (instruments not stated) (ref: Brown et al. Tech report). Instruments are described in Brown, Pressley, Van Meter, & Schuder (1996), <u>Journal of Educational Psychology</u> , 88(1), 18-37.	TSI students: a) learned more about strategic processing and used strategies on their own more frequently while reading a challenging story; b) acquired more information and developed richer understanding from stories read; c) showed greater gains on standardized comprehension and word study skills. Teachers believed it increased students' self-confidence and enjoyment as readers, improving interactions among students during reading. Teachers also found it challenging to teach students to use a repertoire of strategies.





**Table 5: Inservice Studies With Student Outcome Measures Only (continued)**

Author/s, Date, & Publisher	Exp/ Quasi	Control: Yes/No	Pre & Post: Yes/No	Pre/ In-S	Type of Teacher Training & Duration	Gr	Dependent Measures: Teacher (Tr) & Student (St)	Findings
Reid, E.R. (1997). <u>Behavior and Social Issues</u> , 1(1), 19-24.	Q	Yes. Not random	No	In N not stated	Training for a language arts/integrated curriculum: word recognition, vocabulary comprehension, study skills, spelling, penmanship, proofing, writing, and literature. Training included the above, using strategies that prevent failure and management systems to enable all students to learn. Microcomputers used to teach typing, reading, and spelling in K-8. Duration: 1 year. 5-day seminar. Approximately 30-35 hours.	1-12	Tr: None St: SAT; CTBS, & ITBS. Woodcock-Johnson & Nelson-Denny (for some of the special ed and bilingual students in two schools). Included regular education, special ed, gifted, and special needs students. 2,274 students (1990); regular students N = 1,733. 1,986 students (1996).	In the 1990 evaluation, looking only at the schools with controls, the experimental schools gained 8 & 14 Normal Curve Equivalents (NCEs) in vocabulary and comprehension compared with a range from a loss of 9 NCEs to a gain of 6 NCEs for control schools. For the 1996 evaluation, students demonstrated significant gains on the reading subtests of standardized achievement tests.
Shepard, LA, Flexer, R.J., Hiebert, E.H., Marion, S.F., Mayfield, V., & Weston, T.J. (1996). <u>Educational Measurement: Issues and Practice</u> , 15(3), 7-18.	Q	Yes. Not random. Treatment schools volunteered and control schools were matched on SES data.	Approximately premeasures appropriate for 3rd graders used and compared with outcome scores at the end of the year.	In	Performance assessment in reading and math. After school workshops were held weekly for a whole year alternating between reading and math. Duration: 1 year. Training hours: not reported.	3	Tr: None St: 1991 Maryland School Performance Assessment Program, supplemented by a portion of another measure (Korets et al., 1991) for math. N = 335.	No gains in student learning were found following the yearlong effort to introduce classroom performance assessments.

## Appendix D Standards

The 1989 NCATE Approved Curriculum Guidelines of the ACEI for the basic programs for the preparation of elementary education teachers include the following standards: (Note that indicators are provided for Standard 13, the standard dealing with literacy.)

