

*Editors' Note.* This is the second paper from the Center on Personnel Studies in Special Education about research issues in teacher education.

# The Proliferation of Alternative Routes to Certification in Special Education: *A Critical Review of the Literature*

Michael S. Rosenberg, *Johns Hopkins University*  
Paul T. Sindelar, *University of Florida*

In this article we review research on alternative routes to certification (ARC) in special education. First, ARC is defined, and the confluence of factors that has hastened its growth and popularity, particularly in specialized, high-need areas such as special education, is discussed. Second, available research in the area of ARC in special education is summarized, with particular attention to the efficacy of the various approaches and programs and to the process and outcome variables used to assess program impact. Third, programmatic features associated with successful ARC programs are described, and what remains unknown about ARC programs is discussed. We conclude with a series of recommendations for policymakers and teacher educators.

Conventional wisdom holds that desperate circumstances require bold action. If so, then the rapid growth of alternative paths to special education teacher certification could be viewed as a legitimate and justified response to market conditions. For decades, there simply have not been enough qualified teachers to address the educational needs of the growing numbers of students with disabilities. Moreover, the traditional source of supply for special education classrooms, freshly minted graduates of college or university degree programs, has not met the growing demand for teachers. As a result, in the No Child Left Behind Act of 2001, P. L. 107-110, H. R. 1 (NCLB), the U.S. Department of Education has encouraged the development of alternative routes to teacher certification (ARC), noting that these approaches, "as opposed to the traditional routes offered by colleges of education, streamline the process of certification to move candidates into the classroom on a fast-track basis" (U.S. Department of Education, 2002, p. 15).

Not surprisingly, alternative certification has become a growth industry. Feistritz, Haar, Hobar, and Losselyong (2004) reported that 43 states plus the District of Columbia have over 144 alternative route programs available for individuals who seek a license to teach. As of 2004, over 200,000 persons

had received certification through such programs. Historically, teacher certification has served as a proxy for professional competence, and it is related empirically to both student achievement (Darling-Hammond, 1999, 2000b) and public confidence in schools (Boe & Barkanic, 2000; National Commission on Teaching and America's Future, 1996). However, in these studies, certification has implied completion of a standard preparation program. With the emergence and rapid growth of ARC, however, our understanding of what it means to be certified is changing.

In this article, we consider what research has shown about the efficacy of alternative route preparation in special education. First, we define ARC and discuss the confluence of factors that has hastened its growth and popularity. We then synthesize and analyze the available research in special education, focusing on the efficacy of the various approaches and programs as well as the process and outcome variables used to assess program impact. We identify programmatic features associated with successful ARC programs, and conclude by highlighting what remains unknown about ARC and presenting a series of policy recommendations.

## What Is An ARC Program?

Defining the critical features of ARC programs is difficult because programs vary greatly. Also, the term *ARC* has multiple meanings and applications and has been used to refer to avenues to teaching ranging from Spartan emergency certifi-

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cation survival training to sophisticated, high-tech programs for individuals with unique life experiences (Feistritz et al., 2004; Hillkirk, 2000). So variable have ARC programs become that treating them as a homogeneous class no longer seems reasonable. In fact, teacher preparation may best be represented as a continuum along which the point where alternative ends and standard begins is uncertain.

Nonetheless, the defining characteristic of ARC lies in what programs avoid: ARC programs provide access to a teaching credential that circumvents traditional preservice preparation (Hawley, 1992). ARC programs often prepare teachers in unconventional ways and provide individuals with no traditional preservice teacher preparation entry into the education profession (Roth & Lutz, 1986). As noted by Feistritz (1998), ARC programs have “opened doors to teaching for persons from other careers, from the military, from liberal arts colleges, former teachers who want to upgrade their credentials and get back into teaching and for people who trained to teach years ago but never did” (p. 1).

In general, teacher preparation programs vary in three respects—length and structure of program, delivery mode, and candidate population—and the extent to which a program is alternative may be assessed by considering these factors. *Length and structure of program* refers to the number of credits or clock hours required to attain certification and the instructional activities employed. ARC programs are usually shorter than traditional programs and more heavily field-based (Sindelar & Marks, 1993). Many are structured to allow candidates to enter the teaching force immediately or soon after beginning their studies. *Delivery mode* refers to how instruction is presented. For example, some programs offer courses in the schools where candidates work. Increasingly, programs are offered at community colleges (May, Katsinas, & Moore, 2003; Townsend & Ignash, 2003), and a growing number of programs, particularly in rural areas, make use of distance education technology (Ludlow, 1998; Mann, Henderson, & Guffy, 2002).

