

# SRI International

## **Alternative Certification: Design for a National Study**

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## I. FOCUS OF THE STUDY

### Introduction

Teacher shortages are a major issue in some areas of the country, particularly in urban school districts. Across the nation, the demand for new hires is expected to increase by 2 percent per year for the next several years, with a need to hire approximately 2.5 million teachers over the next ten years (Hussar, 1999). Nationwide, high-poverty schools are chronically unable to attract fully prepared teachers, especially those schools in urban or rural environments (Ingersoll, 1996). In California alone, more than 42,000 classroom teachers—or 14% of the workforce—did not hold preliminary or professional clear credentials in 2000-01. About half of the new teachers in the state begin teaching before completing a preliminary teaching credential. Making matters worse, students in the lowest-performing schools are about five times more likely to be taught by an underprepared teacher than students in high performing schools (Shields *et al.*, 2001). Similar patterns of inequity are found in New York State, where urban schools, the lowest-performing schools, and schools with high numbers of poor and minority students bear the brunt of the maldistribution of underprepared teachers (Lankford, Loeb, & Wyckoff, 2002).

At the same time as the need for new teachers is growing, there is a focus on improving the quality of the nation's teacher workforce. For more than a decade, most states and school districts have been implementing standards-based reform with mixed results (Cohen & Hill, 1998; Shields, David, Humphrey & Young, 1999). A growing chorus of policymakers and researchers have pointed to the centrality of teacher quality to school improvement and increased student achievement. Indeed, recent research demonstrates the enormous influence of the teacher on student achievement (Hanushek, 1992; Rivkin, Hanushek & Kain, 1998; Sanders & Rivers, 1996; U.S. Department of Education, 2002). For example, Sanders' research seems to show that two second-grade students with equivalent achievement test scores can grow 50 percentile points apart by the 5th grade solely as a result of having different teachers. Thus, the importance of teacher quality coupled with widespread teacher shortages has forced policymakers to confront the tension between teacher quality and quantity.

Some policymakers believe that alternative certification—in some form—can help meet the demand for more teachers while still maintaining or improving quality (U.S. Department of Education, 2002). As a result, alternative routes into the teaching profession are becoming increasingly commonplace. Alternative teacher education programs proliferated in the mid-1980s, when projected teacher shortages pushed many state education departments and school districts to create ways of obtaining a certified teacher for every classroom (Dial & Stevens, 1993; Feistritzer, 1993). The push for alternative certification continued to grow during the 1990s. Estimates of the prevalence of alternative certification vary, depending on classification,

but by 1999, 40 states and the District of Columbia had 117 state-run programs (Feistritzer & Chester, 1998, 2000). In addition, the American Association of Colleges for Teacher Education (AACTE) (1996) catalogued 328 alternative programs run by colleges and universities. Alternative certification now plays a central role in the production of new teachers in many states.

Alternative certification programs vary greatly on many dimensions including scope, size, duration, and intensity. However, there is little research-based knowledge about the links between varying characteristics of the programs, the performance of program participants in classrooms, and, ultimately, learning outcomes for students whom the participants teach (Hawley, 1992; Wilson et al., 2001; Zeichner & Shulte, 2001). To fill this knowledge gap, SRI International's Center for Education Policy is conducting a study of alternative certification—sponsored by the Carnegie Corporation of New York—to explore the components of various alternative routes to teacher certification and their relative effectiveness in preparing teachers for the classrooms.

The overarching research question framing the study is: **What are the characteristics of effective alternative certification programs?** The study's ultimate goal is to identify standards for alternative certification programs. This is not a comparative study between traditional and alternative certification routes; rather, the study examines variation across alternative certification programs. This is a study to determine the key characteristics that render alternative certification programs more or less effective in terms of preparing teachers for the classrooms in which they will be working, and to understand the contributions of the programs to both the quantity and quality of new teachers.

This paper presents a detailed description of the study. We begin by presenting our working definitions of what constitutes an alternative certification program in general, and what constitutes an effective program. We then provide a brief overview of the recent research on alternative certification, and its implications for our study. Next, we present a more detailed set of research questions, and a conceptual framework that delineates our basic assumptions about the role of alternative certification in teaching and learning and the key constructs that the study must address. Finally, we turn to the overall design of the study and present data-collection activities, an analysis plan, and reporting and dissemination strategies and schedules.

## Definition of Study Terms

There are two questions that sit at the center of our study that require clarification and elaboration: What is alternative certification? What constitutes an effective program?

## Defining Alternative Certification

There is no agreement about the definition of alternative certification. Some states deem any postbaccalaureate teacher education program an alternative program, whereas other states consider this the traditional route. Some states use the term *alternative certification* for programs that place teachers in classrooms before they complete training. Also included under the moniker *alternative certification* are emergency permits carrying minimal requirements; national programs such as Teach For America and Troops to Teachers; and the new American Board for Certification of Teacher Excellence (ABCTE), which plans to set up a system of credentialing for both beginning and veteran teachers that will measure their content knowledge and classroom skills (e.g., classroom management) through standardized tests. Further complicating matters, some people differentiate between the terms *alternative certification* and *alternative route*. In their view, alternative certification involves reduced training for entry into teaching, whereas alternative routes are pathways other than 4-year undergraduate or 1- or 2-year postbaccalaureate programs that enable candidates to meet the same standards. Others use the terms interchangeably.

There is no single model for alternative certification programs. Programs differ in their goals, selection processes and admission requirements, preservice programs, induction support, and linkages with existing professional development programs. There are also variations with regard to cost, time, intensity, and support. The Teachers for Chicago (TFC) program, for example, provides its interns with highly qualified mentor teachers who must possess a master's degree. Interns must agree to a 2- or 4-year commitment to the program. TFC participants also receive a salary and a stipend for their courses at a local institution of higher education. At the other extreme, emergency credential programs rarely provide support in the form of mentors, common coursework with peers, or tuition support. Instead, emergency certified teachers generally agree to pursue a course of preparation for a standard teaching certificate on his or her own, within a delimited period of time.

For purposes of this study, we refer to alternative certification as programs or licensing routes that allow persons to enter the teaching profession without completing a traditional university-based program. This study is unlikely to resolve the confusion over what is and what is not alternative certification. However, given our charge of identifying characteristics of effective programs, it makes sense to use a broad definition. Using this broad definition makes it incumbent upon the study to understand the variation among alternative certification programs and routes. At the same time, because various alternative certification programs and routes are designed to address teacher shortages, teacher quality, or both, the study will need to consider the relevance of individual programs selected for intensive study. In other words, we want to describe the variation of programs and routes, but we also want to closely examine programs and

routes that reflect efforts to bring significant numbers of new candidates into the profession and are of such innovative design that they hold real promise for improving the quality of new teachers.

### **Defining Effective Programs**

To consider the contributions of alternative certification programs, we must first address what constitutes an effective program. If we set a high bar, an effective program is defined as one that produces skilled and knowledgeable teachers who accelerate student learning. This definition of an effective program, however, would force us to establish a measurable and precise standard for what defines skilled and knowledgeable teachers and how much student learning is adequate. Of course, the measurement of teacher knowledge and skills and student learning is technically difficult, making the line between effective and ineffective programs imprecise. All of this argues for a more nuanced definition of effectiveness.

Our approach, therefore, is to define an effective program as one in which the program makes significant improvements in an existing situation. This definition of effectiveness emphasizes each program's context, goals, and challenges. For example, programs aiming to replace unqualified, emergency teachers with better-qualified career-changers supported by intensive instruction and mentoring might be deemed effective in their context, even if they fail to meet the high bar of immediate student achievement gains. This situation may not be ideal for the students whose teachers are in the process of learning to teach; however, it is arguably better than the existing situation with unqualified, emergency teachers. Of course, we will have to be alert to the possibility of the alternative certification programs having detrimental effects. For example, the alternative certification program could result in a breakdown of incentives for becoming prepared prior to teaching, or in the underpreparation of minority teachers, who often make up a significant portion of teachers pursuing an alternative route into the profession. Furthermore, we will have to be particularly alert to the maldistribution of underprepared teachers in the classrooms of the lowest-performing students, minority students, or poor students. But, if the alternative certification teachers improve an existing situation, if the program delivers measurable improvements in teachers' skills and knowledge, and if long-term improvements can be found in student learning, teacher retention, and other outcome measures, then we would deem the program effective in its context.

We now turn to the literature on alternative certification to describe current understandings and discuss implications for the focus and design of our study.

