

Effective Practices in Special Teacher Education

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Introduction

Chronic teacher shortages in special education combined with concerns about a dwindling teacher work force have many special education professionals concerned about the ability of school districts to implement a free and appropriate public education for students with disabilities. Fears about impending shortages have led many states, local districts, and institutions of higher education to develop alternative routes to the classroom (Feistritz, 1998). The nature of these alternative routes and their capacity to ensure that qualified special education teachers are available to serve the increasing population of students with disabilities is largely unknown (Rosenberg & Sindelar, 2001). Moreover, the development of these alternative routes comes at a time when teacher education is coming under fire for its perceived inability to prepare teachers adequately for the realities of the classroom.

Critics argue that teacher education programs are not intellectually challenging and act as deterrents to bright young people interested in entering the classroom (Finn & Kanstoroom, 2000; Matthews, 2002; Walsh, 2001). Moreover, the federal government recently lent considerable credence to their position. The U. S. Secretary of Education,

in a highly controversial report about teacher quality, claimed that a teacher's verbal ability and subject matter knowledge are key factors in improving student achievement but that the role of teacher education is questionable (U. S. Department of Education [USDOE], *Meeting the Highly Qualified Teachers Challenge*, 2002). Teacher education advocates counter that there are positive relationships between teacher certification status and student achievement, demonstrating that teacher education plays a role in teacher quality (Darling-Hammond, 1999; Felter, 1999; Hawk, Coble, & Swanson, 1985; Laczko & Berliner, 2001). Specifically, Darling-Hammond reported that states with the highest proportions of certified teachers tend to have the highest National Education Assessment Program (NAEP) scores. Additionally, in a study controlling for student socioeconomic status and school characteristics, Laczko-Kerr and Berliner (2002) found that students taught by certified teachers performed significantly better on standardized tests of reading and language arts (but not mathematics) than those taught by under-certified teachers.

Researchers critical of teacher education, however, suggest that alternatively certified teachers are just as effective in influencing

student achievement, particularly when they have content expertise in the subject they are teaching (Ballou & Podgursky, 1999; Miller, McKenna, & McKenna, 1998). Drawing on a different analysis of NAEP scores and certification status, Goldhaber and Brewer (2000) found no significant differences on tests of student achievement in mathematics and science between teachers with permanent licenses and those with emergency licenses if the teachers on emergency license also had subject matter preparation. The critics of teacher education use Goldhaber and Brewer's research and similar findings to conclude that teacher education provides a hurdle to qualified persons interested in pursuing a career in teaching rather than enhancing student achievement.

Parallel to the debate about certification and teacher quality, we have seen a spate of national reform reports targeted at teacher education since the mid-1980s. Among the most widely cited national reports are: *A Nation at Risk* (National Commission on Excellence in Education, 1983); *A Nation Prepared* (Carnegie Task Force on Teaching as a Profession, 1986); *Tomorrow's Teachers* (Holmes Group, 1986); *Tomorrow's Schools of Education* (Holmes Group, 1995); *A Call for Change in Teacher Education* (National Commission on Excellence in Teacher Education, 1985); *What Matters Most: Teaching and America's Future* (NCTAF, 1996); *Doing*

What Matters Most (Darling-Hammond, 1997); and *Better Teachers, Better Schools* (Kanstoroom & Finn, 1999). Although the recommendations from these reports vary, each is focused on the importance of the quality of the teaching force and on the quality of the preparation of teachers. Valli and Rennert-Ariev (2000) reviewed nine of these proposals to look for areas of agreement and disagreement related to recommendations for teacher education reform. The strongest consensus was on the importance of content preparation in the discipline and multicultural emphasis. They also found strong consensus for: (1) the use of authentic (i.e., field-based) pedagogy; (2) the existence of a clear programmatic vision; (3) programmatic emphasis

on learning and development, curriculum and assessment, reflection and inquiry; and (4) the use of performance assessment. There was consensus but less support for including emphasis on special needs students, collaboration, and technology, and for the use of professional development schools.

It is important to recognize that the national reform reports accept the premise that teacher education makes a difference and, therefore, view highly specified reforms in teacher education as the most appropriate path for improving programs. Yet, a debate continues among researchers and policy makers about the value and impact of teacher education. This debate is most evident in recent reports that seriously question the utility of teacher education and in responses from teacher education advocates who adamantly defend the value of teacher education (Darling-Hammond, 2002; USDOE, 2002; Walsh, 2001). The debate rages because we lack powerful, definitive studies about the impact of teacher education. Available studies show that teachers with pedagogical preparation in particular content areas compared to teachers with subject matter preparation only: (a) are better able to engage students in the learning process and tend not to teach as they were taught (Kennedy, 1999; Grossman, 1989); (b) attribute their knowledge of instruction and management to their educational course work (Adams & Krockover, 1997; Flint, Leland, Patterson, Hoffman, Sailors, Mast, et al., 2001; Grossman & Richert, 1988; Grossman, Valencia, Evans, Thompson, Martin, & Place, in press; Valli & Agostinelli, 1993); and (c) are able to reorganize their knowledge of subject matter in appropriate ways in education course work that focuses on content area pedagogy (Gess-Newsome & Lederman, 1993; Grossman & Richert, 1988; Grossman, et al., in press). However, data generated in many of these studies are limited to small numbers of preservice students or beginning teachers, single institutions, and more often, single courses or programs within an institution (Wilson, Floden, & Ferrini-Mundy, 2001). Thus, it is difficult to draw conclusions about the features of effective courses or programs across institutions to generalize about characteristics of effective teacher education.

Despite these limitations, a comprehensive review of the research on learning to teach and a large-scale study of preservice and alternative certification programs provide some general information about features of effective teacher education (National Center for Research on Teacher Learning (NCRTL), 1991; Wideen, Mayer-Smith, & Moon, 1998) and reinforce some recommendations from national reform reports. In a review of 97 studies on learning to teach, Wideen and his colleagues found that programs capable of producing conceptual change in preservice students had certain features: (a) use of pedagogy and program experiences that help preservice students examine their beliefs, (b) strong programmatic vision that fosters program cohesion, (c) small programs marked by a high degree of faculty and student collaboration, and d. carefully constructed field experiences where university and school faculty collaborate extensively. NCRTL (1991) also found that teacher education programs with specific attributes could make a difference in teachers' beliefs, even though the change was relatively small. Specifically, programs with a coherent programmatic vision that embraced a more constructivist orientation to teaching and learning and opportunities to apply knowledge acquired in content pedagogy courses to the classroom were best able to change preservice teachers' beliefs. While these studies demonstrated that programs with specific features are capable of changing teachers' beliefs, we do not know if a change in beliefs influences what graduates do in the classroom. To better determine the influence of teacher education on teacher learning, we need cross-institutional studies that delineate the features of effective teacher education programs and document programmatic impact on preservice students' conceptions of teaching, classroom practices, and the achievement of children in their classrooms (Wilson, et al., 2001).

To design cross-institutional studies, we need criteria for differentiating teacher education programs. In general education, Wideen and his colleagues along with NCRTL researchers have already identified criteria that may be useful to

differentiate programs for study. More recently, two separate large-scale studies of teacher education in general education have provided additional information about program features that influence preservice teacher beliefs and classroom practice. These studies, which were funded by the Association of American Colleges of Teacher Education (AACTE) and the International Reading Association (IRA), included 15 institutions that varied dramatically in institutional type. Findings from these studies support many national reform agendas' recommendations and provide clear evidence for how recommendations might be operationalized in teacher education programs.

Special education has no similar conceptual or research base on which to draw. This situation is quite problematic, given the critical need for teachers in special education and the emergence of multiple alternative paths to the classroom. Some are as labor-intensive as many preservice programs, and others are brief (Rosenberg & Sindelar, 2001). A conceptual framework for differentiating the features of preparation programs would assist researchers in designing studies that compare preservice and alternative programs on key variables. Thus, the purpose of our paper is two-fold. First, we present a framework for analyzing literature on special education teacher education. The framework is based on themes generated in general education from the AACTE and IRA studies, which provide in-depth information about how the recommendations from the reform reports can be put into practice. Additionally, these studies support and extend findings from the Wideen, et al. (1998) literature review and NCRTL's (1991) comparative study of preservice and inservice programs. Second, we use this framework to analyze literature in special education that focuses largely on program descriptions and evaluations. Specifically, we conducted an exhaustive review of special education teacher education program descriptions and program evaluations. Program practices identified in this review are compared to practices deemed as exemplary in general teacher education. We conclude with steps to improve the special education teacher education research base.

Framework for defining effective practices in teacher education

The conceptual framework described in this section includes features that characterize 15 teacher education programs nominated as exemplary by other teacher educators, school-based professionals, and graduates of the programs. The AACTE studies involved 7 institutions with 3 different levels of teacher preparation (i.e., graduate level, undergraduate 4-year programs, and 5-year masters programs that resulted in a Master's degree). These institutions were Bank Street College of Education, University of California-Berkeley, University of Southern Maine, Trinity University, University of Virginia, Alverno College, and Wheelock College. The selected institutions had reputations among teacher educators, district administrators, principals, and program graduates for preparing teachers to teach diverse students using learning-centered practices (Darling-Hammond, 2000). To identify critical program features across the 7 institutions, external researchers involved in the AACTE studies used qualitative methodologies that varied from one study to the next. All researchers gathered extensive information about the individual teacher education programs and employed qualitative or quantitative methodology to collect information about participating students or program graduates. The IRA studies involved 8 institutions selected by a panel of teacher education experts for their excellent undergraduate programs in reading education (Harmon, Hendrick, Martinez, Perez, Strecker, Fine, et al., n. d.). These institutions included Florida International University, Hunter College, Indiana University, Norfolk State University, University of Nevada at Reno, University of Texas at Austin, University of Texas at San Antonio, and University of Sioux Falls. To identify critical program features, faculty from each program outlined program features that contributed to its overall effectiveness and described how those features were operationalized. Researchers determined common features, conducted interviews with first-year teachers who graduated from the institutions, and compared graduates of reading programs to

graduates from the same institutions' elementary education programs. Across the two studies, there are seven features common to effective teacher education programs in general education:

1. coherent program vision
2. conscious blending of theory, disciplinary knowledge, and subject-specific pedagogical knowledge and practice
3. carefully crafted field experiences
4. standards for ensuring quality teaching
5. active pedagogy that employs modeling and promotes reflection
6. focus on meeting the needs of a diverse student population
7. collaboration as a vehicle for building professional community

Coherent Program Vision

Programs in both studies have a clear vision that is shared by the faculty and permeates all course work and field experiences. For instance, at Alverno College, the faculty designed their program around a college-wide, ability-based curriculum that clearly articulates the knowledge, skills, and dispositions students must demonstrate to move through various phases of their program (Zeichner, 2000). This curriculum provides faculty with a common language for communicating with each other, students, and school-based personnel about teaching and teacher

education. Supervising teachers and students who are new to the program are explicitly taught this language in courses. Alverno faculty recognized that it takes two to three years for new faculty to learn the program adequately. All faculty are expected to collaborate to refine the program's vision, and faculty who do not believe in this vision usually leave the institution. In the IRA programs, faculty identified vision as the driving force behind their programs and the reason for their excellence. While program visions varied, having a vision resulted in coherent programs where individual students were valued and a premium was placed on the integration of research, theory, and practice. The faculty in the

reading program at the University of Sioux Falls emphasize the importance of balancing current reading research with a realistic view of reading instruction practices. To accomplish this vision, faculty help preservice students to apply teaching theories to classroom situations by reflecting on various theories in the context of their classroom practices. This is designed to help students shift away from the status quo.

Conscious Blending of Theory, Disciplinary Knowledge, and Subject-Specific Pedagogical Knowledge and Practice

Faculty in identified programs design course work and other program experiences to help students create linkages between the knowledge they are acquiring in course work and classroom practice. Programs in the AACTE studies place heavy emphasis on grounding theory, disciplinary knowledge, and subject-specific pedagogical knowledge in the context of practice. For instance, at Trinity College, “the program consciously and conscientiously blends theory and practice” (Koppich, 2000). Faculty members work hard to ensure that students acquire disciplinary knowledge as well as the pedagogy for enacting that knowledge. They accomplish this goal by modeling active pedagogy, spending considerable classroom time discussing important readings, and providing students with numerous opportunities to practice what they learn in applied settings and to reflect on their experiences. In the IRA institutions, faculty use pedagogy that encourages students to examine their current knowledge and beliefs about literacy learning; the purpose is to push them to use more theoretically grounded literacy processes in their classroom practices (Harmon, et al., n.d.). For instance, at the University of Nevada, Reno, students participate in a tutoring experience with struggling readers. Faculty members aid novice teachers in applying content learned in coursework. Additionally, an Early Learning Center at the university coordinates tutoring experiences linked to course work in assessment.

Carefully Crafted Field Experiences

Field experiences in these programs are well integrated with course work, developmental in nature, supervised carefully, and extensive. In the AACTE and IRA programs, students spend extended time in classrooms selected for the skills of the cooperating teachers. These collaborate with university faculty members to help students practice what they learn in course work. In addition, the provision of multiple field-based experiences allows students to start out slowly and progress to increasingly more challenging teaching situations. For instance, in the Developmental Teacher Education Program at the University of California at Berkley, students focus on course work and observation in their first year. In the second year, students participate in an intensive clinical experience that is connected to course work. The curriculum is spiraled so that students can revisit teaching-related issues at increasingly higher levels of understanding. Attached to all field-based experiences are student-teaching seminars that promote the integration of theory and practice, problem-solving, and interaction between first- and second- year students. Additionally, students are placed in classrooms with good teacher-mentors who demonstrate special expertise in some aspect of working with children. These students receive a high level of supervision from cooperating teachers and supervisors to encourage reflection on their practices and ensure that they are developing key teaching competencies. Apprenticeships are also evident in the IRA institutions. For instance, at Hunter College, methods and foundations courses are paired with one-credit field experiences where preservice teachers gain some early contact with public school students and teachers. These field placements are used to illustrate theoretical concepts in class and as points of discussion. A full-time Director of Clinical Field Placements works with students to place them in classrooms that do not duplicate previous experiences.

Faculty members provide regular feedback through multiple observations and written evaluations, enabling students to learn increasingly complex skills.

Standards for Ensuring Quality Teaching

Faculty in AACTE and IRA programs use a variety of strategies to ensure that they are graduating able teachers. These strategies range from high admissions standards (e.g., high GRE and GPA scores required of students entering the teacher education program at the University of Virginia) to stringent exit criteria based on classroom performance. Students in the Extended Teacher Education Program (ETEP), which was developed through the collaborative efforts of the University of Southern Maine and the Gorham School district, have to demonstrate that they are capable and committed to teaching. These students must meet basic entrance requirements (standardized test scores and overall GPA); submit three letters of recommendation; complete 36 hours in an appropriate area of concentration (e.g., social studies, English); submit a resume and catalog of learning and teaching experiences; and write an essay responding to the program's mission statement. Once admitted, student interns participate in several evaluation activities (formative and summative). The interns meet weekly with university coordinators to articulate how they are improving their teaching according to 11 ETEP outcomes and twice during the first semester with the cooperating teacher and university coordinator to review their performance in terms of the 11 outcomes. In the second internship, students must go beyond evidence of the 11 outcomes to integrate what they have learned from their course work and field experiences when they develop an interdisciplinary unit. At the completion of their program, students present a portfolio to several cooperating teachers, a principal from their placements, and two university coordinators. Along with other evidence compiled by the review team, the presentation determines whether or not a student is recommended for Maine's 2-year provisional teaching certificate.

Many of the AACTE and IRA institutions, especially those in urban environments, also attempt to balance equal access with equity of opportunity. At these institutions, faculty maintain a commitment to recruit diverse preservice students and graduate qualified teachers by using multiple admission criteria and mechanisms for monitoring student progress. For example, faculty in the reading program at Florida International University refer students from underrepresented groups who do not meet the basic criteria for entrance to a committee that reviews the admission application in order to evaluate the student's record, strengths, and commitment to elementary education. Faculty members monitor student progress frequently using portfolios to ensure teaching competence and to identify academic and emotional supports students need to be successful.

Active Pedagogy That Employs Modeling and Promotes Reflection

Faculty at AACTE and IRA institutions use active pedagogy that helps students connect theory and practice and promotes student reflection. At Bank Street College, faculty design courses to connect theoretical ideas, instructional demonstrations, and field experiences. They teach most classes employing a workshop format where students have opportunities to use curriculum resources, to work collaboratively and independently, to practice strategies and concepts learned, and to see curriculum and teaching methods in action. The workshop format also helps students raise and discuss pedagogical questions and tie these questions to their personal experiences, promoting greater reflection. Faculty members at IRA institutions create experiences that challenge students to move beyond sometimes simplistic views of literacy learning and teaching. At Hunter College, faculty members promote reflection by encouraging in-class discussion, using field placement examples to illustrate theoretical concepts, creating portfolios or using journals, and providing regular feedback through multiple observations, written evaluations, and post-observation conferences.

Focus on Meeting the Needs of a Diverse Student Population

The ability to address the needs of a diverse student population is an important emphasis of programs involved in these two studies. In the AACTE studies, researchers selected programs based on their reputations for preparing teachers to work with diverse children. At Wheelock College, faculty members attend to diversity issues in required courses, assignments, and field experiences. All students take a course entitled "Children and Their Environments," which incorporates an ecological view of human development and attempts to help preservice students "understand children and families from a multicultural, multisocial, and multiethnic perspective" (Miller & Silvernail, 2000, p. 72). As part of this course, students spend 30 hours in a field placement where they observe and write about the child's environment. Students also participate in two practicum experiences (total: 450 hours); one must include children from diverse cultures and with disabilities. Faculty at IRA institutions are also committed to addressing student diversity, and this commitment is represented in their program content. For instance, faculty at the University of Texas at San Antonio teach "Introduction to Reading" programs at an inner city school so that preservice students can acquire the skills they need to teach children with diverse learning needs.

Collaboration as a Vehicle for Building Professional Community

The AACTE and IRA programs place a heavy emphasis on building professional community—developing vehicles for promoting collaboration between faculty members, students, and classroom teachers. At the University of Virginia, education and liberal arts and science faculty collaboratively designed the English major for teachers-in-training and co-advise students completing the 5-year undergraduate and masters program. Moreover, faculty from this program stress the importance of building community in the classroom by using a cohort structure, working on ways to foster community in

secondary classrooms, and encouraging preservice students to work together and respond to each other's ideas. Faculty members at the University of Texas at Austin create vehicles for fostering collaboration with the surrounding schools so that students and professors can be a part of the larger school community. For instance, one reading specialization cohort spends the majority of their time in a public school serving students in poverty. These preservice students take most of their courses and participate in a tutoring activity at the school. Additionally, preservice students are placed in a year-long observation and student teaching experience with teachers selected for their competence and ability to serve as mentors.

In summary, the AACTE and IRA studies provide more in-depth information about the specific features of programs that exemplify excellence for many in the teacher education profession. Program features identified as effective in these two studies support the conclusions of a research review of programs from single institutions (Wideen, et al., 1998), and some of the findings

generated by NCRTL (1991). What is missing from the AACTE, NCRTL, and IRA studies as well as the Wideen et al. review is a strong link between program features, actual classroom practices, and student performance.¹ Given study limitations, findings across these studies do provide a starting point for analyzing the special education literature, and it is that literature base to which we now turn.

¹ IRA researchers are analyzing data collected from observational studies of the participating beginning teachers and collecting student achievement data in their classrooms. Although the studies are not yet complete, these data sources will provide rich information to support or to disconfirm findings from the interview studies and will provide the best linkages to date between teacher education practices, beginning teacher outcomes, and student achievement.

Methodology

Special education teacher education is not an established area of inquiry. We found no solid syntheses of available programs and their features. Our research included literature on special education teacher education published in the last 11 years. All Special Education personnel preparation programs and programs within a program, both traditional and alternative programs at undergraduate and graduate levels, were included.