Alternative routes are intended to supplement supply and should be designed to attract new pools of prospective teachers. ARC candidates are unlikely to have a substantial background in education; their bachelor’s degrees (if they have one) are usually in another field. In comparison to traditional programs, ARC programs tend to attract proportionally more males; persons over 25; minorities; individuals who have had business or military experience; and math, science, and foreign language majors (Edelen-Smith & Sileo, 1996; Hawley, 1992; Roth & Lutz, 1986; Zeichner & Schulte, 2001). ARC programs also appear to be successful in recruiting minorities to work in urban environments (Shen, 1998). Finally, although the U.S. Department of Education may argue that alternative routes will attract well-educated, highly verbal candidates, the available evidence suggests that career changers in ARC programs tend to come from jobs in the low salary ranges rather than from the professional or managerial ranks (Kirby, Darling-Hammond, & Hudson, 1989; Newman & Kay, 1999).

## Proliferation of ARC in Special Education

Three major factors have contributed to the rapid growth of ARC in special education: (a) the persistent shortages of qualified teachers, (b) the acute need for teachers who are culturally and linguistically diverse (CLD), and (c) dissatisfaction with the educational establishment’s hold on entry to teaching, as expressed in policy by NCLB.

### *Persistent Shortages of Qualified Personnel*

There is little doubt that there have been, and continue to be, chronic and severe shortages of special educators. For example, in 2001–2002, the most recent school year for which data are available, more than 53,000 special educators were needed in the states and territories to replace teachers who were less than fully certified (U.S. Department of Education, 2003). According to Boe, Cook, Bobbitt, and Terhanian (1998), teacher shortages in special education are due not to the unavailability of individuals willing to accept the open positions (indeed, approximately 99% of open special education positions are filled), but are due rather to an insufficient supply of personnel with full credentials. In fact, Boe et al.’s data indicate that approximately 32% of all entering special education teachers and 7.8% of continuing special education teachers are not fully certified. Decades of shortages coupled with limited production from institutions of higher education have prompted the consideration of flexible certification programs that attract promising individuals and consider varying life experiences (Conderman, Stephens, & Hazelkorn, 1999).

### *Acute Need for CLD Personnel*

Although the shortage of qualified special education teachers is severe, the shortage of both general and special educators who are culturally or linguistically diverse is even more acute. Over 32% of all public school students come from culturally and linguistically diverse backgrounds. They are served by a teaching force that is 13.5% non-White, and over 40% of all public schools have no minority teachers at all (Henke, Choy, & Geis, 1996). In special education, the disproportionate representation between students and teachers is even more dramatic and may be growing (Tyler, Yzquierdo, Lopez-Reyna, & Flippin, 2004). Unfortunately, the need for a more diverse presence in the special education teaching force has not translated into large numbers of CLD students enrolling in and completing traditional special education teacher preparation programs. In sharp contrast, some ARC programs, particularly programs in urban school districts, recruit a high percentage of CLD teachers. Shen (2000) has reported that graduates of such programs tend to work in urban schools with high concentrations of CLD students. Such programs tap more diverse candidate pools and may tailor program content to address the challenges specific to highly diverse, urban schools.

## *The Educational Establishment's Hold on Entry to Teaching*

Widespread sentiment holds that traditional approaches to teacher preparation are self-serving, bloated, overregulatory, and anachronistic. Sindelar and Rosenberg (2000) summarized how the Milken Family Foundation and the Thomas B. Fordham Foundation have been particularly outspoken in their criticism of traditional teacher education. These foundations question the regulatory assumption that good teaching rests on a solid foundation of specialized professional knowledge about pedagogy and that the existing standards screen out ill-prepared teacher candidates. These groups have urged states to deregulate teacher preparation (see Baines, McDowell, & Foulk, 2001; Berry, 2004) and open more paths into the teaching profession, and to encourage individuals who have not attended traditional schools of education to teach. This deregulation agenda, of course, has found voice in NCLB.