## Recent Research on Alternative Certification: A Literature Review

There has been a paucity of substantial empirical research on alternative certification, perhaps due to the relatively recent emergence of alternative certification as a popular policy strategy for increasing the quantity and quality of teachers in the nation. The research that is available is based on small program evaluations and teacher perceptions, and tends to provide comparisons between alternative and traditional certification, rather than an examination of the direct contributions of alternative certification programs. Further, much of the research on alternative certification programs fails to describe adequately the programs being studied. In general, research findings are relatively equivocal between different studies. Perhaps this is due to variances in the programs studied, which are not sufficiently described.

Despite these weaknesses, the literature base does provide some insights about alternative certification program participants, program components, and program effectiveness. These current understandings are useful in the design of our current study. They point out areas for closer examination and raise important questions that need to be addressed.

### Participant Characteristics

Alternative teacher certification programs generally are designed to entice persons from various educational, occupational and life experiences to become teachers, thereby increasing the quantity and diversity of applicants to the profession (Feistritzer, 1993, 1998; McKibbin & Ray, 1994; Stoddart, 1993; Wise, 1994). Proponents of alternative certification suggest that alternative certification programs help diversify the pool of new teachers, drawing in more men, minorities, and mature or experienced individuals, and candidates who have higher academic qualifications than those in traditional teacher preparation programs. To this end, some programs specifically recruit mid-career switchers, retired military personnel, people of color, and candidates with subject-matter specialties in such shortage fields as mathematics, science, special education, and bilingual education.

Research has verified that some alternative certification programs have been successful in recruiting a more diverse pool of teachers (Wilson *et al.*, 2001; Zeichner & Shulte, 2001). On average, alternative programs have a higher percentage of males, minorities, and people over age 30. Further, teachers in alternative programs are more likely to prefer to teach and continue teaching in urban areas (Natriello & Zumwalt, 1993) and are less likely to see inner-city students as “culturally deficient” (Stoddart, 1993).

Aside from recruiting for diversity, alternative certification programs vary in the qualifications they require of participants. Teach for America, for example, is highly selective, accepting fewer than one-quarter of applicants. TFA recruits at prestigious colleges and

universities, and the average grade point average of program participants is 3.4. Other programs favor experience in schools over college academic achievement. Milwaukee's Metropolitan Multicultural Teacher Education Program (MMTEP), for example, is geared specifically toward individuals who have been paraprofessionals or teacher aides in the Milwaukee Public Schools for at least one year. TFA and MMTEP participants bring very different educational and professional experiences to their alternative certification programs.

Because alternative certification programs aim to attract a certain population of participants, and because the educational and professional backgrounds of participants influence how they experience the programs and what they get out of their programs, it is important for us to pay attention to the student population of each program. Thus, the study will ask: What are the characteristics of program participants and how do they vary across programs? In particular, we will pay attention to participant demographics; participant knowledge, attitudes, and beliefs about teaching, learning, and students; and knowledge of the subject matter they intend to teach. We are also interested in understanding the recruitment strategies employed by the programs, and the selection processes they use to determine admission to the programs.

### **Program Characteristics**

Alternative certification programs vary on many dimensions. For example, in a study of nine alternative certification programs, Darling-Hammond and others (1989) reported that some programs included guided field experiences while others did not; the length of programs ranged from 16 weeks to two or more years; and the number of course credits ranged from 9 to 45. Alternative certification programs typically offer a shorter pre-service training than traditional certification programs. Over the last few years, researchers have noted an increase in "short-cut" or "fast-track" alternative programs that offer a short but intense training before sending the prospective teacher into the classroom as teacher of record (Berry, 2001). In addition, alternative certification programs are usually focused on the pragmatic aspects of teaching rather than the theoretical or philosophical aspects and may prepare graduates to work with the curriculum and procedures of a specific school district (Stoddart & Floden, 1995).

Several organizations and educational researchers have compiled lists delineating characteristics that they believe are essential for effective or exemplary alternative certification programs. They include characteristics such as rigorous screening processes, field experiences, mentors, professional education studies, and high standards for program completion (Feistritzer & Chester, 2000; Southwest Educational Development Laboratory, 2000). These lists, however, are based on experience and expert opinion; they are not based on empirical research on program outcomes for teachers or students.

Only a few research studies have explored program characteristics and their relationship to developing effective teachers. Some studies suggest that successful programs have much in common with traditional certification programs including high standards for entry, substantial pedagogical training, mentoring, and evaluation (Wilson *et al.*, 2001). In fact, students rate their alternative certification programs higher when the curriculum includes both more pedagogical training prior to entering the classroom and more classroom supervision (Darling-Hammond *et al.*, 1989). How student ratings relate to their classroom performance, however, is unknown.

Mentorship has been identified as a particularly salient program characteristic. One study suggests that mentoring is responsible for relatively high classroom performance scores of teachers in alternative certification programs, compared to teachers from traditional certification programs who may not have a mentor during the period studied (Miller, McKenna, & McKenna, 1998). However, having a particular program component such as mentoring does not guarantee that it is implemented well. Zeichner and Schulte (2001) indicate that all of the programs in their research review had a mentoring component; however, some studies found that the prospective teacher did not know who their mentor was, and some programs did not provide training for the mentors despite the complexity of the task.

Although individual studies may offer some insight into the importance of program components, little has been done to fully describe program components and tease out their significance for the quality of the program's graduates or to assess the components across programs. As we mentioned earlier, much of the research on alternative certification programs does not provide in-depth program descriptions.

Any conclusions about program effects or any attempts to extrapolate research findings to other alternative certification programs would have to take into consideration the differences in the program components. Thus, our study takes at its core the following question: What are the programmatic characteristics of alternative certification programs? We are interested in understanding the underlying purposes and structure of the program, including program goals; duration and intensity of program components; amount of individualized support provided; cost and length of program; and relevancy of training to candidates' placements. We want to understand the theories of teaching and learning that underlie the programs. Do the programs espouse a particular view of what knowledge is and how it is acquired? How do the programs view the relationship between pedagogy and subject matter knowledge, and how is this implemented? And finally, we need to understand the characteristics of the individuals and institutions who design and implement the program. Thus, we will take account of the sponsoring institutions, the amount and quality of collaboration in multiple institutional programs, and the experience and expertise of program staff.

## Program Outcomes

Alternative certification programs often are designed to increase the quantity and/or quality of teachers. Currently, there is no clear consensus in the research about the contributions these programs make.

**Teacher Retention.** We do not know the exact proportion of teachers leaving the profession in their first few years, but most studies estimate that between one-third and one-half of all teachers entering the profession are no longer practicing teachers 5 years later (California Commission on Teacher Credentialing & California Department of Education, 1992; Darling-Hammond & Sclan, 1996; Gold, 1996; Harris, 1992). These estimates raise the question: Do teachers who enter the profession through alternative routes stay in the profession? Data are mixed.

In a review of the literature, Wilson *et al.* (2001) note the high drop-out rate in alternative certification programs. For example, in a study of the Dallas Independent School District's alternative certification program, Hutton, Lutz, and Williamson (1990) found that only 81% of the interns returned to the district the year following their internship. In Lutz and Hutton's (1989) study of the same district, the interns reported a lower commitment to teaching than first year teachers in a traditional certification program. Similarly, most Teach for America members tend to leave the teaching profession (Darling-Hammond, 1994; Dial & Stevens, 1993; Wise, 1994). Dial and Stevens (1993) note that "even if teachers remain in teaching but leave to teach in another district or state, the district's investment is not returned" (p. 90).

On the other hand, Haberman (1999) reported that 94% of teachers who graduated from Milwaukee's alternative certification program between 1990-99 were still teaching in the state's public schools. In a study comparing graduates of Project Promise in Colorado with graduates of two other traditional certification programs, Paccione, McWhorter, & Richburg (2000) found that the teacher candidates in the alternative certification program were more likely to complete their program, be hired by a school district, and remain in teaching than both of the traditional certification programs. Stoddart's (1990) study of the Los Angeles Unified School District's intern program showed that while 29% of the graduates in a six-year period left the district, the attrition rate over 3 years was lower than would be expected based on national data on teacher attrition in urban school districts. And, in an urban district in the Southwest, traditional-program teachers were 19 percent more likely to leave the district than were alternative-program teachers (Adams & Dial, 1993).

Researchers have noted differences in commitment patterns based on grade level and subject matter taught. For example, Natriello and Zumwalt (1993) found that only 40% of mathematics teachers certified through New Jersey's alternative certification program had long-

range plans to remain in teaching. The math teachers expressed an interest in pursuing a career in higher education. These findings underscore the importance of differentiating among academic disciplines that carry different opportunities outside of teaching (Zeichner & Schulte, 2001).