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| <p>1. Programs should provide teacher candidates with an understanding of the roles of elementary school teachers and the alternative patterns of elementary school organization.</p> <p>2. Programs should provide study and experience concerning the role of the teaching profession in the dynamics of curriculum change and school improvement.</p> <p>3. Programs should include study and experiences, throughout the professional studies sequence that link child development to elementary school curriculum and instruction.</p> <p>4. Programs should develop the teacher candidates' capacities to organize and implement instruction for students.</p> <p>5. Programs should include study and application of a variety of developmentally appropriate experiences that demonstrate varied approaches to knowledge construction and application in all disciplines.</p> <p>6. Programs should include study and application of current research findings about teaching and learning.</p> <p>7. Programs should provide a well-planned sequence of varied clinical/field experiences with students of different ages, cultural and linguistic backgrounds, and exceptionalities. These experiences should connect course content with elementary school practice.</p> | <p>8. Programs include opportunities to study, analyze, and practice effective models of classroom management in campus and field-based settings and to engage in a gradual increase in responsibility.</p> <p>9. Programs should provide study and experiences for critically selecting and using materials, resources, and technology appropriate to the age, development level, cultural and linguistic backgrounds, and exceptionalities of students.</p> <p>10. Programs should provide for indepth study in at least one academic discipline by including significant course work beyond the introductory level to reflect processes of inquiry and research.</p> <p>11. Programs should develop understandings of positive health behaviors, movement skills, and physical fitness to allow teacher candidates to provide appropriate health education and physical education experiences for students.</p> <p>12. Programs should prepare teacher candidates to become confident in their ability to do mathematics and to create an environment in which students become confident learners and doers of mathematics.</p> <p>13. Programs in the area of students' literacy development should be designed to help teacher candidates create experiences for their students in reading, writing, and oral language. These programs should stress the integration of reading, writing, and oral language with each other and with the content areas of the elementary school curriculum.</p> <p>Program emphasis include study of and experiences with:</p> |
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- 13.1 The cognitive and linguistic foundations of literacy development in students
  - 13.2 Ways of promoting vocabulary growth in students
  - 13.3 The flexible use of a variety of strategies for recognizing words in print
  - 13.4 Teaching of the conventions of language needed to compose and comprehend oral and written texts (e.g., text structure, punctuation, spelling)
  - 13.5 The strategies readers can use to discover meaning from print and to monitor their own comprehension
  - 13.6 The ways listening, speaking, reading, and writing relate to each other and to the rest of the elementary curriculum
  - 13.7 Identifying and developing appropriate responses to differences among language learners (e.g., linguistic, sociocultural, intellectual, physical)
  - 13.8 Communicating with parents concerning the school language program and developmentally appropriate language experiences at home
  - 13.9 Speaking and writing that vary in form, subject, purpose, audience, point of view, tone, and style
  - 13.10 Ways to promote reading, writing, and oral language for personal growth, lifelong learning, enjoyment, and insight into human experience
  - 13.11 The literature of childhood including (a) knowing a range of books, (b) knowing how to share literature with students, and (c) knowing how to guide students to respond to books in a variety of ways
  - 13.12 Promoting creative thinking and expression, as through storytelling, drama, choral/oral reading, imaginative writing, and the like.
  - 14. Programs in science for teacher candidates should focus on academic, personal, social, and career applications of the biological, earth, and physical sciences and should develop skills in instruction to promote these understandings and positive attitudes among students and youth.
  - 15. Programs should prepare teacher candidates to translate knowledge and data-gathering processes from history and the social sciences into appropriate and meaningful social studies experiences for students.
  - 16. Programs should prepare teacher candidates to translate knowledge of and experience in the visual and performing arts into appropriate experiences for students.
- The 1983 NCATE Approved Curriculum Guidelines of the International Reading Association for advanced programs in reading education follow in this report, but readers should be aware that IRA has published a 1998 revision of the standards for reading professionals. The 1998 standards will be applied to programs of institutions currently seeking accreditation or continuing accreditation.
- Competencies required of candidates from those institutions presently approved are the following:
- 1. Philosophy of Reading Instruction: Reading is a complex, interactive, and constructive process.