A number of strategies were used to locate relevant literature. First, we entered keywords into the ERIC, PROQUEST, and PsycInfo databases, including combinations of the following: *research, teacher education, special education, effectiveness, preservice preparation, policy, program evaluations, program descriptions, and exemplary teacher education.*

We then conducted a search of the Library of Congress using the keywords: *teacher education, teacher preparation, and preservice preparation.*

Second, we conducted hand searches of the five top refereed journals in teacher education: *Journal of Teacher Education, Teaching and Teacher Education, Teacher Education and Special Education, Action in Teacher Education, and Teacher Education Quarterly.* After collecting relevant articles published in the last 11 years, ancestral citations were identified. We limited our search to program descriptions and evaluations in special education published from 1990-2001. We assumed that publications in the last decade would reflect best practices in special education teacher education and provide information for ancestral citations. Eighty (80) publications were gathered, and 74 reviewed; 6 publications with insufficient information were discarded.

Table 1. Number of Reviewed Programs with Identified Characteristics

Categories	Characteristics	Programs (N)
Institutions		64
Degree	Undergraduate	21
	Masters	29
	Certification only	5
	Not Specified	9
	Orientation	Special Education
	Categorical	13
	Noncategorical	15
	Unified/Dual	22
	Not Specified	4
	Type	Program part
Program		26
Alternative program		24
Not Specified		4
Level of Institution		Teacher Education
	Research I	30
	Research II	7
	Not Specified	2
Funding	OSEP-funded	19

Features of special education programs described in the literature

We reviewed a variety of programs across many institutional contexts to determine if common features would emerge. **Table 1** lists the number of programs reviewed along with demographic characteristics of the programs and their institutions. The literature described both undergraduate and graduate education programs at Teacher Education, Research I, and Research II institutions. Program descriptions also highlighted an alternative university program, a part of the traditional program offered, or an account of an entire program, as well as the nature of the program (e.g., categorical, noncategorical, or blended across general and special education). Programs that were federally funded through the USDOE's Office of Special Education Programs (OSEP) were identified.

To identify common program features, the first author counted the number of program descriptions that included each specific program feature. Two other authors re-examined articles to verify that these features were present and counted the number of programs that included each feature. In the following analysis, we describe common program features with two caveats. First, papers were written for a variety of purposes, e.g., to describe the evolution of a program or how teacher educators overcame barriers in developing a program. Thus, authors may have omitted important descriptive information about programs. Second, a large number of papers were published as ERIC documents, and the quality of those documents varied greatly—from rich, extensive descriptions of programs to minimal descriptions.

Frequently Described Program Features

Although many of the program descriptions were not sufficiently rich, we assumed that frequently mentioned program features represented valued practices. It is clear from our review that many teacher educators in special education consider extensive field experiences, collaboration, and program evaluation to be important program

components, although the ways in which they operationalized these components varied. It is also apparent that many faculty members realize the importance of focusing on inclusion and cultural diversity. Special education programs in teacher education, however, are quite diverse in terms of program orientation. Some programs maintain a more positivist view of educational practice and others have moved toward more constructivist views.

Crafting extensive field experiences. Well-crafted, extensive, carefully supervised field experiences seem to be an important marker of teacher education practice in special education. In at least one third of the programs, faculty described extensive field experiences that were well supervised and incorporated practices acquired in course work (Bay & Lopez-Renya, 1997; Benner & Judge, 2000; Browning & Dunn, 1994; May, Miller-Jacobs, & Zide, 1989). Particularly at the undergraduate level, programs included semester- and year-long daily field experiences that took place in schools for a half to a full day. These programs were preceded by one or two practicum experiences that lasted for a semester and involved considerable time in the classroom. Preservice programs with the most intense field components (e.g., Bay & Lopez-Reyna, 1997; Epanchin & Wooley-Brown, 1993; Keefe, Rossi, Valenzuela, & Howarth, 2000; Lovingfoss, Molloy, Harris, & Graham, 2001) required early field experiences, one or two practicum experiences, and a semester- or year-long student teaching placement. Programs with such extensive field experiences recognized the developmental nature of teaching. According to Lovingfoss, et al. (2001), field experiences at the University of Maryland “are sequenced to permit each student to demonstrate increasing levels of competency and responsibility” (p. 106). In this 5-year program, students observed in a variety of settings during their first semester. They go on to complete four semesters of practicum where they assess and teach children in general education classrooms and special education settings related to their chosen specialty areas (i.e., either early childhood, educational handicaps, secondary/transition, or severe disabilities).

These experiences culminate in a 12-week, full-time internship program. At the University of Kentucky, participants in the TREK program (a distance education masters program for practicing teachers) enrolled in 21 credit hours of supervised practica across five semesters. Practicum requirements were fulfilled in their classrooms under the supervision of selected master teachers. In addition to describing extensive field experiences, faculty mentioned careful supervision as an important feature of their programs (Burnstein & Sears, 1998; Ludlow, 1994; Langone, Langone, & McLaughlin, 1991; Rosenberg & Rock, 1994). In their description of two alternative preparation programs in special education, Otis-Wilburn and Winn (2000) noted that teams of four faculty continuously incorporate input from cooperating teachers, school principals, and their own direct assessments of student performance to determine if students have met expected standards of performance. Other programs relied heavily on mentor teachers who were carefully selected and trained to supervise teachers. For instance, in a collaborative program developed with a nearby school district, university supervisors from Johns Hopkins University worked with mentor teachers to observe and evaluate students (King-Sears, Rosenberg, Ray, & Fagen, 1992). Mentor teachers and university supervisors observed students weekly using a structured interview process called the "supervision throughput model" (O'Shea, Hoover, & Carroll, 1988), which involves collaboration between the practicum student, university supervisor, and cooperating teacher to identify areas in need of improvement and provide coaching to address those needs.

Creating links between theory and practice.

This also seemed to be a high priority for faculty: at least one third of the programs indicated that knowledge and skills acquired in course work were integrated with experiences in field placements. How this integration occurred, however, varied from one program to the next. Some programs carefully linked course content with field experiences by asking students to use

specific assessment and instructional activities learned in the classroom (e.g., Fox & Capone, 1993; Ludlow, 1994; Miller, Wienke, & Friedland, 1999; Rosenberg & Rock, 1994; Russell, Williams, & Gold, 1992). In these programs, the link between practices learned in individual courses and field experiences was clear, but the integration across courses was less apparent. Other programs attended to integration across courses by teaching courses in integrated blocks, weekly seminars, or both. Many programs used case-based approaches, portfolios, and weekly seminars to help students to reflect on what they were learning across courses and to discuss how they were applying knowledge and strategies in schools (Affleck & Lowenbraum, 1995; Bay & Lopez-Reyna, 1997; Burstein & Sears, 1998; Emond, 1995; Epanchin & Wooley-Brown, 1993; Lovingfoss, et al., 2001; May, et al., 1989; Otis-Wilburn & Winn, 2000; Sobel, French, & Filbin, 1998). Interestingly, this integrative approach to fieldwork and course work often characterized programs focusing on cultural diversity or unification with general education.

Working together. Collaboration is clearly a valued component of teacher education programs in special education. Over half of the program descriptions provided information about how their program addressed collaboration. The programs emphasized collaboration in different ways that included: (a) knowledge of collaborative skills, (b) faculty-to-faculty collaboration, (c) school-to-faculty collaboration, and (d) use of student cohorts. Over half of the authors described course work that provided students with information about working with other professionals and families. While the majority of programs indicated that faculty used specific course work to teach preservice and inservice teachers collaborative and consultation skills (Bay & Lopez-Reyna, 1997; Browning & Dunn, 1994; Kemple, Hartle, Correa, & Fox, 1994; Lovingfoss, et al., 2001), rarely did they mention the pedagogy used to develop these skills. In only one program, faculty described how they used projects to help students apply collaborative skills. At the University of Kentucky, inservice

teachers working toward certification in severe disabilities were required to perform consultation and collaboration projects in their classrooms using the skills and knowledge acquired in class (Grisham-Brown, Collins, & Baird, 2000); however, these projects targeted collaboration with other professionals, not families. In a different program, faculty assumed that faculty modeling would teach students the necessary skills. In the University of New Mexico Dual License Program, two faculty members with backgrounds in general and special education worked together: (a) to administer the program, (b) work collaboratively with graduate assistants to supervise the field experiences, and (c) provide instructional support to other general and special education teaching faculty (Keefe, et al., 2000). What was unclear in this program description was whether and how faculty teach students to use collaborative skills with either professionals or families.

As in the University of New Mexico model, faculty collaboration was a featured component of many teacher education program descriptions (Keefe, et al., 2000; Kemple, et al., 1994; May, et al., 1989; Sobel, et al., 1998). Faculty worked collaboratively with other faculty in 39 of the programs, and it appeared from many of the descriptions that collaboration was employed to create a coherent program. How collaborative arrangements were operationalized, however, varied from program to program; in many cases, authors indicated the existence of collaborative relationships but did not describe the nature of that collaboration. In some programs, faculty collaboratively planned course work to ensure that skills and knowledge from different disciplines were addressed. For instance, at the University of Illinois at Chicago, faculty co-planned course work to integrate knowledge and strategies from special education and bilingual education (Bay & Lopez-Reyna, 1997). In other programs, faculty seemed to be collaborating more extensively to plan the program and individual courses, integrate knowledge across disciplines, teach courses, and monitor student progress in the field. At the University of Wisconsin Milwaukee, faculty collaborated in

four-member teams to plan courses that incorporate practices from general and special education and to monitor student progress (Otis-Wilburn & Winn, 2000). University of Washington faculty from general and special education extended this type of collaboration by co-teaching courses. Faculty collaboration even occurred across universities to deliver special programs, e.g., the alternative certification program offered by the University of Virginia, George Mason University, and Virginia Commonwealth University to prepare teachers to work with children and youth with severe disabilities (Snell, Martin, & Orelove, 1997). What was unclear in many descriptions that focused mainly on specialized programs within larger teacher education programs was the extent of faculty collaboration beyond the specialized programs.