Data on both program attrition and retention in the profession are important to determine the extent to which the alternative certification programs contribute to building a more robust workforce. Thus, our study must document the completion rate of participants, the number of participants who enter the profession, and the attrition rate of graduates after they begin teaching. Because our study will only collect data for two years, we will need to rely on existing data on teacher retention and program attrition. Where available, we will draw on historical program data on teacher retention, paying attention to academic specialties, and using the retention rates of traditionally prepared teachers working in similar situations as a point of comparison.

**Teacher Quality.** The quality of alternatively certified teachers has been measured in numerous ways, including ratings by the teacher's principal or mentor teacher, observations of the teacher's classroom behaviors, the teacher's academic qualifications, the teacher's scores on professional knowledge exams, student achievement, and the teacher's own sense of efficacy. Ratings of the overall teaching performance of alternatively certified teachers and traditionally prepared teachers by principals, mentor teachers, and supervisors produce mixed results (Sheerer, 2002; Wilson *et al.*, 2001; Zeichner & Schulte, 2001), have the problem of rater bias due to their involvement with the program, and provide little information about teachers' skills (Zeichner & Schulte, 2001).

In some studies, ratings by observers reveal that teachers from traditionally certified programs outperform alternatively certified teachers (Hawk & Schmidt, 1989; Sandlin, Young, & Karge, 1992). However, in other studies observers gave the two groups similar ratings (Lutz & Hutton, 1989; Miller, McKenna, & McKenna, 1998; Sandlin, Young, & Karge, 1992). In reviewing these studies, Wilson *et al.* (2001) noted that the observers were more likely to have given the teachers similar ratings when the alternatively certified teachers came from more structured programs. Using the Teacher Performance Appraisal Instrument (TPAI), Hawk and Schmidt (1989) compared a group of traditionally prepared teachers with those in a lateral entry program and found that higher percentages of traditional certification program graduates were rated "above standard" on four of the five classroom behaviors assessed than prospective teachers in the lateral entry program. A chief criticism of classroom observations, however, is that they tend to address technical and procedural aspects of teaching rather than the more complex aspects of teaching (Zeichner & Schulte, 2001).

Teachers' perceptions of self-efficacy provide another lens into teacher effectiveness. Teachers' self-efficacy and confidence are important to foster early in the career, concludes Darling-Hammond *et al.* (in press), because views of self-efficacy form early, are relatively difficult to change, and "have been found to be related to student achievement ..., motivation ..., and students' own sense of efficacy" as well as to the teachers' "feelings about teaching and their plans to stay in the profession" (p. 20). In a survey of beginning teachers in New York City, teachers who entered through fast-track alternative certification programs and those with no prior training felt the least prepared compared to graduates of a single traditional certification program and those who took courses from multiple institutions (Darling-Hammond *et al.*, in press). Research reviewed by Wilson *et al.* (2001) was decidedly mixed. Of four studies comparing alternatively and traditionally certified teachers' sense of efficacy and confidence, two studies found the groups were similar (Guyton, Fox, & Sisk, 1991; Miller, McKenna, & McKenna, 1998) while two other studies found the traditionally prepared teachers were more confident (Jelmberg, 1996; Lutz & Hutton, 1989).

Teachers' qualifications have also been measured by scores on tests such as the National Teacher Exam (NTE), which measured both subject matter and pedagogical knowledge. Again, findings are mixed. Zeichner and Schulte (2001) reviewed two studies that compared alternatively and traditionally prepared teachers' NTE scores. Hawk and Schmidt's 1989 study in North Carolina found no difference; Boser and Wiley's 1988 study of the University of the Tennessee-Knoxville program found alternative certification program graduates had a higher NTE score. Zeichner and Schulte (2001) caution against relying on such measures to tell us about teachers' capacity to support student learning because it is how teachers use that knowledge in the classroom that is most important. For example, they cite Gomez & Stoddart (1991) whose study found English teachers from a traditional preparation program "were more knowledgeable about specific aspects of teaching writing" than their alternatively prepared counterparts; however, the traditionally certified teachers did not use their pedagogical content knowledge when working with low-income and minority students.

In studies regarding subject matter knowledge, Ball and Wilson (1990, cited in Dill, 1996) found both alternative and traditional routes to be unsuccessful in training mathematics teachers who were capable of thoughtfully instructing youths in mathematics. Similarly, McDiarmid and Wilson (1991, cited in Dill, 1996) concluded that all teachers in their cohort, regardless of preparation, lacked sufficient knowledge of their subject matter to fully understand and teach it.

Clearly, there are many ways to consider teacher quality. The question relevant to our research is: What contribution do alternative certification programs make to participants? In order to determine program effects on teachers, we must necessarily limit the aspects of teaching

we examine. Teaching is too complex an activity to measure all aspects. Teachers attend to students' social and emotional needs, participate in the school and local communities, deliver a prescribed district curriculum and/or develop their own curriculum, assess student progress, and work in partnership with parents. Elementary teachers and, to a lesser extent, secondary teachers teach multiple disciplines to students with diverse backgrounds.

We need to determine which aspects of teacher expertise to examine. Determining the most important aspects of teacher expertise reflects a particular view of what constitutes good teaching. Our study will be challenged to capture the variety of teacher expertise that comprises good teaching. First, we need to measure changes in teacher candidates' knowledge, attitudes, and beliefs that result from their alternative certification program. Teacher knowledge includes both command of the subject matter to be taught and the knowledge of how to teach that particular subject matter, sometimes referred to as pedagogical content knowledge (Shulman, 1987). In addition, we will need to capture changes over time in prospective teachers' attitudes and beliefs toward the subject matter to be taught, students, and learning, among other things. We also need to measure how their knowledge, beliefs, and attitudes translate into their classroom practice.

The complexities of teaching are further informed by our conception of instruction. Unlike some traditional views that characterize instruction as what teachers do to students, we employ the theoretical view of instruction that recognizes the multiplicity of instructional players (Cohen & Ball, 1999). This theory of instruction is characterized by the interaction of the teacher with both individual and groups of students, student interactions with other students, and teacher and student interactions with content.

If instruction is not just something that teachers do to students, but rather an interactive process with multiple actors, we will need to conduct direct observations of classrooms to measure teachers' knowledge, skills, attitudes, and behaviors. Our conception of instruction requires us to pay attention to all that is occurring in a given classroom, including what the teachers do, what students do, and how both teachers and students interact with content. This is not to say that there is only one correct way for teachers to teach. Rather, our observations will need to determine how teachers' knowledge plays out in practice, and how well students understand why they are engaged in a particular activity. In addition, we will need to look for evidence of student and teacher learning. Thus, interviews with teachers following the classroom observations are necessary, and should focus on understanding specific instructional strategies and evidence of student learning through an examination of student work.

**Student Achievement.** Another way used to measure teacher effectiveness, and by extension, program effectiveness, is through comparisons of student achievement from

traditionally and alternatively certified teachers. Existing studies of the relationship between teacher characteristics and student achievement gains are the subject of considerable controversy. Although there is solid research showing, for example, that students in mathematics classes learn more from teachers with mathematics certification, studies have not yet shown whether the type of mathematics certification (standard, alternative, emergency) makes a difference (Goldhaber & Brewer, 2000). Several reports reveal no significant differences in student performances (Miller, McKenna, & McKenna, 1998; Stafford & Barrow, 1994). Other studies have found differences. Laczko-Kerr (2002) found that the students of Teach for America (TFA) participants performed similarly to other under-certified teachers yet did not perform as well as the students of certified teachers. Raymond, Fletcher, and Luque (2001) found that TFA participants in Houston produced more positive learning gains, and with greater regularity, than did other new teachers and all other teachers in the district, regardless of years of experience. This study has been criticized on methodological grounds, however, and thus necessitates verification (Laczko-Kerr, 2002; National Council on Teaching and America's Future, 2001).\*

As we consider options for measuring student learning associated with the quality of alternative certification programs, it is important to remember that the purpose of the study is to determine the characteristics of effective alternative certification programs, not to compare alternative and traditional certification. Unfortunately, the technical and practical barriers to measuring alternative certification program effects on student learning are daunting. Linking program characteristics to student achievement convincingly will be very difficult given that teachers select their own program of study, teachers vary widely in their initial knowledge and skills important for teaching, and a variety of methods could be used to assess student achievement.

Addressing questions about program effects on student learning requires valid assessments of student learning that measure the knowledge and skills a teacher is trying to teach; reliable assessments that would not be expected to change dramatically with unimportant changes in the testing context (e.g., test administrator, scorer); and comparable measures across all teachers studied. If it is necessary to use different tests for different grades or geographic regions, then it will be necessary to use tests whose score scales have been equated.