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| <p>1.1 Recognizes the importance of teaching reading as a process rather than as a discrete series of skills to be taught through unrelated activities/ exercises</p> <p>1.2 Recognizes the importance of using a wide variety of print throughout the curriculum, including high-quality children's/adolescents' literature and diverse expository materials appropriate to the age and developmental level of learners</p> <p>1.3 Has knowledge of current and historical perspectives about the nature and purposes of reading and about widely used approaches to reading instruction</p> <p>1.4 Recognizes and appreciates the role and value of language in the reading and learning processes</p> <p>1.5 Recognizes the importance of embedding reading instruction in a meaningful context for the purpose of accomplishing specific authentic tasks or for pleasure</p> <p>1.6 Recognizes the value of reading aloud to learners.</p> <p>2. Professionalism</p> <p>2.1 Pursues knowledge of reading and learning processes by reading professional journals and publications and participating in conferences and other professional activities</p> <p>2.2 Employs inquiry and makes thoughtful decisions during teaching and assessment</p> <p>2.3 Interacts and participates in decisionmaking with teachers, teacher educators, theoreticians, and researchers and plays an active role in schools, classrooms, and the wider professional community</p> | <p>2.4 Supports and participates in efforts to improve the reading profession by being involved in licensing and certification</p> <p>2.5 Participates in local, state, national, and international professional organizations whose mission is the improvement of literacy</p> <p>2.6 Promotes collegiality with other literacy professionals through regular conversations, discussions, and consultations about learners, literacy theory, and instruction</p> <p>2.7 Shares knowledge, collaborates, and teaches with colleagues, as in inclusion programs.</p> <p>3. Moral Dimensions and Values</p> <p>3.1 Recognizes the importance of literacy as a mechanism for personal and social growth</p> <p>3.2 Recognizes that literacy can be a means for transmitting moral and cultural values within a community</p> <p>3.3 Recognizes values and is sensitive to human diversity</p> <p>3.4 Recognizes and is sensitive to the needs and rights of individual learners.</p> <p>4. Perspectives About Readers and Reading</p> <p>4.1 Understands and accepts the importance of reading as a means to learn, to access information, and to enhance the quality of life</p> <p>4.2 Understands and is sensitive to differences among learners and how these differences influence reading</p> <p>4.3 Understands and respects cultural, linguistic, and ethnic diversity and recognizes the positive contributions of diversity</p> |
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- 4.4 Believes that all students can learn to read and share in the communication process
  - 4.5 Recognizes the importance of using reading in positive ways in the classroom
  - 4.6 Recognizes the value and importance of creating a supportive and positive environment for literacy learning
  - 4.7 Recognizes the importance of giving learners opportunities in all aspects of literacy as readers, authors, and thinkers
  - 4.8 Recognizes the importance of implementing literacy programs designed to meet the needs of readers rather than imposing prescribed, inflexible programs
  - 4.9 Recognizes the importance of building on the strengths of individual learners rather than emphasizing weaknesses.
5. Language, Development, Cognition, and Learning
- 5.1 Understands that language is a symbolic system
  - 5.2 Understands major theories of language development, cognition, and learning and uses them to implement a well-planned and comprehensive reading program
  - 5.3 Is aware of the linguistic, sociological, cultural, cognitive, and psychological bases of the reading process
  - 5.4 Is aware of the physical, emotional, social, cultural, environmental, and intellectual factors on learning, language development, and reading
  - 5.5 Understands dialect variations and respects linguistic differences
- 5.6 Understands the importance of language development in relation to reading and writing.
6. Knowledge of the Reading Process
- 6.1 Perceives reading as the process of constructing meaning through the interaction of the reader's existing knowledge, the information suggested by the written language, and the context of the reading situation
  - 6.2 Is aware of relationships among reading, writing, listening, and speaking
  - 6.3 Has knowledge of emergent literacy and the kinds of experiences that support literacy
  - 6.4 Is aware that reading develops best through activities that embrace concepts about the purpose and function of reading and writing and the conventions of print
  - 6.5 Understands the role of models of thought that operate in the reading process
  - 6.6 Is able to explain the model various word recognition, vocabulary, and comprehension strategies used by fluent readers
  - 6.7 Understands the role of metacognition in reading
  - 6.8 Has knowledge of the importance for reading in language development; listening ability; cognitive, social, and emotional development; and perceptual motor abilities
  - 6.9 Understands the nature and multiple causes of reading disabilities
  - 6.10 Understands the relationship of phonemic, morphemic, semantic, and syntactic systems of language to the reading process.



## 7. Creating a Literate Environment

- 7.1 Promotes the development of a literate environment that fosters interest and growth in all aspects of literacy
- 7.2 Uses texts to stimulate interest, promote reading growth, foster appreciation for the written word, and increase the motivation of learners to read widely and independently for information and for pleasure
- 7.3 Models and discusses reading as a valuable activity
- 7.4 Engages students in activities that develop their image of themselves as literate
- 7.5 Promotes feelings of pride and ownership for the process and content of learning
- 7.6 Provides regular opportunities for learners to select from a wide variety of books or other quality written materials
- 7.7 Provides opportunities for students to be exposed to a variety of high-quality, relevant reading materials
- 7.8 Provides opportunities for students to be exposed to various purposes for reading/writing, to experience reading/writing as relevant to themselves, and to write and have their writing responded to in a positive way
- 7.9 Recognizes the importance of providing time for reading of extended text for authentic purposes
- 7.10 Provides opportunities for creative response to text.

## 8. Organizing and Planning for Effective Instruction—Knowledge of Contextual Factors

- 8.1 Understands how factors such as content, purpose, tasks, and settings influence the reading process
- 8.2 Provides flexible grouping based on students' instructional levels, rates of progress, interests, or instructional goals
- 8.3 Understands how assessment and grouping procedures can influence motivation and learning
- 8.4 Understands how environmental factors can influence students' performance on measures of reading achievement
- 8.5 Understands the relationship among home factors, social factors, and reading habits in students
- 8.6 Understands the influence of school programs (e.g., remedial, gifted, tracking) on students' learning
- 8.7 Understands the conditions necessary for all students to succeed.