## ARC: A Critical Review of the Literature

In this section, we first summarize findings from the teacher education literature before reviewing research on special education alternative route preparation.

### *What Have We Learned From General Education Studies?*

Teacher education scholars (Qu & Becker, 2003; Zeichner & Schulte, 2001) have concluded that alternative preparation routes can produce competent teachers, but findings are inconsistent from study to study. For example, Laczko-Kerr and Berliner (2002) found that students taught by Teach for America graduates (and other uncertified teachers) achieved 20% less growth than students taught by teachers who were certified through traditional means. Teach for America is an alternative route for recent bachelor's degree recipients, in which trainees move quickly into the classroom. By contrast, J. W. Miller, McKenna, and McKenna (1998) studied what they considered a "carefully constructed AC program" (p. 165). Trainees completed 9 to 15 semester hours of courses before entering the classroom and, in their first years, worked under the tutelage of both university supervisors and school-based mentors. They completed additional courses, including a seminar focused on problem solving taught by their supervisor. In three separate studies, graduates of this program were compared with matched, traditionally trained middle school teachers. On observations of classroom performance, student achievement in math and reading, and self-reports of ability and preparedness, no differences were found.

Needless to say, graduates' competence is an essential measure of program quality, but it is not the sole measure of program quality. Alternative route programs must supplement

teacher supply, and a program's unique contribution to supply should be discernible. In fact, one way in which alternative route programs have distinguished themselves is by contributing to the supply of teachers for hard-to-staff schools and disciplines. For example, in analyses of Schools and Staffing Survey (SASS) data, Shen (1997, 1998) reported that ARC graduates reduced shortages in urban areas and in math and science and attracted a greater percentage of CLD candidates than traditional routes. On the other hand, ARC programs have not led to increased supply everywhere, and the belief that ARC programs would attract older candidates with higher educational attainment and more males has not been borne out.

Cost and retention are also important considerations in evaluating the effectiveness of teacher preparation. In our work on cost-effectiveness, we have found five studies of alternative routes (Darling-Hammond, 2001; Denton & Smith, 1985; Fowler, 2003; Lewis, 1990; Rice & Brent, 2002), but only Darling-Hammond compared costs of traditional and alternative program prototypes. Using 3-year retention data, Darling-Hammond found that a fast-track alternative was more expensive (per student) than either a 4-year bachelor's degree program or a 5th-year master's program. In fact, the 5th-year program was more cost effective than the 4-year bachelor's program, as well, due to the high percentage of bachelor's graduates who never enter teaching. Shen (2003) also studied attrition rates of beginning teachers, using data from the Bachelor's and Beyond Survey. He found that 3-year survival rates varied dramatically with initial preparation. For example, beginning teachers who had completed teacher preparation before taking their first teaching positions were 4 times more likely to have remained in teaching than teachers who began with no training. Abbreviated training only ameliorated the risk: The hazard rate of teachers who completed training before entering was half that of teachers who did not.

### *Special Education Research*

In this section, we present the results of a search of the special education teacher education literature for studies in which alternative route programs were either evaluated or compared experimentally to other programs. We first discuss how widespread alternative route training has become in special education, and then consider studies of program outcomes. These studies took one of two forms—evaluations of single programs and comparisons among programs—and we used this heuristic to organize our analysis. We employed traditional search procedures to identify all studies pertaining to special education alternative route teacher preparation programs. Specifically, we compiled a list of search terms including *alternative certification in special education*, *alternative routes to special education preparation*, *creative approaches to special education teacher preparation*, and *nontraditional approaches to special education teacher preparation*, as well as various iterations of the key descriptors. A computerized search of the ERIC database was conducted to identify relevant studies,

book chapters, and review papers. We also conducted hand searches of two journals: *Teacher Education and Special Education* and the *Journal of Teacher Education*. Once studies and review papers were identified we also reviewed reference sections. Because we were interested in a comprehensive view of the scope of alternative route programs in special education, selection criteria for the review were left purposely broad. To be included, studies had to report empirical data on program outcomes (e.g., indexes of completion rate, participant demographics, cost, or measures of participant competence).