Many teacher educators also acknowledged the important role that schools play in the education of preservice and inservice teachers. In 43 program descriptions, authors described some type of partnership with public schools. Most partnerships involved the selection of high-quality field placements and mentor teachers to assist with the supervision of preservice and inservice teachers working toward certification (Rude, Dickinson, & Weiser, 1998; Savelsbergh, 1995; Emond, 1995; Kozleski, Sands, & French, 1993). Sometimes, these partnerships employed a professional development school model involving entire schools selected to work with a teacher education program. At the University of Washington, preservice students were placed in partner schools where best practices were modeled and teachers from those schools co-taught courses in an integrated block with university faculty. In other cases, individual teachers across a district or districts were selected to work with students because of their expertise. For instance, in a collaborative alternative certification program implemented across three institutions, faculty selected master teachers from various technical assistance centers to monitor practicing teachers participating in the program. These master teachers helped participants implement research-based instructional practices

in their classrooms (Snell, et al., 1997) and supervised the quality of that implementation. In the most sophisticated instances of collaboration, entire school faculties, and sometimes school district personnel, collaborated around the following activities: (a) planning the teacher education program, (b) identifying quality placements for teacher education students, (c) selecting students for the program, (d) mentoring students, (e) evaluating their progress in the classroom, (f) co-teaching courses in the teacher education program, and (g) participating in training to become a mentor teacher (e.g., Affleck & Lowenbraun, 1995; Emond, 1995; King-Sears, et al., 1992; May, et al., 1989; Hall, Reed, & McSwine, 1997). Clear examples of programs that demonstrate most of these features can be found at the University of South Florida (Epanchin & Wooley-Brown, 1993) and at Johns Hopkins University (King-Sears, et al., 1992).

Teacher educators described using student cohorts to foster collaboration in 24 cases (Burnstein, Cabello, & Hamann, 1993; Corbett, Kilgore, & Sindelar, 1998; Gettys, Tanner, Bibler, Puckett, Brower, Goode, et al., 2000; Lesar, Benner, Habel, & Coleman, 1997). At the University of Wisconsin Milwaukee, students moved through the program in cohorts, which were just one vehicle that faculty used to foster strong collaboration (Otis-Wilburn & Winn, 2000). Faculty at Providence College placed practicum and internship students in their unified elementary and special education program in cohorts at selected school sites (Ryan, Callahan, Krajewski, & Flaherty, 1997). In practicum placements, preservice students collaboratively planned and implemented instruction under the ongoing supervision of faculty, who are monitoring the development of essential collaborative skills. While many programs indicated that they used cohorts, faculty did not talk about how students in cohorts worked together or were taught the collaborative skills necessary for working together.

Despite the apparent value that teacher educators placed on collaboration, finding ways to work together was challenging. In some cases, faculty

interested in creating more collaborative programs had to navigate challenges that included differing faculty perspectives about teaching and learning, bureaucratic and school-based barriers, and cultural barriers created in institutions where research and individual faculty productivity were valued more highly than teacher preparation. At Utah State University, faculty in special and general education decided collaboratively to run a dual certification program rather than a unified program, because there were so many philosophical differences in how they viewed instruction. While their views of early childhood practice were similar, Kemple and her colleagues (1994) at the University of Florida faced more bureaucratic and school-based challenges when instituting a unified early childhood special education program. There were difficulties in identifying field placements that modeled inclusive practices, in securing the necessary financial resources to support collaboration, and in determining how to share tasks associated with running and monitoring the program collaboratively. At the University of Washington, faculty encountered cultural barriers as they developed a unified teacher education program across separate special and general education programs (Affleck & Lowenbraun, 1995). Development of their unified program was particularly challenging due to their practices of offering categorical special education programs and rewarding faculty members exclusively for the accumulation of grants, doctoral student production, and scholarship. Despite these challenges, there were also key supports for collaboration. For example, Affleck and Lowenbraun reported that one college dean provided the initial support for program restructuring by deciding to rebuild their teacher education programs completely and establish a model team-based Middle School Professional Development Center.

Evaluating the impact of teacher education programs. Many authors described their methods for evaluating the effectiveness of their teacher education programs. These methods varied widely and focused on different outcomes, e.g., student satisfaction with the program, observed teaching

performance, faculty perceptions of the program, and cooperating teachers and administrators' perceptions of the student teacher and program. If they used assessment, the majority of programs used indirect assessment techniques that included surveys or interviews with current or former students as the single method for providing feedback about the program (Belknap & Mosca, 1999; Bay & Lopez-Reyna, 1997; Goodwin, Boone, & Wittmer, 1994; Minner, Tsosie, Newhouse, Owens, & Holiday, 1995). Surveys like those at the University of Kentucky (Grisham-Brown, et al., 2000) and the University of West Virginia (Miller, et al., 1999) were used to determine if graduates used practices learned in their program and their perceptions of the program. Other programs created a more robust assessment by combining several indirect assessment methods (Keefe, et al., 2000; Sobel, et al., 1998; Panyan, Hillman, & Liggett, 1997). For instance, Burstein, Cabello, & Hamann (1993) used *The Teacher Inventory on the Education of Diverse Students* to assess students' pre- and post-training beliefs about teaching diverse children. Students also completed surveys about their competencies and satisfaction with the program both during the program and one year after graduation. Additionally, faculty frequently discussed findings from the surveys, students' reflection logs, and ideas about how to modify the program based on these findings.

Direct student assessment was used to evaluate teaching competence in more than one fifth of the teacher education programs. Most of these programs combined direct and indirect assessment methods (Aksamit, Hall, & Ryan, 1990; Benner & Judge, 2000; Cambone, Zambone, & Suarez, 1996; Corbett, et al., 1998; Snell, et al., 1997). In an alternative certification/masters program at Johns Hopkins University, faculty evaluate the effectiveness of their program using: (a) direct observations of student teachers by the university supervisor and district personnel, (b) surveys completed by principals and special education supervisors rating graduates' competence, (c) surveys from supervisory personnel comparing beginning teachers from traditional certification programs to graduates of the alternative

certification programs, (d) performance evaluation data on beginning teachers from traditional certification programs, (e) self-report data from program participants rating their professional growth and development over the course of the project, and (f) certification or graduation rates of program participants (Rosenberg & Rock, 1994). Similarly, faculty at Wheelock College use multiple data sources to determine program effectiveness (Cambone, et al., 1996). Specifically, they used teaching portfolios, certification checklists completed by university supervisors and mentor teachers, pre- and post-training self-evaluations on beginning teacher competencies established, narrative evaluations completed by the university supervisors and mentor teachers, performance evaluations by employers, data on the number of graduates seeking teaching positions, and focus group interviews with mentor teachers.

Focusing on inclusion and cultural diversity.

Attempts to address inclusion and cultural diversity were widespread. This was not surprising given the prominent role that inclusion plays in the national debate on how best to serve students with disabilities and the overrepresentation of children from ethnic and linguistic minority groups in special education. In 10 program descriptions, authors mentioned inclusion or cultural diversity as program topics but did not elaborate on how they addressed these topics (Benner & Judge, 2000; Corn & Erin, 1996; Lehmann & Sample, 1997; Rude, et al., 1998). Four other authors described course work that focused on cultural diversity or inclusion but did not discuss the pedagogy they used or how faculty crafted field experiences to help students learn relevant pedagogical skills (Campbell & Fyfe, 1995; Ganser, 1996). One third of the authors delineated fieldwork and classroom practices they used for ensuring that graduates could work in inclusive settings. Eighteen authors described methods used to help teachers address the cultural and linguistic needs of students with disabilities, and 17 discussed how their faculty helped students learn about inclusion. However, approximately 85% of these programs addressed both inclusion and cultural diversity, reflecting a

broader focus on diversity that included both children with disabilities and those with diverse cultural and linguistic needs (Corbett, et al., 1998; Keefe, et al., 2000; Kemple, et al., 1994; Sobel, et al., 1998; Otis-Wilburn & Winn, 2000).

Maintaining a positivist or constructivist orientation toward learning and teaching.

Many program descriptions reflected positivist, constructivist, or blended orientations toward learning and teaching. These variations are not surprising given the strong role that behavioral theory has played in special education and the emergence over the past two decades of more constructivist practices in special education. A strong competency-based approach to teacher education reflected in many programs is perhaps one indicator of the role that positivist thought has played in special education. This approach assumes that a specific set of knowledge and skills exist and should be disseminated to students (Blanton, 1992).

The vast majority of program descriptions included competencies that faculty expected students to acquire by graduation; however, the manner in which competencies were addressed was either not clear (as in 30% of the descriptions) or varied depending on the orientation of the program (e.g., see Emond, 1995; Heston, Raschke, Kliwer, Fitzgerald, & Edmiaston, 1998; Salend & Reynolds, 1991; Sebastian, Calmes, & Mayhew, 1997.) Some teacher education programs adopted what appeared to be more positivist approaches to teacher education (Grisham-Brown, et al., 2000; Miller, et al., 1999; Snell, et al., 1997; Russell, et al., 1992). Faculty in these programs viewed competencies as knowledge and skills to be acquired in course work and then applied in practical settings. For instance, the collaborative masters program between George Mason University, University of Virginia, and Virginia Commonwealth University (Snell, et al., 1997) organized course offerings to include the 123 Program Quality Indicators of educational services for students with severe disabilities along with competencies set forth by the Virginia Department of Education. The Program Quality

Indicators represented research-validated practice. Identified practices were taught in course work and participating teachers worked in their respective classrooms to implement them. Master teachers from nearby technical assistance centers worked with participating teachers to implement practices appropriate to their context at an acceptable level of competence. A positivist orientation was also evident in programs that required students to use behavioral methods to demonstrate the effectiveness of their teaching. For instance, the University of Maryland and the State University of New York at New Paltz required students to use single-subject methodologies to evaluate the effect of their instruction on student learning (Lovingfoss, et al., 2001; Salend & Reynolds, 1991).