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\* The National Commission on Teaching and America's Future (2001) criticized the study (2001) on a number of factors including the "extraordinarily unqualified group of new hires" (p. 2) against which the TFA candidates were compared. All of the TFA teachers were college graduates while in only one of the five years of the study did all of the other new teachers possess college degrees (they ranged from 65% to 94%). Additionally, all of the TFA teachers were enrolled in the alternative certification program but it is unknown how many of the non-TFA teachers participated in the alternative certification program. Further, it is unknown how many non-TFA teachers had received certification prior to starting in the district. Laczko-Kerr (2002) recommends dismissing this TFA study due to lack of scientific rigor as the data are not available for independent verification.

Because learning takes place over time and may be influenced by factors other than teaching quality, the evaluation should assess learning by examining changes in students' knowledge and skills over two or more points in time; and take into account other student characteristics, such as English language proficiency, that have been shown to be related to measures of learning.

### **Program Context**

In our review of the literature, we were surprised to find that no studies paid attention to the context in which the programs operate, which can have significant influence over the design, implementation, and effectiveness of the program. Alternative certification programs operate within the confines of state and local licensing and hiring policies. The goals of alternative certification programs are often shaped by a variety of factors, including teacher shortages and teacher quality reform efforts. In addition, the development of new teachers is influenced by state and district initiatives, including state or district mandated curricula, induction programs, and professional development initiatives. At the school level, new teachers make adjustments to their teaching based on the working conditions they face, the expectations of school leadership, and their interactions with colleagues, parents, and students. In other words, alternative certification programs do not operate in a vacuum. They are part of a complex set of influences on a new teacher's development.

Contextual factors are particularly important as we try to establish standards for effective alternative certification, since effective programs' characteristics will depend on the mix of conditions that enhance or impede program participants as they learn to teach. For example, an alternative certification program that places teachers in a school district with strong induction and coherent professional development programs probably will have a different set of characteristics than an alternative certification program that places teachers in districts without such supports. Our primary challenge here is disentangling program effects from other context effects. Although this is difficult, we need to pay enough attention to context so that we can understand its influence on teacher candidates and their teaching. Thus, our study must address the question: How does the state and local policy context affect the design and implementation of alternative certification programs?

In the next section of the paper, we turn to the research questions and conceptual model that will guide this study.

## **II. RESEARCH QUESTIONS AND CONCEPTUAL FRAMEWORK FOR STUDYING ALTERNATIVE CERTIFICATION**

Our overarching research question is: What are the characteristics of effective alternative certification programs? Our review of the literature suggests a series of second-order research questions focused on program inputs, characteristics, and effects that build toward answering the larger question. Exhibit 1 delineates the research questions.

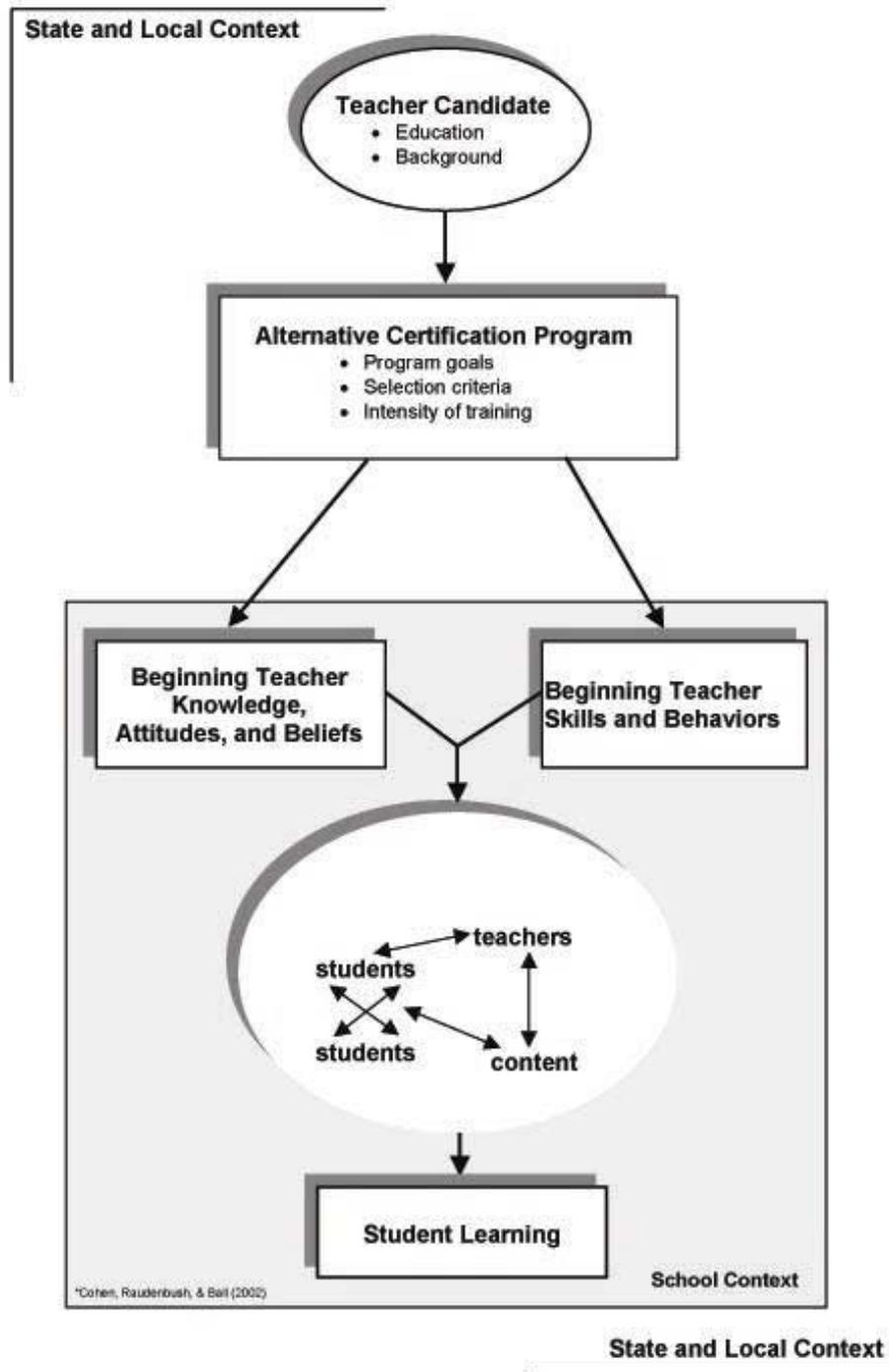
**Exhibit 1 – RESEARCH QUESTIONS**

<b>How do program inputs vary across alternative certification programs?</b>	
What are the characteristics of program participants and how do they vary across programs?	<ul style="list-style-type: none"> <li>- Demographics</li> <li>- Knowledge, attitudes, and beliefs about teaching, learning, subject matter, and students</li> <li>- Knowledge of subject matter they intend to teach</li> </ul>
How does the state policy context affect the design and implementation of alternative certification programs?	<ul style="list-style-type: none"> <li>- Alternative certification legislation</li> <li>- Statewide teacher supply and demand</li> <li>- State accountability system</li> <li>- Teacher quality reforms</li> <li>- Induction and professional development programs</li> </ul>
How does the local policy context affect the design and implementation of alternative certification programs?	<ul style="list-style-type: none"> <li>- Regional teacher supply and demand</li> <li>- Student demographics in schools served by the program</li> <li>- District curriculum policies</li> <li>- District assessment and accountability practices</li> <li>- District induction and professional development programs</li> <li>- District reform agenda</li> <li>- District and school leadership</li> </ul>
<b>What are the programmatic characteristics of alternative certification programs?</b>	
What are the underlie purposes and structure of the program?	<ul style="list-style-type: none"> <li>- Program goals, problem program is designed to address</li> <li>- Duration and intensity of program components</li> <li>- Amount of individualized support provided</li> <li>- Use of a cohort of candidates for support</li> <li>- Cost and length of program</li> <li>- Relevancy of training to candidates' placement</li> <li>- Sponsoring institution(s); amount and quality of collaboration among multiple institutions</li> </ul>
What theories of teaching and learning underlay the program?	<ul style="list-style-type: none"> <li>- Program's view of what knowledge is, how it is acquired, and how it is used; evidence of these views in practice</li> <li>- Program's view of the relationship between pedagogy and subject matter and how this is implemented</li> <li>- Program's emphasis on integrating different kinds of knowledge in making decisions regarding instruction</li> </ul>
What are the characteristics of program participants and faculty?	<ul style="list-style-type: none"> <li>- Recruitment and selection process</li> <li>- Qualifications of program participants</li> <li>- Expertise of program staff</li> </ul>
<b>What are the effects of the alternative certification programs?</b>	
Did the program meet its goals and address the issues it was designed to address?	<ul style="list-style-type: none"> <li>- Completion rate of participants</li> <li>- Number of participants who enter the profession</li> <li>- Attrition rate of graduates after they begin teaching</li> <li>- Recruitment of minority teachers</li> <li>- Production of highly qualified teachers</li> </ul>
What contribution did the alternative certification program make to participants?	<ul style="list-style-type: none"> <li>- Teachers' knowledge, attitudes, beliefs about teaching and learning</li> <li>- Teachers' skills and behaviors</li> <li>- Subject matter and pedagogical expertise</li> </ul>
What contributions do alternatively certified teachers make to student learning?	<ul style="list-style-type: none"> <li>- Student growth on standardized tests</li> </ul>