**Alternative Routes in Special Education.** In 1995, Buck, Polloway, and Mortorff-Robb characterized the growth of ARC in special education as *proliferation*. They reported findings from a survey of state departments of education in which they found that 39 states authorized alternative programs generally and that 24 of them included special education in that authorization. More recently, Feistritz et al. (2004) reported that 43 states and the District of Columbia all authorized alternative route training in special education. Rosenberg, Boyer, Sindelar, and Misra (2004) surveyed state departments of education and found that (a) 34 states currently offered special education ARC programs and (b) more than 175 different ARC options are available to individuals seeking to become special education teachers. Furthermore, analyses of the SASS and the Study of Personnel Needs in Special Education databases indicate that 10% to 15% of special education teachers were licensed through an ARC and that, among those seeking certification, 24% report being in an ARC (Billingsley, 2002; Connelly, 2003).

**Program Evaluations.** We found six program evaluations (Burstein & Sears, 1998; Edelen-Smith & Sileo, 1996; Epanchin & Wooley-Brown, 1993; Evans, 2002; Gaynor & Little, 1997; Rosenberg & Rock, 1994) and review them in this section. Table 1 highlights those involved in the design of the programs, critical instructional features, and the outcome measures used in each of the program evaluations.

Epanchin and Wooley-Brown (1993) described a collaborative university/district program designed primarily for paraprofessionals and conducted in the schools where the participants were employed. The Florida-based project built upon the idea that training people with roots in the community is a sensible alternative for districts unable to recruit teachers from distant teacher education programs. For the most part, the authors provide a description of the collaborative processes used to design and implement the program and believe that, as a result of their collaboration, both the university and the district were "transformed." However, only superficial data related to participant demographics are provided. Edelen-Smith and Sileo (1996) described a similar program in Hawaii, the Alternative Basic Certification Program in Special Education, or ABC-SE. This was a 2-year program for individuals with bachelor's degrees hired on "temporary assignment" in special education classrooms. Teaching methods were emphasized

in the 24-credit program, as were field experiences, mentoring, and Hawaiian Department of Education seminars. Edelen-Smith and Sileo reported a high proportion of men (44%) and minorities (70%) in their initial cohorts. Nearly one third of the participants dropped out during the program, but more than three fourths of the 54 program completers went on to become certified in special education, and 87% of them were on the job in Hawaii 1 to 3 years later. Although no teacher performance data are reported, participants' high satisfaction with program content and faculty, and their ethnic and racial diversity, are notable accomplishments. Still, retention 3 years out was greater than expected for beginning special education generally, and fairly large numbers of program completers never obtained special education certification.

Gaynor and Little (1997) described another Florida program, Volusia County Alternative Add-on Program (VCAAP), run by a district with minimal university support. Like ABC-SE, VCAAP was an add-on certification program for teachers teaching out of field. (By add-on, we mean it differed from both of the previous IHE programs in that the district recommended programs for certified teachers adding special education certification.) Gaynor and Little reported rapid growth in the number of program graduates and a sizable initial enrollment of 275 students. Twenty-nine students had completed the program at the time this article was written, and although no teacher performance data are reported, their pass rate on certification examinations was nearly perfect. VCAAP provided no formal supervised field experiences and program attrition was high: 94 participants dropped out before completing the program, with many returning to general education assignments. Interestingly, Gaynor and Little were unconcerned about dropouts who remained in the district. They argued that by virtue of having completed even part of the program, teachers were better prepared to work with the students with disabilities assigned to their classes.

The ALTCERT program (Rosenberg & Rock, 1994) appears as a hybrid of the previous three programs. For one thing, it was a collaboration among a university, two local education agencies (LEAs), and the state education agency (SEA). Like ABC-SE and VCAAP, ALTCERT was designed for participants with bachelor's degrees who had already been hired as teachers. The ALTCERT evaluation was noteworthy because it involved independent ratings of program graduates and comparisons of them with graduates of traditional teacher education programs. ALTCERT emphasized fieldwork and had a tight programmatic focus on preparing teachers to work with secondary students with mild to moderate disabilities (MMD). It required 2 years of study and the completion of 36 credits of university coursework. Program requirements for the cohort of 18 students, half of whom were men and nearly three fourths of whom were African American, were identical to an on-campus program. Fourteen students, including 11 African Americans, completed the program. ALTCERT teachers were rated at least satisfactory and often higher by district supervisors, employing principals, and special education supervisors.