## 9. Knowledge of Individual Differences

- 9.1 Understands what the reader brings to the reading experience (e.g., prior knowledge, metacognitive abilities, aptitudes, motivation, attitude)
- 9.2 Understands the influence of cultural, ethnic, and linguistic backgrounds on the reading process
- 9.3 Understands the relationship among reader's self-concept, attitudes, and learning
- 9.4 Understands the interactive nature and multiple causes of reading difficulties.

## 10. Knowledge of Instructional Materials



- 10.1 Understands how to design, select, modify, and evaluate materials that reflect curriculum goals, current knowledge, and the interests, motivation, and needs of individual learners
- 10.2 Understands the structure and content of various texts used for instruction
- 10.3 Understands and uses new instructional technologies
- 10.4 Understands methods for determining whether materials are clear and appropriate for individual students.
- 11. Knowledge of Instructional Strategies—Teaching Strategies
  - 11.1 Provides direct instruction and models what, when, and how to use reading strategies with narrative and expository texts
  - 11.2 Models questioning strategies
  - 11.3 Employs strategies to encourage and motivate students to pursue and respond to reading and writing for personal growth and fulfillment
  - 11.4 Teaches effective study strategies
- 12. Learning Strategies
  - 12.1 Helps students learn and apply comprehension strategies for a variety of purposes
  - 12.2 Helps students monitor their comprehension and reading processes
  - 12.3 Understands and helps students learn and apply reading comprehension strategies in the content areas
  - 12.4 Helps students gain understanding of the conventions of language and literacy
- 12.5 Teaches word recognition through the use of context, word analysis, and syntactic cueing strategies
- 12.6 Helps students learn that word recognition strategies aid comprehension
- 12.7 Helps students learn effective techniques and strategies for the ongoing development of vocabulary
- 12.8 Helps students analyze information presented in a variety of texts
- 12.9 Helps students connect prior knowledge with new information
- 12.10 Assists students in assuming control of their reading
- 12.11 Helps students use new technology and media effectively.
- 13. Demonstrate Knowledge of Assessment Principles and Techniques
  - 13.1 Recognizes assessment as an ongoing and indispensable part of reflective teaching and learning
  - 13.2 Recognizes and understands that assessment must take into account the complex nature of reading, writing, and language and must be based on a range of authentic literacy tasks using a variety of texts
  - 13.3 Is able to conduct assessment that involves a consideration of multiple indicators of learner progress and that takes into account the context of teaching and learning
  - 13.4 Is knowledgeable about the characteristics and appropriate applications of widely used and evolving assessment approaches
  - 13.5 Uses information from norm-referenced tests, criterion-referenced tests, formal and informal inventories, constructed-response measures, portfolio-based



- assessment, observations, anecdotal records, journals, and multiple other indicators of students; progress to inform instruction and learning
- 13.6 Recognizes and understands the importance of aligning assessment with curriculum and instruction.
14. Communicating Information About Reading
- 14.1 Communicates effectively with students, teachers, and support personnel about strengths and areas that need improvement
- 14.2 Shares pertinent information with other teachers and support personnel
- 14.3 Understands how to involve parents in cooperative efforts and programs to help students with reading development
- 14.3 Communicates information about reading programs to administrators, staff members, school board members, parents, and the community
- 14.4 Effectively communicates information and data about reading to the media, policymakers, and the general public
- 14.5 Interprets and communicates research findings related to the improvement of instruction to colleagues and the wider community
- 14.6 Communicates with allied professionals in assessing and planning instruction.
15. Planning and Enhancing Programs—Curriculum and Development
- 15.1 Initiates and participates in ongoing curriculum development and assessment
- 15.2 Adapts programs to the needs of different learners to accomplish different purposes
- 15.3 Supervises, coordinates, and supports all services associated with reading programs (e.g., needs assessment, program development, budgeting and evaluation, grant and proposal writing)
- 15.4 Understands and uses multiple indicators of curriculum effectiveness.
16. Staff Development
- 16.1 Initiates, participates in, and evaluates staff development programs
- 16.2 Takes into account what participants in staff development programs bring to ongoing education
- 16.3 Provides staff development experiences that help emphasize the dynamic interaction between prior knowledge, experience, and the school context
- 16.4 Provides staff development experiences that are sensitive to school constraints (e.g., class size, limited resources)
- 16.5 Understands and uses multiple indicators of professional growth.
17. Research
- 17.1 Initiates, participates in, or applies researching on reading
- 17.2 Reads or conducts research within a range of methodologies (e.g., ethnographic, descriptive, experimental, historical)
- 17.3 Promotes and facilitates teacher- and classroom-based research.