To answer these research questions, we need to be able to (1) assess the match between program goals and purposes with outcomes, (2) measure changes in teachers' knowledge, skills, attitudes, and beliefs as they progress through their alternative certification program, and (3) determine if there are changes in student achievement that might be related to the program effects.

To guide our methodological choices, we developed a conceptual framework for studying alternative certification that delineates the key components that the study must examine. The conceptual framework, shown in Exhibit 2, is based on a theory of change stating, in sum, that alternative certification programs with different characteristics yield different effects, and that contextual factors play a mediating role. Our model attends to the program inputs, including the state and local context and the characteristics of the teacher candidates; the program characteristics, such as the purpose, duration, and intensity of the program; and the program effects, such as teacher expertise and their students' academic achievement. Our conceptual framework is grounded in a theory of instruction that emphasizes the interactions of teachers, students, and content, in varied settings (Cohen & Ball, 1999). Exhibit 2 presents the conceptual model.

### Exhibit 2 – CONCEPTUAL FRAMEWORK



As Exhibit 2 portrays, our model emphasizes the teacher candidate's education and background as an important factor in his or her readiness to become a teacher. Programs that are highly selective may have a less intensive preparation task than programs that are less selective. In our model, the intensity of support is a fundamental factor relevant to program standards, but it is likely to vary depending upon the education and background of the teacher candidates.

Our model also emphasizes the state and local context. Specifically, the model theorizes that factors such as teacher shortages, state credentialing rules and regulations, and working conditions will also influence the program's goals, selection criteria, and the intensity of the program's training.

Next, the model suggests that state and local context, the teacher candidates' background and education, and the alternative certification program's goal, selection criteria, and intensity, all have an impact on the beginning teacher's knowledge, attitudes, beliefs, skills, and behaviors. In our model, state, local, and particularly the school context continue to play an important role in shaping the teacher candidate's learning as he or she enters the classroom.

The model also emphasizes a conception of instruction that complicates our task because it views the practice of teaching as more than just a collection of easily measurable actions that effective teachers employ. Rather than drawing upon specific procedures, teachers must respond to a complex set of interactions between themselves and students, students and students, and students and content. Because teachers are not the only actors in instruction, assessing a teacher's skills requires us to attend to the teacher's ability to create an environment that is conducive to learning, stay attuned to the individual learning needs of each student, and diagnose each student's conception of subject matter, and then seize opportunities to build on that conception. Thus, assessing a teacher's skills requires that we also understand the teacher's understanding of subject matter, and grasp of how to impart that subject matter knowledge to students. And because students are key actors in instruction, we must attend to teachers' ability to address the social and emotional needs of students, stay abreast of each student's family circumstances, and facilitate a social dynamic in the classroom that encourages mutual respect and support among students.

Our model establishes a theory for how alternative certification programs fit among the many factors that influence a teacher's development. Ultimately, all of these factors contribute to student learning. Next, we present our study design. The design reflects the issues raised by the existing research and our conceptual model.

### III. STUDY DESIGN

The conceptual model and the implications of the existing research on alternative certification illuminate the challenges associated with the study. How can we account for all the variation in alternative certification policies and programs across the nation? How can we disentangle program effects from other factors influencing a new teacher's development? How can we measure teacher quality and understand the value added by an alternative certification program?

To accomplish our goal of identifying standards for effective alternative certification programs while paying attention to these thorny issues, we will employ multiple data collection activities, including:

- A survey of program directors from a sample of programs that meet the study's broad definition of alternative certification;
- In-depth case studies of seven alternative certification programs;
- An analysis of existing data on alternative certification programs and student achievement.

Through this mix of activities we will gather data that is both broad and deep. This approach will allow us to describe alternative certification programs and the variation that exists among them; understand both state and local context factors influencing the design, implementation, and effectiveness of certification programs; and assess program quality and impact on teachers, and through them, the impact on students. The unit of analysis is alternative certification programs. We discuss each of these data collection activities in more detail below.

#### **Survey of Program Directors**

Alternative certification programs vary, from the participants they accept, to the learning opportunities they provide, to the requirements they require for graduation and certification. We have developed a Web-based survey for program directors to gather descriptive data about the range of alternative certification programs nationwide. The purpose of the survey is twofold: to catalogue the variations that exist among programs, and to create a descriptive base so that we can "locate" our case study sites in the broader range of programs.

Specifically, the program director survey inquires about the program timeline, including total duration and time spent in the program before becoming teacher of record; program requirements both before and during teaching; number of participants, broken out by elementary

and middle and high school teachers; admission requirements, number of applicants, and number accepted into the program; costs and compensation; and location of program activities.

Our initial inclination was to administer the program director survey to the population of alternative certification programs in all 50 states. However, we found the task of identifying all alternative certification programs to be impracticable. The most obvious sources for information proved to be inadequate. Emily Feistritzer's catalogue of alternative teacher certification programs describes programs in general terms, but does not provide details about individual sites (Feistritzer & Chester, 2000). For example, Feistritzer lists California's district internship program, but she does not distinguish between the Los Angeles Internship Program and San Diego's Bilingual Education Credentialing Alternative, programs that look very different in design. Given our task to document program variation, it is important for us to consider programs at a much finer grain size than Feistritzer does. A second source of information, the American Association of Colleges for Teacher Education (AACTE) also is not helpful because of its limited focus (AACTE, 1996). AACTE's directory of postbaccalaureate programs includes programs gathered through a survey of AACTE's member institutions. It does not include all programs available in U.S. colleges and universities, nor does it include programs that are offered by states, districts, or other entities.

Given the limited nature of the existing directories, we felt compelled to identify our own list of programs that met the needs of this study. Identifying programs, however, proved to be a time-consuming task. Weighing the benefits of a population survey to the financial costs involved in a lengthy program search, we decided to conduct the survey in those states that had the greatest number of alternative teacher certification programs and that produced the most number of teachers through alternative programs. This trade-off enabled us to capture most of the existing program variation while conserving study resources.

Currently we have fielded the survey to the population of program directors in seven states: California, Colorado, Florida, Illinois, Kentucky, North Carolina, and Texas. We will administer a second round of program director surveys in additional high-yield states in Fall 2002.

## **Case Studies**

The program director survey, just described, will provide a broad picture of alternative certification nationwide. To understand the alternative certification more deeply, we will conduct case studies of seven alternative certification programs. The case studies will allow us to describe the various programs in rich detail and explore the reasoning underlying variations in program design, implementation, and effects, while paying close attention to the local and state

contexts. Further, we will be able to examine the relationship between the design of various programs and their effectiveness in preparing teachers for the classroom. For each case study program, we will collect data on two tracks: the program, and the participants.

### **Program Data**

We will engage in an integrated set of data collection activities—including interviews with key program personnel, focus groups with program participants, observations of program activities, and a review of relevant documents—to develop an in-depth understanding of each program.

We will conduct interviews with key personnel related to the alternative certification programs. Respondents will include the program director, teaching faculty, support providers, certification advisors, classroom supervisors, and other relevant people. The interviews will probe on the purpose and philosophy of the program; program components and learning opportunities provided; the local and state context; experience, education, and success of program participants; challenges faced; and evidence of effectiveness.

We will conduct a focus group with 6-8 program participants in their first year to understand their experiences in the programs. We will assemble groups that represent different grade levels or academic departments, and different school placements. We will inquire about their perceptions of the program, including the support they receive, program quality, and program strengths and weaknesses. We will also inquire about their specific school placements and other sources for learning. In two-year programs, we will assemble another focus group of participants in their second year. Through these focus groups we intend to uncover what matters most to the participants. This information will help guide subsequent data collection activities.