Approximately 40% of the teacher education programs descriptions indicated that faculty maintained more constructivist views of learning to teach (Affleck & Lowenbraum, 1995; Anderson & Baker, 1999; Epanchin & Wooley-Brown, 1993; Hall, et al., 1997). Instead of teaching students to apply research-based methods and interventions, these programs employed a variety of pedagogical techniques to help teachers consider their beliefs about teaching and learning as well as the diverse needs of their students when planning for and evaluating instruction. Teacher-educators used a combination of belief inventories, case studies, weekly seminars, teaching portfolios, coaching, and various assessment projects to help students: (a) examine their beliefs about instruction; (b) integrate the knowledge they were acquiring in course work with prior knowledge; (c) acquire academic, social and cultural knowledge about their students; and (d) reflect on the impact of their instruction. For instance, in an alternative training program offered by the University of South Florida, students complete inventories designed to assess their background and beliefs about instruction and learning early in their program. These inventories were used to introduce self-reflection about teaching. Students also kept journals that contained reactions to clinical experiences as well as class readings and discussions. At the University of New Mexico,

Keefe and her colleagues (2000) promoted reflection in their dual license program by employing weekly seminars, written reflections, oral debriefings, interactive e-mail journals, student self-assessments, and student participation in rubric development. Interestingly, many of the programs that embraced more constructivist orientations were focused on cultural diversity or were unified, blended, or dual certification programs. This suggests that prevailing views of teaching and learning in multicultural and general teacher education are influencing how special education faculty conceptualize their practice.

While programs tended to present a particular orientation, we were not sure how pervasive orientations were. In some cases it was often difficult to determine if faculty adopted positivist or constructivist orientations. Moreover, some program descriptions indicated that faculty either blended or maintained multiple orientations to learning (Correa, Rapport, Hartle, Jones, Kemple, & Smith-Bonahue, 1997; Ryan, et al., 1997; Salzberg, Lignugaris-Kraft, & Monson, 1997). For instance, in the merged elementary and special education program at Providence College, faculty abandoned the “model of the teacher as a technician and adopt[ed] the model of the teacher as a professional” (Ryan, et al., 1997, p. 72). Providence faculty now use active pedagogy to encourage students to develop a reflective stance toward their teaching and a repertoire of strategies that allow them to individualize for students in their classrooms. At the same institution, faculty teach research-based strategies (e.g., direct instruction), because they believe that effective instruction is relevant to all students. Other faculty (e.g., those who run the dual certification program at Utah State University) chose to maintain separate positivist and constructivist orientations. Faculty members argued that philosophical differences were so strong that attempts to bridge those differences could derail any efforts to educate special and general education preservice students jointly (Salzberg, et al., 1997).

Conclusions about the two literature bases

The special education programs we reviewed appear to share features with programs considered exemplary in general education. In both fields, teacher education is labor-intensive, carefully crafted, focused on connecting theory and practice, collaborative, and invested in creating teachers who can respond to the needs of children and youth, particularly those with diverse needs. However, not all special education faculty use the same methods as their general education counterparts. Moreover, some of the qualities of the exemplary teacher education programs (e.g., clear programmatic vision, integrating subject-matter pedagogy with educational theory and field experience) described earlier are referred to minimally in special education. Similarly, special education teacher education programs have unique features differentiating them from exemplary general education programs described in this paper.

Commonalities and Differences between the Two Literature Bases

Faculty in the exemplary general education programs and special education programs reviewed realize that extensive, well-planned field experiences are important if teachers are to apply content from their teacher education programs. Additionally, faculty from both fields are aware of the importance of ensuring that preservice and inservice student teachers have opportunities to practice what they learn in well-supervised settings so that they can make connections between theory and practice. Thus, special and general education teacher-educators have worked to craft programs that integrate course work with well designed and supervised fieldwork.

Similarly, faculty in the special education and the exemplary general education programs stressed the importance of collaboration between faculty, school personnel, and preservice/inservice teachers. As in the exemplary teacher education programs, special education faculty worked closely with other faculty in their disciplines and general education to integrate program content,

plan their course work, sometimes even co-teach course work, and work with students in the field. Additionally, both groups worked to create connections between the university and schools, so that students had opportunities to learn in high-quality field experiences and school personnel became invested in the teacher education enterprise. Special education programs, in some cases, demonstrated an even greater commitment to collaboration than the exemplary teacher education programs by offering course work designed to help students acquire collaborative skills. Program descriptions in both areas, however, omit a focus on improving collaboration with families. While some special education faculty indicated that their program contained course work on families, it was not clear how students were taught to apply the knowledge and skills they acquired about families. Given that collaboration requires sophisticated interactive skills, particularly when teachers are dealing with people who may maintain a different perspective than their own, careful instruction in these skills seems necessary (Brownell & Walther-Thomas, 2002).

Preparing teacher education graduates to meet the needs of a diverse student population is clearly important to teacher educators across both disciplines. All exemplary teacher education programs and many special education programs reviewed offer experiences that focus on diversity; however, special education faculty place greater emphasis on the inclusion of students with disabilities. Additionally, all the exemplary teacher education programs provide course work and field experiences that are likely to promote conceptual change about diverse learners (Wideen, et al, 1998). That is, course work is integrated with fieldwork, faculty and students work closely together, active pedagogy is used to promote student reflection, and students are well supervised in field experiences. How pervasive these practices are in the special education programs reviewed is unclear. Only about one third of the programs reviewed described practices that were similar to those employed by the exemplary teacher education programs.

Teacher educators in the programs reviewed demonstrated that it was important for their programs to have an impact on student learning; however, the manner in which they determined program impact varied. The student data collected in the AACTE and IRA programs involved some type of direct assessment of student performance, usually documented through teaching portfolios and multiple observations in the field, and these assessments were based on well-articulated standards of practice. Special education program descriptions also mentioned employing evaluation data to determine program effectiveness; however, the majority of those programs relied on interviews and/or surveys to determine graduates' satisfaction with the program and their preparation regarding key competencies, or faculty members and school supervisors' perceptions of the program and its graduates. (Kenney & LaMontagne, 1999; Kozleski, et al., 1993). We believe that indirect assessment alone, however, is insufficient for determining the impact of a program. From our perspective, what teachers ultimately do in the classroom determines the effectiveness of teacher education. Thus, it was encouraging that approximately one fourth of the special education programs employed direct student assessments; however, we do not know if described evaluation practices were integral components of the special education programs. Some programs may have conducted evaluations to meet the federal requirements associated with OSEP-funded preparation programs. Moreover, it is important that we acknowledge how controversial teacher evaluation issues are. In the professional literature, there is considerable discussion about the criteria that should be used to evaluate the impact of teacher education on its graduates (Cochran-Smith, 2001) and the validity of current assessments (Good, 1996). Teacher education programs have come under increasing pressure to be accountable for demonstrating that their graduates are competent teachers, e.g., Title II reporting requirements under the Higher Education Act and the National Association for the Accreditation of Colleges of Education requirement for evidence of student performance.

We now expect to see more focused efforts on evaluation in both general and special education and more research about how best to accomplish this task.

Program orientation varied more widely in the special education programs than in the exemplary teacher education programs. The programs in the AACTE and IRA studies adopted constructivist orientations to learning, although special education programs represented a continuum from positivist to constructivist. Some special education programs did not provide sufficient description to determine an orientation (Ashcroft, 1990; Clarken & LeRoy, 1998; Easterbrooks & Laughton, 1997; Fager, Andrews, Shepherd, & Quinn, 1993). Constructivist-oriented programs in special education used a variety of methods (e.g., journals, beliefs inventories, and discussions in weekly seminars) to help students reflect on their beliefs about learning and instruction as well as the effect their instruction was having on the children/youth they taught (Campbell & Fyfe, 1995; Epanchin & Wooley-Brown, 1993; Kozleski, et al., 1993; Hall, et al., 1997). Programs adopting a constructivist orientation were usually integrated or dual preparation programs or programs focused on preparing teachers to work with culturally and linguistically diverse (CLD) students. Programs with more positivist orientations tended to focus on helping students learn skills (e.g., curriculum-based or functional behavioral assessment skills) to evaluate their instruction, although they did not mention any attempts to help students examine how their prior beliefs and knowledge were influencing what they were learning in the program and practicing in the classroom (e.g., Grisham-Brown, et al., 2000; King-Sears, et al., 1992; Langone, et al., 1991; Rosenberg & Rock, 1994).

In the special education program descriptions, we saw limited evidence of two defining features of exemplary teacher education programs: a strong programmatic vision and a heavy emphasis on subject matter pedagogy (e.g., reading, mathematics, science). In the AACTE, IRA, and NCRTL studies, a clear vision drove the design of

the programs and their implementation. Moreover, faculty in the AACTE and IRA studies continually used these shared visions to revisit programs and make revisions. In special education, some program descriptions articulated a clear vision, and others did not. Programs combining general and special education or those focusing on cultural diversity were more likely to articulate themes or goals that faculty used as the basis for making decisions about program experiences (e.g., see Affleck & Lowenbraum, 1995; Aksamit, et al., 1990; Bay & Lopez-Reyna, 1997; Benner & Judge, 2000; Kemple, et al., 1994; Sobel, et al., 1998). Special education programs maintaining a separate identity were less likely to describe goals that could be used to drive the program, with few exceptions (Kenney & LaMontagne, 1999; Lovingfoss, et al., 2001; Rosenberg & Rock, 1994). Exemplary programs in teacher education also placed heavy emphasis on subject matter pedagogy and its interface with educational theory and field experiences; special education programs tended to focus on more generic pedagogy (e.g., instructional methods, assessment, individualized education plans, collaboration). Only in the case of unified programs (e.g., see Affleck & Lowenbraum, 1995; Meyer, Mager, Yarger-Kane, Sarno, & Hext-Contreras, 1997; Norlander, Case, Reagan, Campbell, & Strauch, 1997; Ryan, et al., 1997) and a few special education programs (Epanchin & Wooley-Brown, 1993; Giovani, Zide, & Banahoan, 1974; Lovingfoss, et al., 2001) did faculty focus on the integration of subject matter pedagogy with special education and classroom practice. Many of the programs accomplished this integration by infusing special education competencies into subject-specific pedagogical course work or teaching courses in integrated blocks.