For each case study program we will also observe activities that are part of the alternative certification programs. Such activities may include summer institutes for program participants, classes or seminars attended by participants during the school year, and related professional development programs. Including observations will help bring to life and confirm what we hear during interviews and provide concrete examples of learning opportunities offered to program participants.

To complete our comprehensive picture of the alternative certification programs, we will also collect and examine documents related to the programs, including written or on-line program descriptions, course syllabi, existing evaluations or evidence of effectiveness (e.g., retention data), and other related documents produced by the programs or others. These written

documents will provide additional information about the programs and the contexts in which they are implemented.

Together, these program data will enable us to create detailed portraits of the case study programs.

### **Participant Data**

This study aims to understand the value added by alternative certification programs. The purpose of the participant data is to ascertain program effects by measuring changes in teachers' knowledge, attitudes and beliefs about teaching and learning, and changes in teachers' pedagogical skills and classroom behaviors. Thus, we must evaluate participants both before and after they participate in the program. What is the extent of their pedagogical content knowledge before they enter the program, and how much do they gain through their participation in the program? Are they better able to determine students' understanding as a result of the program? We will measure program effects broadly through pre- and post-program surveys of a random sample of program participants in our case study programs, and deeply through periodic interviews and observations of a small sample of candidates.

As the earlier discussion about context suggested, disaggregating program effects from other influences is difficult. Most alternative certification programs primarily rely on on-the-job training where the influences of the school culture, peer pressure, local reform and accountability measures, local professional development initiatives, mandatory district curriculum, and working conditions may enhance or impede the efforts of the alternative certification program. We will document these influences that sit beyond the control of the program, while recognizing that the lines between program and other influences are blurry. To the extent that school factors are considered an integral part of the program design, we also will consider those influences as part of the program. Thus, for purposes of assessing program effects, our program boundaries will be determined by the program leadership and our examination of the program and its context.

**Survey of Program Participants.** In each case study site we will conduct two surveys of program participants, one at the beginning of their participation in the program, another at the end of their first year of teaching. Both the pre-program and post-program surveys will measure participants' content knowledge, pedagogical content knowledge, and attitudes and beliefs about teaching and learning. This pre-test post-test design will enable us to measure changes in participants over time and thus determine some of the value added by the program.

In addition to measuring program effects, the survey is also an efficient tool to glean personal information about participants and their experiences with the alternative certification

program. Thus, we will augment the pre-program survey with questions about participants' personal background (e.g., past professional experiences, college degrees and majors/minors, gender, ethnicity, languages spoken); perceptions of preparedness for teaching before the program; reasons for going into teaching; and reasons for choosing their particular alternative certification program. We will augment the second survey with questions pertaining to the supports received in the program; financial costs or compensation, and time obligations; perceptions of program quality and preparedness for teaching after the program; and school characteristics (e.g., professional development, professional community).

For each case study program, we will survey a random sample of participants. We will determine the number of survey participants based on a power analysis and consideration of survey costs. We anticipate surveying approximately 200 participants per program. The randomization of the survey sample will provide data that is generalizable to the population of participants in a program. At this time we are unable to ascertain the types of information about participants that will be available for drawing our survey samples. If detailed information is available, we will stratify our sample by level of teaching assignment (i.e., elementary, middle, or high school), academic discipline (for middle and high school teachers), and years out of college (e.g., career changers versus new college graduates). If these data are not available prior to our sample selection, we will gather the information through the survey and analyze data by these variables.

Measuring teachers' knowledge, attitudes, beliefs, skills, and behaviors is a challenging task. We need an instrument that is not only reliable and valid, but that is sensitive enough to measure differences among respondents and changes in respondents over time. To increase the precision of our survey, we will assemble survey items from available sources rather than develop our own items. Borrowing from other studies provides us with already field-tested items.

Many items included in the survey are drawn from surveys used in three other relevant studies. One source for survey items is the Study of Instruction Improvement (SII) being conducted by researchers at the University of Michigan (Deborah Ball, David Cohen, and Brian Rowan, Principal Investigators). This study is tracking the implementation of three school improvement programs—Accelerated Schools, America's Choice, and Success For All. The purpose of the SII study is to understand the impact of these school improvement programs on instruction and student achievement. SII researchers have developed a bank of survey items that measure teachers' pedagogical content knowledge in reading/language arts and mathematics at the elementary level.

The second source for survey items is the Teacher Education and Learning to Teach (TELT) Study. Completed in 1991, TELT is perhaps the most ambitious and comprehensive recent study of teacher education. TELT's underlying assumptions fit well with our theoretical framework and our conception of instruction. TELT researchers recognized that teaching involves both subject matter and students, thus requiring an examination of both teachers' knowledge of subject matter and their ability to promote student learning. The TELT questionnaire was designed to assess teacher candidates' knowledge, attitudes, and beliefs through a focus on the teaching of writing and mathematics.

A third source for survey items is the Prospective Teacher Survey developed by Morva McDonald, doctoral candidate at Stanford University, for her dissertation research on teacher education. Ms. McDonald has developed items to measure teacher candidates' views on teaching, views on preparation, and goals for students.

Borrowing survey items from these studies is both timely and cost-effective. By adapting existing data collection instruments to the needs of the alternative certification study, we avoid the high cost of developing new assessment tools. Further, these items have had extensive field-testing and are known to be reliable and valid. In addition, since TELT included 2 alternative certification programs among the 11 programs it examined, we may be able to draw on the extensive TELT database to make comparisons between programs from a decade ago and current alternative certification programs.

**Intensive Participant Study.** Surveys are an appropriate methodology for collecting quantifiable and aggregatable information about program participants, their growth over time, and their general experiences in the alternative certification programs. However, they are less useful for unpacking the complex relationships between participants' learning in the programs and their actions in the classroom. Further, they are less useful in uncovering participants' motivations, decisionmaking processes, and understandings of the classroom environment.

To illuminate these more textured aspects of the teachers, we will identify 10-15 participants in each case study program to follow closely as they progress through their program. This intensive look at program participants will include observations and interviews and will enable us to assess the quality and impact of programs through an examination of participants' experiences in the program and their classroom instruction. We will use the pre-program participant survey to randomly choose participants for in-depth study who represent a range of knowledge, attitudes, and beliefs. Because of this purposeful selection of participants for intensive study, we will be able to consider how the programs work for different people.

Like the surveys, we hope to capture changes in teachers' knowledge and skills over time. Thus, we plan to observe each participant in his/her classroom at least twice—once in the fall (i.e., toward the beginning of their teaching experience) and once in the spring (i.e., toward the end of their first year of teaching). We will observe elementary-level participants teaching reading and mathematics lessons, since these are the subjects captured in our survey. We will observe secondary school participants teaching lessons in their primary academic area. During the observations we will focus on key concepts included in our conceptual model, including the classroom learning environment, the teacher's pedagogical strategies, and the interactions of teacher, students, and content.

After the observations, we will interview the teacher to discuss his/her perception of the lesson we observed and connections between his/her instructional strategies and abilities and the alternative certification program. The interviews will provide us with an opportunity to ask participants about the reasoning behind their instructional actions. How do they make pedagogical choices? How do they decide what to teach? How do they decide how to teach it? From where do they get their ideas? Where do they go for assistance? What hinders them? What evidence from student work is there that suggests students were learning? We also will ask participants about their experiences in and perceptions of the program, and their feelings of readiness to teach.

Another component of the interviews will be to assess participants' knowledge, attitudes, and beliefs through the use of case scenarios. This strategy entails presenting the participant with a realistic classroom-based scenario and asking how he/she would respond to the specific situation and why. Scenario-based questioning was a primary data collection method for the TELT study, and we will be able to draw on instruments used in that study. We will also draw on cases developed by Judy Shulman and Carne Barnett at the Institute for Case Development at WestEd. Their research program focuses on the development of cases and their impact on teacher learning and professional development.

As part of our intensive participant study, we also will conduct interviews with other individuals influential to the participants' development as a teacher. Thus, for example, we will interview the principal about the school culture, professional community, district context, and his/her perception of the participant's preparation and effectiveness in the classroom. We will also interview lead teachers, coaches, or mentors who work closely with the participant.