Special education programs were distinguished from the exemplary teacher education programs (and we suspect general education teacher education programs overall) in terms of the amount federal funding received. A number of special education programs were funded through USDOE's OSEP (Goodwin, et al., 1994; Snell, et al., 1997; Grisham-Brown, et al., 2000; Kemple,

et al., 1994; Miller, et al., 1999). There is no similar funding source in general education. These funded programs typically focused on specific needs within special education, such as preparing sufficient numbers of teachers to serve students with severe disabilities or preparing teachers to work in inclusive environments. This demonstrates OSEP's commitment to ensuring an adequate number of special education teachers for all children/youth with disabilities and that students are educated successfully in inclusive environments (Engleman & Maddox, 1997; Ludlow, 1994; Grisham-Brown, et al., 2000; Miller, et al., 1999). What we do not know is how similar funded programs are to other programs offered at the same institution. These funded programs provide support for faculty to implement practices (e.g., extensive field supervision and program evaluation) that they may not ordinarily have the funds to do. Additionally, these funded programs may not be well integrated with long-term programs at the institution, because the sustainability of these programs beyond the funding cycle is questionable.

Recommendations for future research

Research in special education teacher education is almost non-existent. Only a few experimental studies have examined the effects of different pedagogical approaches on the learning of preservice students in special education. As in general education, the special education community desperately needs comparative research that documents the characteristics of effective teacher education programs. This comparative research is important, because policy and program decisions involve choices between different ways of preparing teachers. These choices are shrouded in increasingly contentious debates as teacher shortages reach crisis proportions. Findings from comparative research can inform the education community about what is needed to prepare quality teachers. Determining how to make these comparisons is difficult, given that teacher education programs (both traditional and alternative in general and special education) vary considerably (Wengilnsky, 2000; Wilson,

et al., 2001). Researchers need ways to characterize programs for further study so that more useful comparisons can be made. The common characteristics identified in this literature review can provide one vehicle for selecting programs that will result in more useful research comparisons.

In making recommendations for future comparative studies, we draw heavily on the work of Suzanne Wilson and her colleagues (2001), who recently have provided an extensive review of the teacher education literature. As in general education, researchers external to the teacher education institutions under study must conduct *comparative studies that account for differences in preservice and inservice teacher populations, provide both broad generalizations about effective teacher education and in-depth information about program features, and link program features to valued criterion measures* (Wilson, et al., 2001). To date, researchers in general education have studied their own institutions; thus, the samples are limited and the credibility of the studies questionable. Large-scale comparative studies (e.g., the AACTE, NCRTL, and IRA studies) can help rectify these concerns; however, it will be imperative that such studies look at the influence of different program features on comparable student bodies. Having students who are comparable in terms of verbal ability is important, given the role it is believed to play in teacher performance (Walsh, 2001).

Additionally, studies must include *quantitative and qualitative methodologies that, taken together, can support robust generalizations about teacher education and provide rich explanations of programs*. Robust generalizations can inform state and national policy, and teacher-educators can draw on information provided by in-depth studies to develop and revise their current programs. Moreover, we need consensus about the criterion measures to be used to determine the effectiveness of teacher education programs. Criterion measures, at a minimum, must include valid and reliable measures of teacher knowledge and behavior. In determining these measures, we must come to terms with what

makes an effective special education teacher, and how indicators of effectiveness might vary by level of disability, by the role played by the special education teacher, and by the context of instruction (i.e., urban, rural, and suburban settings). Otherwise, it will be impossible to tie program features to what teachers actually learn about teaching.

We must also *determine how teacher knowledge, skill, and practice contribute to student outcomes across the disability spectrum*. Making these linkages is challenging, because researchers in special education cannot simply rely on standardized national and state assessments, as many studies in general education have done. Nevertheless, without linkages between teacher knowledge and skills and student achievement, practitioners and policy makers cannot evaluate the effectiveness of special education teacher education.

Future studies must *investigate the role of subject matter knowledge in special education practice*. This research is particularly important in special education, because preservice students are often not prepared in a subject area. Research in teacher education, although inconclusive, (Wilson, et al., 2001) suggests that subject matter preparation results in improved outcomes for students, but that teacher educators need to know what effective subject matter preparation looks like. AACTE studies demonstrated that in programs identified as exemplary, subject matter preparation was carefully linked to course work in pedagogy and educational foundations as well as to clinical experiences. However, these studies provide no data on the pedagogy used by subject area faculty. We also need to know what adequate subject matter preparation looks like when teachers are responsible for teaching multiple subjects to students with varying disabilities in a variety of contexts (e.g., resource room, consulting teacher, co-teacher). In the IRA studies, teachers extensively prepared in literacy did not feel more prepared to teach mathematics than comparable graduates from more generic elementary education programs (Flint, et al.,

2001). These findings are relevant to special education teachers who often teach or provide consultation in a variety of subject areas and serve students with varying disabilities across several grade levels.

We need to know *how methods courses, foundations courses, and field experiences contribute, singularly and in interaction with one another, to the preparation of beginning special education teachers* (see Wilson, et al., 2001) and how these contributions might differ in unified preparation programs versus more traditional special education programs. In elementary and special education, where students are being prepared across multiple subject areas, educational methods and foundations courses as well as field experiences constitute most, if not all, of the course of study in a teacher preparation program. Special education programs tend to provide methods instruction that is not tied to a specific content area; elementary programs and many unified preparation programs tend to address pedagogy in reading, mathematics, science, and social studies.

- How do these differences in pedagogical preparation affect the knowledge and practice of a beginning special education teacher?
- Is knowledge about teaching students with disabilities sufficiently infused in unified programs?
- Do unified programs adequately prepare teachers to meet the needs of students with low-incidence disabilities?
- Are students prepared in stand-alone special education programs able to teach content adequately in resource and self-contained settings or to contribute to the knowledge of general education teachers in collaborative relationships?

In addition to knowing how course work contributes to beginning teacher practice, we need to know *what constitutes effective teacher education pedagogy*. In special education, we have spent the majority of our time describing the

content preservice students should learn in teacher education; however, we do not know if the pedagogical practices used in our teacher education course work help novice teachers acquire and apply that content. In general education, teacher educators promote active pedagogy that fosters reflective classroom practice. That is, general educators adopt a constructivist perspective on teacher learning. Our review of teacher education practices reveals that many programs, particularly those focusing on cultural diversity or unified teacher education, are using more constructive pedagogy; however, some teacher education programs in special education continue to rely on pedagogy that is grounded in positivist theories of learning. As such, we are left with some basic questions about the comparative effectiveness of these approaches to teacher learning.

Because clinical experiences are more effective when they are tied to teacher education course work (Wideen, et al, 1998; Wilson, et al., 2001), we need to know more about *how schools and colleges collaborate to provide teacher education, how these collaborations affect the design of clinical experiences, and how collaboration with parents fits into these relationships*. We also need to know how clinical experiences influence the beliefs and practices of beginning special education teachers working in various instructional contexts. Experiences that help a beginning teacher to be effective with students with mild cognitive disabilities may or may not be similar to those needed by teachers of students with severe and profound cognitive disabilities.

In conducting teacher education research, we need to recognize that not all preservice special education teachers have the same learning needs. Because of the chronic need for teachers in special education, it is critical that we understand *what effective preparation looks like for different populations of preservice teachers*. Many teachers prepared through alternative routes may already have extensive backgrounds in special education and/or pedagogy. They may be teachers working on emergency certification in a special education classroom, former general education teachers

wishing to teach children with disabilities, or parents entering teaching as a second career. The knowledge and preparation these mature adults need are likely to be quite different from what is needed by traditional college students.

In addition to providing linkages between teacher preparation, beginning teacher quality, and student achievement, teacher education research in special education needs to consider contextual variables (e.g., working conditions in schools that may mediate a program's effectiveness. We need to understand *how teacher preparation and contextual variables interact*; otherwise, we will be unable to discern if a teacher's performance is the result of his/her preparation program or the conditions encountered in the initial years of teaching. Current evidence in general education suggests that the workplace has a powerful influence on whether or not teachers maintain what they have learned in their teacher education programs (Zeichner & Hoef, 1996). Higher attrition rates in special education suggest that beginning special education teachers may encounter difficult working conditions that thwart their attempts to operationalize what they learned in their preservice programs.

Finally, we need more research to *examine the impact of OSEP funding on the preparation of special education teachers*. To date, we know little about the impact of OSEP-funded programs on teacher quality or retention in special education. Additionally, we do not know about the sustainability of OSEP-funded programs and what institutional factors affect the sustainability of these projects. Given the significant investment of federal dollars in the preparation of special education teachers, we need to know a good deal more about the impact of this investment.

At a time when teacher education is coming under severe scrutiny, a rigorous research agenda, such as the one we have just outlined, seems more critical than ever. We need greater commitment on the part of the federal government and professional organizations (e.g., AACTE and IRA) to fund multi-institutional, longitudinal studies of teacher education. Recently, the

USDOE's OSEP and OSER have funded two large-scale studies of teacher education (e.g., the Center for the Study of Teaching Policy and the Center for Personnel Studies in Special Education). These research centers will add to the knowledge base already provided through the Teacher Education and Learning to Teach, AACTE, and IRA studies. Although these research efforts have or will provide critical knowledge to inform the education community, they are not sufficient to inform a healthy research agenda. The teacher education enterprise is incredibly complex, particularly in special education where beginning teachers play so many different roles and serve students with such diverse needs. Consequently, the special education research community needs sufficient support to address these complexities and to establish a professional knowledge base in teacher education that can rival the knowledge base for the instructional innovation literature for students with disabilities.