### **Case Study Sampling Strategy**

The goal of this study is to build an understanding of characteristics of effective alternative certification programs through in-depth case studies of seven programs. As a result, we will use a purposive sampling strategy to ensure that our case study programs meet certain practical and theoretical criteria. Because we want the bulk of our case study programs to be applicable to a wide audience, we will attend to program scale and replicability in our sample selection. Thus, while small, intensive programs could prove insightful in our endeavor to create standards for effectiveness, their teacher preparation strategies might not be replicable in large, urban districts facing the most acute teacher shortages. In addition to identifying widely applicable programs, we will choose our seven case study programs to represent a range of programs that differ along two dimensions we theorize to be important to program outcomes: intensity of preservice support provided and participant characteristics (see conceptual model, Exhibit 2).

For intensity of program, we primarily are considering the amount of support participants receive prior to assuming full classroom responsibility as teacher of record. While many programs provide support for participants after they begin teaching, for sampling purposes we will focus on the programs' initial preparation stage because this represents the programs' contributions to participants' knowledge when they begin teaching. We recognize that additional programmatic supports, such as amount and depth of coursework, and mentoring and supervision, will affect teachers' development. We will attend to the full range of program supports through data collection and analysis in our case studies.

We are also interested in selecting programs that differ by the characteristics of their participants. Some programs identify specific characteristics they are seeking in their applicants. Teach for America, for example, requires strong academic preparation, and Milwaukee's Metropolitan Multicultural Teacher Education Program requires working experience in the Milwaukee Public Schools. Other programs looking for a broader population of prospective participants set less specific requirements for admissions beyond a basic screening for a certain level of knowledge or skill. We are interested in looking both at programs that have selective requirements for admissions and those that are accessible to a broad range of participants.

Attending to both intensity of initial program support and admissions criteria suggests a 3 x 2 sampling matrix. We have identified a preliminary case study sample that varies along the two dimensions, specified in Exhibit 3. The sample is uneven across the matrix cells, with 2 cells empty, and one cell over-sampled. This unevenness is purposeful and reflects our current

understanding of the distribution of alternative certification programs.\* Programs we are considering for our sample are described in the Appendix. Note that the sample is preliminary. Final sample selection will be made in October 2002, and will depend, in part, on the programs' willingness to participate in the study.

### Exhibit 3 – CASE STUDY SAMPLING STRATEGY

	Selective requirements for admission to program	Accessible to broad range of participants
Teacher of record immediately		<ul style="list-style-type: none"> <li>• New Jersey Provisional Teacher Program</li> </ul>
Teacher of record after 2-5 months in program	<ul style="list-style-type: none"> <li>• Milwaukee's Metropolitan Multicultural Teacher Education Program</li> <li>• New York City Teaching Fellows Program</li> <li>• North Carolina's "NC Teach"</li> <li>• Teach for America</li> </ul>	<ul style="list-style-type: none"> <li>• Texas Alternative Certification Program</li> </ul>
Teacher of record after one year in program		<ul style="list-style-type: none"> <li>• Elk Grove (CA) District Intern Program</li> </ul>

#### Extant Data

The research design we have described thus far is intended to determine the program effects on teachers' knowledge, skills, attitudes, and beliefs. However, of equal concern is impact of these programs on student achievement. What is the effect, either positive or negative, of alternative teacher certification on the academic growth of their students? Comparing the test scores of students taught by teachers following different routes to certification is problematic, however. Test results are generally not available at the classroom level, making comparisons impossible. In the few locations where such comparisons are feasible, it is difficult to control for other influences on test scores. Given the absence of existing achievement data, it may seem reasonable for the study to conduct its own testing. However, creating a controlled experiment is both difficult (if not politically impossible) and extremely expensive.

One principal concern at this stage is in identifying measures of student learning that can meet the needs of the evaluation in a cost effective manner. Some trade-offs will be necessary.

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\* We base our understanding of the distribution of programs on our program director survey. We will refine our understanding after the second administration of this survey this Fall.

First, it seems reasonable to narrow the scope of this portion of the evaluation to a single academic subject and to a limited number of grade levels. This would limit the required amount of data collection and analysis and it would relieve the burden of locating tests equated across a wide range of grades and subjects.

A major challenge to the evaluation is to identify measures that are valid assessments of the learning a teacher is attempting to promote and also comparable across teachers. The measure we choose must align to the expected actions of the teacher. To the extent that it does not, we risk being unable to see the effects of interest. Yet, we must be able to aggregate the measures across teachers from the same program and compare them to the measures for teachers from different programs.

Given the limited resources available, our approach will be to leverage existing data on student achievement rather than conduct our own testing program. Many states and school districts collect achievement data as part of regular standardized testing programs, and substantial development efforts have been made to ensure that those tests have desirable psychometric properties. We could expect that they would provide reliable assessments and in addition most would have norms for students or schools. However, there are only a few locations in the U.S. where linked data for individual students are gathered over time that also can be associated with particular teachers. While the standardized achievement tests can provide comparable data across teachers, they are likely to be general assessments that sample a wide range of skills and knowledge and thus may be less sensitive to instruction than other tests. In addition, the use of existing data will require cooperation from state and/or district administrators. Despite these problems, we believe that it will be possible to capture meaningful data on student achievement in a few locations.

Because we understand the limits of these data sources, we do not rely on them as a centerpiece of our study design. However, we believe they can be an important source of information. Therefore, we have created strategic partnerships to enhance this component of our study. For example, we have engaged in a series of conversations with program administrators at the City University of New York (CUNY) about obtaining student achievement data for participants in the New York City Teaching Fellows Program. Similarly, we have held meetings with administrators in the Los Angeles Unified School District evaluation office about obtaining similar data for participants in the Los Angeles Unified District Intern Program. Through these partnerships we hope to obtain student achievement data linked to teachers to enable us to compare the test scores of students taught by teachers following different routes to certification.

We also have created partnerships with other researchers doing related work. The Southeast Center for Teacher Quality will be assisting with data collection and analysis. We have engaged with researchers from Mathematica who are conducting a controlled experiment of student achievement for Teach for America, and with researchers from Florida State University who are studying alternatively certified teachers in Florida. We are also collaborating with Dr. Elaine Chin, California State Polytechnic University at San Luis Obispo, and her OERI-funded study of intern programs in California. These partners, who bring methodological expertise and knowledge about teacher preparation, add a great deal of analytic overhead to the conceptualization and operationalization of this study.

### **Timeline of Data Collection Activities**

We will conduct case studies over a two-year period. The first year will focus on collecting data at the program level. Our purpose would be to understand each case study program in great detail, including its history, operations, and context. During this time, we will develop our participant instruments, including observation guides, interview and case scenario protocols, and participant surveys. Our understanding of the programs gained in year 1 will inform these instruments. The second year of data collection will focus on the participants, their experiences in the program, and resulting changes in their beliefs, attitudes, and knowledge. Our analysis of extant data will be ongoing as is appropriate for each of the sites. The timeline for data collection is detailed in Exhibit 4.

### **Exhibit 4 - Data Collection Schedule**

<b>Timeframe</b>	<b>Primary Data Collection Activities</b>
Summer 2002	<ul style="list-style-type: none"> <li>- Develop interview and focus group protocols for program-level data collection</li> <li>- Gain access to case study sites; request program documents</li> </ul>
Fall 2002	<ul style="list-style-type: none"> <li>- 3 day site visit to each case study site to collect program-level data</li> </ul>
Winter 2003	<ul style="list-style-type: none"> <li>- Cross-site analysis of program issues and challenges</li> </ul>
Spring 2003	<ul style="list-style-type: none"> <li>- Sample selection for participant survey</li> <li>- Work with sites to establish means for survey administration</li> </ul>
Summer 2003	<ul style="list-style-type: none"> <li>- Administer and analyze pre-program participant survey</li> <li>- Select teacher sample for intensive study</li> </ul>
Fall 2003	<ul style="list-style-type: none"> <li>- 5 day site visits to each program to observe and interview teachers in intensive study</li> </ul>
Spring 2004	<ul style="list-style-type: none"> <li>- 5 day site visits to each program to observe and interview teachers in intensive study</li> <li>- Conduct post-program participant survey</li> </ul>

## Analysis Plan

The research includes quantitative data gathered through surveys of program directors and program participants, and through secondary sources. It also includes qualitative data gathered through the case studies. Once the data are collected, we will analyze individual data components and integrate the analysis across data sources. Our approach to the analysis of data from multiple sources is characterized by:

- Systematic analysis of secondary documents.
- The creation of structured debriefing forms for case studies keyed to analytic categories such as program selection processes, program components, context, and program effects.
- Survey data calculations of descriptive statistics, such as means and frequencies for all items in the surveys.
- Second-level survey data analysis that determine relationships between key outcome variables, such as teacher change in attitudes about teaching and learning, and explanatory variables, such as level of program support. We will analyze such relationships by using cross-tabulations and correlational analyses, as appropriate.
- An iterative analytic process through which tentative hypotheses are developed, tested in the subsequent round of data analysis, revised on the basis of analysis of those data, and then tested again in the next round of data collection.