References

- Adams, P. E., & Krockover, G. H. (1997). Beginning science teacher cognition and its origins in the preservice science teacher program. *Journal of Research in Science Teaching*, 34, 633-653.
- Affleck, J. Q., & Lowenbraun, S. (1995). Managing change in a research university special education program. *Teacher Education and Special Education*, 18(2), 77-90.
- Aksamit, D. L., Hall, S. P., & Ryan, L. (1990). Naturalistic inquiry applied to the evaluation of a teacher education program. *Teaching and Teacher Education*, 6(3), 215-226.
- Anderson, P. L., & Baker, B. K. (1999). A case-based curriculum approach to special education teacher preparation. *Teacher Education and Special Education*, 22(3), 188-192.
- Ashcroft, S. C. (1990). The Peabody Vision Program: Ethos, serendipity, and zeitgeist. *Peabody Journal of Education*, 67(2), 4-9.
- Ballou, D., & Podgursky, M. (1999). Reforming teacher preparation and licensing: What is the evidence? *Teachers College Record*. Retrieved November, 1999, from <http://www.tcrecord.org>
- Bay, M., & Lopez-Reyna, N. (1997). Preparing future bilingual special educators: The lessons we've learned. *Teacher Education and Special Education*, 20(1), 1-10.
- Belknap, N., & Mosca, F. J. (1999). *Preparing teachers for students with emotional or behavioral disabilities in professional development schools*. (ERIC Document Reproduction Service No. ED429039)
- Benner, S. M., & Judge, S. L. (2000). Teacher preparation for inclusive settings: A talent development model. *Teacher Education Quarterly*, 27(3), 23-38.
- Blanton, L. P. (1992). Preservice education: Essential knowledge for the effective special education teacher. *Teacher Education and Special Education*, 15, 87-96.
- Brownell, M. T. & Walther-Thomas, C. (2002). An interview with Marilyn Friend: Fostering collaboration in schools. *Intervention in School and Clinic*, 37, 31-35.
- Browning, P., & Dunn, C. (1994). Teacher preparation with an emphasis at the secondary level. *Alabama Council for Exceptional Children Journal*, 11(1), 16.
- Burstein, N., Cabello, B., & Hamann, J. (1993). Teacher preparation for culturally diverse urban students: infusing competencies across the curriculum. *Teacher Education and Special Education*, 16, 1-13.
- Burstein, N. D., & Sears, S. (1998). Preparing on-the-job teachers for urban schools: Implications for teacher training. *Teacher Education and Special Education*, 21(1), 47-62.

- Cambone, J., Zambone, A., & Suarez, S. C. (1996). *Are they learning as we expected them to learn? An evaluation of the preparation of special education teachers using a professional development school model.* (ERIC Document Reproduction Service No. ED394251)
- Campbell, D. M., & Fyfe, B. (1995). *Reforming teacher education: The challenge of inclusive education.* (ERIC Document Reproduction Service No. ED386439)
- Carnegie Task Force on Teaching as a Profession. (1986). *A nation prepared: Teachers in the 21st century.* New York: Carnegie Corporation.
- Clarcken, R., & LeRoy, B. (1998). *An upper peninsula collaborative site of practice and inquiry.* (ERIC Document Reproduction Service No. ED421464)
- Cochran-Smith, M. (2001). Constructing outcomes in teacher education: Policy, practice, and pitfalls. *Education Policy Analysis Archives*, 9(11), 1-52.
- Corbett, N. L., Kilgore, K. L., & Sindelar, P. T. (1998). "Making sense" in a collaborative teacher education program: Lessons from project PART students. *Teacher Education and Special Education*, 21(4), 293-305.
- Corn, A. L., & Erin, J. N. (1996). A collaborative model for the preparation of teachers for students with visual impairments. *Teacher Education and Special Education*, 19(1), 59-70.
- Correa, V. I., Rapport, M. J. K., Hartle, L. C., Jones, H. A., Kemple, K. M., & Smith-Bonahue, T. (1997). The Unified Proteach Early Childhood Program at the University of Florida. In L. P. Blanton (Ed.), *Teacher education in transition: Collaborative programs to prepare general and special educators* (pp. xii, 276). Denver, CO: Love.
- Darling-Hammond, L. (1997, November). *Doing what matters most: Investing in quality teaching.* New York: National Commission on Teaching and America's Future. (ERIC Document Reproduction Service No.)
- Darling-Hammond, L. (1999). *Teacher quality and student achievement: A review of state policy evidence.* Retrieved October 12, 2001, from the National Commission on Teaching and America's Future Web site: <http://www.tc.edu/nctaf/publications/index.html>
- Darling-Hammond, L. (2000). *Studies of excellence in teacher education.* Washington, DC: AACTE Publications.
- Darling-Hammond, L. (2002). *Research and rhetoric on teacher certification: A response to "Teacher Certification Reconsidered."* NY: National Commission on Teaching and America's Future.
- Easterbrooks, S. R., & Laughton, J. M. (1997). *Model of collaboration between two universities: Meeting the challenge.* (ERIC Document Reproduction Service No. ED406772)
- Emond, S. (1995). *Unified elementary pilot program.* (ERIC Document Reproduction Service No. ED399529)
- Engleman, M. D., Maddox, J. I., & East Carolina University, Greenville, NC. (1997). *Preparation of personnel for service to low-incidence disability populations: Final report.* Greenville, NC: East Carolina University. (ERIC Document Reproduction Service No. ED421827)
- Epanchin, B. C., & Wooley-Brown, C. (1993). A university-school district collaborative project for preparing paraprofessionals to become special educators. *Teacher Education and Special Education*, 16(2), 110-123.
- Fager, P., Andrews, T., Shepherd, M. J., & Quinn, E. (1993). Teamed to teach: Integrating teacher training through cooperative teaching at an urban professional development school. *Teacher Education and Special Education*, 16(1), 51-59.
- Feistritzer, C. E. (1998, February). *Alternative teacher certification: An overview.* Retrieved January 25, 2001, from The National Center for Education Information Web site: <http://www.ncei.com>

- Felter, M. (1999). *High school staff characteristics and mathematics test results*. Retrieved from <http://epaa.asu.edu/epaa/v7n9.html>
- Finn, C., & Kanstoroom, M. (2000). Improving, empowering, dismantling. *The Public Interest*, 140, 64-73.
- Flint, A. S., Leland, C. H., Patterson, B., Hoffman, J. V., Sailors, M. W., Mast, M. A., et al. (2001). "I'm still figuring out how to do this teaching thing": A cross-site analysis of reading preparation programs on beginning teachers' instructional practices and decisions. In C. M. Roller (Ed.), *Learning to teach reading: Setting the research agenda* (pp. 101-118).
- Fox, W. L., & Capone, A. (1993). *Preparation of special educators in essential early education. Funding period: August 1989-July 1992. Final report*. Burlington, VT: Center for Developmental Disabilities, Vermont University. (ERIC Document Reproduction Service No. ED354242)
- Ganser, T. (1996). *Students' perceptions of appropriate placements for an early field experience*. (ERIC Document Reproduction Service No. ED392743)
- Gess-Newsome, J., & Lederman, N. G. (1993). Preservice biology teachers' knowledge structures as a function of professional teacher education: A yearlong assessment. *Science Education*, 77, 25-45.
- Gettys, C. M., Tanner, M. P., Bibler, T. E., Puckett, K. S., Brower, J. T., Goode, L., et al. (2000). *Alternative certification program: A collaborative effort between Hamilton County Department of Education and the University of Tennessee at Chattanooga*. Chattanooga, TN: University of Tennessee at Chattanooga. (ERIC Document Reproduction Service No. ED448173)
- Giovani, R., Zide, M. M., & Banahan, J. (1974). *A competency based special education teacher preparation model: The integrated program*. (ERIC Document Reproduction Service No. ED095124)
- Goldhaber, D. D., & Brewer, D. J. (2000). Does teacher certification matter? High school teacher certification status and student achievement. *Educational Evaluation and Policy Analysis*, 22, 129-145.
- Good, T. (1996). Teaching effects and teacher evaluation. In J. Sikula (Ed.), *Handbook of Research on Teacher Education*. Association of Teacher Educators: New York.
- Goodwin, W. L., Boone, H. A., & Wittmer, D. S. (1994). The puzzle of redesigning a preparation program in an evolving, fast changing field. *Teacher Education and Special Education*, 17(4), 260-268.
- Grisham-Brown, J., Collins, B. C., & Baird, C. M. (2000). *Training rural educators in Kentucky: Impact with follow-up data*. (ERIC Document Reproduction Service No. ED439887)
- Grossman, P. L. (1989). Learning to teach without teacher education. *Teachers College Record*, 91, 191-207.
- Grossman, P. L., & Richert, A. E. (1988). Unacknowledged knowledge growth: A reexamination of the effects of teacher education. *Teaching and Teacher Education*, 4, 53-62.
- Grossman, P. L., Valencia, S., Evans, K., Thompson, C., Martin, S., & Place, N. (in press). Transitions into teaching: Learning to teach writing in teacher education and beyond. *Journal of Literacy Research*.
- Hall, V., Reed, F., & McSwine. (1997). *Village teaching: A multidimensional professional development schools model for preservice teachers at Chicago State University*. Chicago, IL. (ERIC Document Reproduction Service No. ED409312)
- Harmon, J., Hendrick, W., Martinez, M., Perez, B., Strecker, S., Fine, J. C., et al. (n.d.). *Features of excellence of reading teacher preparation programs*. Unpublished manuscript.

- Hawk, P. P., Coble, C. R., & Swanson, M. (1985). Certification: It does matter. *Journal of Teacher Education*, 36(3), 13-15.
- Heston, M. L., Raschke, D., Kliwer, C., Fitzgerald, L. M., & Edmiaston, R. (1998). Transforming teacher preparation in early childhood education: Moving to inclusion. *Teacher Education and Special Education*, 21(4), 278-292.
- Holmes Group. (1986). *Tomorrow's teachers: A report of the Holmes Group*. East Lansing, MI: Author.
- Holmes Group. (1995). *Tomorrow's schools of education: A report of the Holmes Group*. East Lansing, MI: Author.
- Kanstoroom, M. & Finn, Jr., C. E. (Eds.). (1999). *Better teachers, better schools*. Monograph: The Thomas B. Fordham Foundation.
- Keefe, E. B., Rossi, P. J., de Valenzuela, J. S., & Howarth, S. (2000). Reconceptualizing teacher preparation for inclusive classrooms: A description of the dual license program at the University of New Mexico. *Journal of the Association for Persons with Severe Handicaps*, 25(2), 72-82.
- Kemple, K. M., Hartle, L. C., Correa, V. I., & Fox, L. (1994). Preparing teachers for inclusive education: The development of a unified teacher education program in early childhood and early childhood special education. *Teacher Education and Special Education*, 17(1), 38-51.
- Kennedy, M. M. (1999). Approximations to indicators of student outcomes. *Educational Evaluation and Policy Analysis*, 21(4), 345-363.
- Kenney, S. L., & LaMontagne, M. J. (1999). Portfolio development: A process for facilitating reflection and professionalism in preservice special education students. *Teacher Education and Special Education*, 22(3), 184-187.
- King-Sears, M. E., Rosenberg, M. S., Ray, R. M., & Fagen, S. A. (1992). A partnership to alleviate special education teacher shortages: University and public school collaboration. *Teacher Education and Special Education*, 15(1), 9-17.
- Koppich, J. E. (2000). Trinity University: Preparing teachers for tomorrow's schools. In L. Darling-Hammond (Ed.), *Studies of excellence in teacher education: Preparation in a five-year program* (pp. 1-48).
- Kozleski, E. B., Sands, D. J., & French, N. (1993). Preparing special education teachers for urban settings. *Teacher Education and Special Education*, 16(1), 14-22.
- Laczko, I. & Berliner, D. C. (April, 2001). *Does certification matter? An analysis of teacher certification on student achievement*. Paper presented at the meetings of the American Educational Research Association (AERA), Seattle, WA.
- Laczko-Kerr, I., & Berliner, D. C. (2002). The effectiveness of "Teach for America" and other under-certified teachers on student academic achievement: A case of harmful public policy. *Educational Policy Analysis Archives*, 10(37), 55.
- Langone, C. A., Langone, J., & McLaughlin, P. J. (1991). Evaluating the impact of a secondary transitional teacher preparation program. *Teacher Education and Special Education*, 14(2), 94-102.
- Lehmann, J. P., & Sample, P. L. (1997). *Partners in transition: Preparing transition specialists. Final report*. Colorado. (ERIC Document Reproduction Service No. ED422680)
- Lesar, S., Benner, S. M., Habel, J., & Coleman, L. (1997). Preparing general education teachers for inclusive settings: A constructivist teacher education program. *Teacher Education and Special Education*, 20(3), 204-220.

- Lovingfoss, D., Molloy, D. E., Harris, K. R., & Graham, S. (2001). Preparation, practice, and program reform: Crafting the University of Maryland's five-year, multicategorical undergraduate program in special education. *The Journal of Special Education, 35*(2), 105-114.
- Ludlow, B. L. (1994). *A comparison of traditional and distance education models*. (ERIC Document Reproduction Service No. ED369599)
- Matthews, J. (2002, July 18). Teacher training: Too much or not enough? *Washington Post*. Retrieved July 20 from <http://www.washingtonpost.com/wp-dyn/articles/A41591-2002jul18.html>
- May, A., Miller-Jacobs, S., & Zide, M. M. (1989). *Effective collaborative teacher preparation models: Defining the relationship*. (ERIC Document Reproduction Service No. ED305327)
- Meyer, L. H., Mager, G. M., Yarger-Kane, G., Sarno, M., & Hext-Contreras, G. (1997). Syracuse University's inclusive elementary and special education program. In L. P. Blanton (Ed.), *Teacher education in transition: collaborative programs to prepare general and special educators* (pp. xii, 276). Denver, CO: Love.
- Miller, J. W., McKenna, M. C., & McKenna, B. A. (1998). A comparison of alternatively and traditionally prepared teachers. *Journal of Teacher Education, 49*(3), 165-176.
- Miller, K. J., Wienke, W. D., & Friedland, B. (1999). *Rural general educators and special education training: Applied assignments & evaluation data*. (ERIC Document Reproduction Service No. ED429772)
- Miller, L., & Silvernail, D. (2000). Learning to become a teacher: The Wheelock way. In L. Darling-Hammond (Ed.), *Studies of excellence in teacher education: Preparation in the undergraduate years* (pp. 67-107).
- Minner, S., Tsosie, J., Newhouse, R., Owens, M., & Holiday, J. (1995). *Benefits of cultural immersion activities in a special education teacher training program*. (ERIC Document Reproduction Service No. ED381310)
- National Center for Research on Teacher Learning. (1991). *Findings from the teacher education and learning to teach study*. East Lansing, MI: Michigan State University.
- National Commission on Excellence in Education. (1983). *A nation at risk: The imperative for educational reform*. Washington, DC: U. S. Government Printing Office.
- National Commission on Excellence in Teacher Education. (1985). *A call for change in teacher education*. Washington, DC: Author.
- National Commission on Teaching and America's Future. (1996). *What matters most: Teaching for America's future*. New York: Author.
- Norlander, K. A., Case, C. W., Reagan, T. G., Campbell, P., & Strauch, J. D. (1997). The power of integrated teacher preparation: The University of Connecticut. In L. P. Blanton (Ed.), *Teacher education in transition: collaborative programs to prepare general and special educators* (pp. xii, 276). Denver, CO: Love.
- O'Shea, L., Hoover, N., & Carroll, R. (1988). Effective intern conferencing. *Journal of Teacher Education, 39*(2), 17-21.
- Otis-Wilborn, A., & Winn, J. (2000). The process and impact of standards-based teacher education reform. *Teacher Education and Special Education, 23*(2), 78-92.
- Panyan, M. V., Hillman, S. A., & Liggett, A. M. (1997). The role of focus groups in evaluating and revising teacher education programs. *Teacher Education and Special Education, 20*(1), 37-46.
- Rosenberg, M. S., & Rock, E. E. (1994). Alternative certification in special education: Efficacy of a collaborative, field-based teacher preparation program. *Teacher Education and Special Education, 17*(3), 141-153.

- Rosenberg, M. S., & Sindelar, P. T. (2001). *The proliferation of alternative routes to certification in special education: A critical review of the literature*. Arlington, VA: The National Clearinghouse for Professions in Special Education, The Council for Exceptional Children. Retrieved December 21, 2001, from www.special-ed-careers.org
- Rude, H., Dickinson, B., & Weiser, J. (1998). *Teacher education partnerships at Valley High School*. (ERIC Document Reproduction Service No. ED417887)
- Russell, S. C., Williams, E. U., & Gold, V. (1992). *Rural America Institute for special educators: A collaborative preservice teacher training program for rural special education*. (ERIC Document Reproduction Service No. ED356586)
- Ryan, L., Callahan, J., Krajewski, J., & Flaherty, T. (1997). A merged elementary/special education program in a 4-year liberal arts college: Providence College. In L. P. Blanton (Ed.), *Teacher education in transition: collaborative programs to prepare general and special educators* (pp. xii, 276). Denver, CO: Love.
- Salend, S. J., & Reynolds, C. J. (1991). The migrant/special education training program. *Teacher Education and Special Education*, 14(4), 235-242.
- Salzberg, C., Lignugaris/Kraft, B., & Monson, J. (1997). A voluntary approach to collaborative teacher preparation: A dual-major program at Utah State University. In L. P. Blanton (Ed.), *Teacher education in transition : Collaborative programs to prepare general and special educators* (pp. xii, 276). Denver, CO: Love.
- Savelsbergh, M. (1995). *Meeting changing rural needs: Recruitment and preparation of culturally diverse specialist cadres in an award winning rural internship program*. (ERIC Document Reproduction Service No. ED381328)
- Sebastian, J. P., Calmes, L. J., & Mayhew Jr., J. C. (1997). *Distance learners talk back: Rural special educators evaluate their teacher preparation program*. (ERIC Document Reproduction Service No. ED406107)
- Snell, M. B., Martin, K., & Orelove, F. P. (1997). Meeting the demands for specialized teachers of students with severe disabilities. *Teacher Education and Special Education*, 20(3), 221-233.
- Sobel, D., French, N., & Filbin, J. (1998). A partnership to promote teacher preparation for inclusive, urban schools: Four voices. *Teaching and Teacher Education*, 14(8), 793-806.
- U. S. Department of Education [USDOE]. (2002). *Meeting the highly qualified teachers challenge: The secretary's annual report on teacher quality*. Washington, DC: Author.
- Valli, L., & Agostinelli, A. (1993). Teaching before and after professional preparation: The story of a high school mathematics teacher. *Journal of Teacher Education*, 44, 107-118.
- Valli, L. & Rennert-Ariev, P. (2000). Identifying consensus in teacher education reform documents: A proposed framework and action implications. *Journal of Teacher Education*, 51(1), 5-17.
- Walsh, K. (2001). *Teacher education reconsidered: Stumbling for quality*. Retrieved January 15, 2001, from the Abell Foundation, Inc. Web site: <http://www.abell.org/pubsf.htm>
- Wenglinisky, H. (2000, October). *How teaching matters: Bringing the classroom back into discussions of teacher quality*. Princeton, NJ: Educational Testing Service, Policy Information Center.
- Wideen, M., Mayer-Smith, J., & Moon, B. (1998). A critical analysis of the research on learning to teach: Making the case for an ecological perspective on inquiry. *Review of Educational Research*, 68(2), 130-178.

- Wilson, S. M., Floden, R. E., & Ferrini-Mundy, J. (2001). *Teacher preparation research: Current knowledge, gaps, and recommendations*. Seattle, WA: University of Washington.
- Zeichner, K. (2000). Ability-based teacher education: Elementary teacher education at Alverno college. In L. Darling-Hammond (Ed.), *Studies of excellence in teacher education: Preparation in the undergraduate years* (pp. 1-66).
- Zeichner, K., & Hoelt, K. (1996). Teacher socialization for cultural diversity. In J. Sikula (Ed.), *Handbook of Research on Teacher Education*. Association of Teacher Educators: New York.

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