This strategy of integrated analysis builds on the strengths of each methodology. For example, the survey can estimate the program effects on participants; the case studies can explain how the programs influence teachers to create those effects. Survey findings are generalizable to program participants; case studies can provide detailed descriptions and explanations. Data from each method can also enhance understandings of data from the other methods. The case studies will be helpful to illustrate survey findings. Similarly, the survey findings are useful for testing hypotheses that stem from the case studies. Together, the integration of data will lead to accurate and convincing research findings.

## Reporting and Dissemination

Findings from the study will be released through a series of reports, presentations, and articles. First, we will prepare a report based on our program-level data in August 2003. This report to the Carnegie Corporation will detail the program structures, context, and outcomes uncovered during the first year of data collection. The final report to the Carnegie Corporation will be completed in December 2004. This report will identify characteristics of effective alternative certification programs and the research to support the findings.

Periodically during the course of the study, study team members will make presentations at major national meetings and conferences, such as the American Association of Colleges of Teacher Education and the American Education Research Association. Following completion of the first report and the final report to the Carnegie Corporation, the study team will prepare articles for publication in various professional journals, newspapers, and magazines.

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## Appendix Prospective Case Study Programs

Teacher of record **immediately, accessible**

	Entrance Requirements	Primary Program Components	Annual number of participants	Grades	Program Length
New Jersey's "Alternate Route" into the NJ Provisional Teacher Program, at multiple sites throughout the state	Major in subject  Passing score on test	200 hours of training, 80 of which may be completed before the school year begins. Training is offered at regional centers, but sometimes at local school sites.  Districts must: 1. Evaluate the new teacher three times, the last of which includes a recommendation for standard licensure. 2. Assign a support team to supervise and assist the new teacher. <ul style="list-style-type: none"> <li>• Mentor is TOR during initial 20-day period.</li> <li>• Afterwards, for the next 10 weeks, the provisional teacher is TOR and has contact with member(s) of the support team at least one time every two weeks.</li> <li>• Support loosens toward the end of the year, and several formal evaluations are completed.</li> </ul> Participants pay up to \$2,100 in fees.	2,800  40% of all new hires annually	All	1 year  Participants may be TOR immediately or after 80-hours

**Teacher of record after 2-5 months, accessible**

	Entrance Requirements	Primary Program Components	Annual number of participants	Grades	Program Length
Texas Alternative Certification Program, at multiple sites throughout the state	<p>Bachelor's degree</p> <p>Passing score on licensure examination (programs may have some discretion)</p> <p>Other screening activities to determine appropriateness for the certification sought</p>	<p>Before teaching:</p> <ul style="list-style-type: none"> <li>Must complete approximately 6 credits of coursework (varies by site)</li> </ul> <p>While teaching:</p> <ul style="list-style-type: none"> <li>Close support and assistance from a certified mentor teacher in an appropriate subject area on a regular basis. There must be provision for the intern to observe the teaching of the mentor teacher, and for the mentor teacher to observe the intern.</li> <li>Receives regular salary minus \$3,750 for the program costs</li> </ul>	Approx. 16 percent of new hires annually	All	<p>1-year after becoming TOR</p> <p>Become TOR after at least 6 credits</p>

**Teacher of record after 2-5 months, selective**

	Entrance Requirements	Primary Program Components	Annual number of participants	Grades	Program Length
Milwaukee's Metropolitan Multicultural Teacher Education Program	<p>Experience as paraprofessional or teacher aide in Milwaukee Public Schools (MPS) for at least one year</p> <p>Bachelor's degree</p> <p>Interview and background check</p> <p>Admissible as post-baccalaureate student to University of Wisconsin-Milwaukee School of Education</p>	<p>Seven-week summer session including teaching in MPS summer schools and taking university classes. Participants are evaluated in terms of their ability to relate to children and on their preparation for assuming full time teaching responsibilities.</p> <p>During the school year, participants are assigned as teacher of record in grades 1-8 in MPS, receive intensive mentoring, and meet weekly in university classes.</p> <p>Benefits include: compensation by MPS for teaching during the six-week summer session and compensation at beginning teacher salary and benefits for school year (though participants pay for their coursework); 39 college credits; forgivable loans for minority participants after four years of service in MPS; a guaranteed teaching contract in MPS.</p>	20	1-8	<p>1 year</p> <p>Participants become TOR after 7 weeks</p>

Teacher of record **after 2-5 months, selective** (continued)

	Entrance Requirements	Primary Program Components	Annual number of participants	Grades	Program Length
New York City Teaching Fellows Program	<p>Bachelor's with 3.0</p> <p>Coursework related to subject taught</p> <p>Interview</p> <p>Subject matter tests are deferred until later</p> <p>The Web site warns: The NYC Teaching Fellows is an extremely selective program. Meeting eligibility requirements alone does NOT guarantee acceptance into the NYC Teaching Fellows program"</p>	<p>Pre-service training of 5 weeks (200 hours), with stipend for living expenses.</p> <p>After beginning teaching, fellow takes university courses at nights and on weekends for two years, ending in a master's degree. Tuition is free. Several area institutions participate.</p> <ul style="list-style-type: none"> <li>• Course participation organized into cohorts to the extent possible</li> <li>• Fellows also receive AmeriCorps program benefits, including up to \$4,725 a year (for up to two years) to devote to higher education costs</li> </ul>	<p>1,700 fellows in 2002 (projected)</p> <p>About 1,100 fellows in 2001. Of them:</p> <ul style="list-style-type: none"> <li>• 50% were age 30 or over</li> <li>• 49% were nonwhite</li> </ul>	All	<p>2 years total</p> <p>Fellows become TOR in 5 weeks</p>
North Carolina's "NC Teach", at multiple sites throughout the state	<p>Accepted 53% of applicants</p> <p>Requirements are: Bachelor's degree Minimum 2.5 GPA Three years of full-time work experience Interview</p>	<p>Intensive 5-week Summer Institute which must be completed prior to entering the classroom</p> <p>Enhanced mentoring and online assistance during the first year of employment</p> <p>Special courses and seminars continue through the fall and spring semesters</p> <p>Cost of the participation is between \$2,500 and \$4,000</p>	<p>168 enlisted in 2001</p> <p>60% were age 30 or over</p> <p>18% were nonwhite</p>	Middle High	<p>12 months total</p> <p>Participants become TOR in 5 weeks</p>

Teacher of record **after 2-5 months, selective (concluded)**

	Entrance Requirements	Primary Program Components	Annual number of participants	Grades	Program Length
Teach for America, at 17 sites throughout the country	<p>Highly selective, but exact requirements are unclear</p> <p>Recruits at selective IHEs and interviews the most promising candidates in a day-long interview, which includes a sample teaching lesson, a group discussion, and a personal interview</p>	<p>Before teaching:</p> <ul style="list-style-type: none"> <li>• 5-week summer program</li> <li>• 1-2 week local orientation called "induction"</li> </ul> <p>While teaching:</p> <ul style="list-style-type: none"> <li>• Support network during the school year (monthly newsletters, discussion groups, retreats, social activities, and advice on PD opportunities)</li> <li>• Coursework, to the extent required by local alt cert programs in which TFA operates</li> </ul> <p>TFA teachers receive AmeriCorps program benefits, including up to \$4,725 a year (for up to two years) to devote to higher education costs</p> <p>Room and board paid for both summer sessions and regional inductions</p>	About 1,000 per year	59% Elem.	<p>2 year commitment</p> <p>6-7 weeks until TOR</p>

Teacher of record **after approximately 1 year, accessible**

	Entrance Requirements	Primary Program Components	Annual number of participants	Grades	Program Length
Elk Grove (CA) District Intern Program ("Teacher Education Institute")	<p>BA, GPA in upper 50%</p> <p>Must meet subject matter requirements prior to student teaching.</p>	<p>Summer courses, 80 hours</p> <p>Fall:</p> <ul style="list-style-type: none"> <li>• Student teaching internship 16 hours per week</li> <li>• Coursework 3 days per week</li> </ul> <p>Winter intersession course, 80 hours</p> <p>Spring:</p> <ul style="list-style-type: none"> <li>• Student teaching internship 4 days per week, including 2 weeks as sole teacher</li> <li>• Coursework 5 hours per week</li> </ul> <p>Participant pays approximately \$7,000</p>	<p>100</p> <p>Approx. 25% of hiring annually</p>	All	1 year