TABLE 1. ARC Program Evaluations

Source	Participants	Outcome measures	Program providers	Instructional activities	Field experiences
Epanchin & Wooley-Brown (1993)	Paraprofessionals (and other non-professionals) with AA degrees	Proportion of CLD participants	IHE, LEA	2-year, 70-credit undergraduate program based in professional development schools	Supervision by mentor teachers
Edelen-Smith & Sileo (1996)	Teachers hired on temporary assignments	Completion rate; participant demographics and satisfaction; 3-year retention	IHE, SEA	2-year, 24-credit program plus DOE seminars	Shared IHE, SEA supervision and mentorship
Gaynor & Little (1997)	Add-on certification program for out-of-field teachers	Completion rate; reasons for leaving program; participant demographics; passing rate on state certification test	LEA only	12 in-service units (720 hours) based on 30 state competencies	No formal on-site coaching or supervision
Rosenberg & Rock (1994)	For participants with BAs already hired as secondary SE teachers	Completion rate; proportion of CLD participants; ratings of graduates' and comparison teachers' classroom performance	IHE, 2 LEAs, SEA	2-year, 36-hour graduate program; programmatic focus on secondary SE	Continuous for 2 years; IHE supervision and LEA mentorship
Burstein & Sears (1998)	Out-of-field general education teachers	Completion rate; ratings of competency attainment; program and job satisfaction	IHE only	2-year, 25-semester-unit program; urban school focus	12 units of practica/ seminar; university supervision and district mentorship
Evans (2002)	Minority and bilingual paraeducators and substitute teachers	Completion rate; participant demographics	IHE and LEAs	2-year, 36-unit program; urban school focus	Continuous for 2 years; IHE and LEA supervision

*Note.* CLD = culturally and linguistically diverse; IHE = institution of higher education; LEA = local education agency; SEA = state education agency; DOA = Department of Education; SE = special education.

Ratings were better the 2nd year of the program than the 1st. Moreover, the ALTCERT teachers were judged to be at least comparable to beginning teachers who were traditional teacher education graduates.

Burstein and Sears (1998) described a California on-the-job teacher preparation program for urban teachers credentialed in general education and hired on emergency certificates to teach students with MMD. A 37-unit program consisting of practica, practicum seminars, and traditional coursework was designed in which the field experiences occurred in the teachers' own classrooms with supervision from both university faculty and district supervisors. The teachers' classrooms were viewed as laboratories for the implementation and evaluation of strategies introduced in methods classes. Of 43 teachers who undertook the 2-year program, 35 completed it. Data were collected on teacher development, program satisfaction, and job satisfaction. The authors reported that teachers' com-

petence increased over time throughout the program. Only qualitative self-report measures of satisfactory teacher development were collected from interns' journals and portfolios. Still, these data sources reflected a growing confidence in the teachers' abilities in spite of a continued frustration with working conditions.

In a California program for paraeducators and noncertified substitutes working in urban schools, Evans (2002) also made use of field-based internships and on-the-job supervision. To meet the 36-unit teacher credential requirement, field experience was integrated with courses on effective instructional practices and accommodations for CLD students. Although no teacher performance data are reported, it is noteworthy that 75 paraeducators and substitutes, half from underrepresented groups, completed the program—a 95% completion rate.

The literature we have reviewed to this point suggests strongly that “alternative” is no synonym for “quick” or “easy.”

TABLE 2. ARC Comparative Studies

Source	Comparisons	Outcome measures	Findings
Banks & Necco (1987)	SE teachers in one large WV district with standard versus alternative certificates ( $N = 203$ )	Years of teaching experience; advanced degrees	On average, teachers with standard certificates had significantly more years of experience and were significantly more likely to have advanced degrees.
Ludlow & Weinke (1994)	Long-standing, successful alternative programs sponsored by the Houston Independent School District and San Jose State University	Program descriptions based on document analysis and stakeholder interviews	The programs were very similar in spite of one being district administered and the other being university administered. The district program required 1 year of study; the university program, 2.
Sindelar et al. (2004)	First-year SE teachers who were graduates of traditional ( $n = 16$ ), collaborative ( $n = 15$ ), and district-only programs ( $n = 15$ ) in FL	Classroom observations using PRAXIS III; graduate and principals surveys	Although graduates of traditional programs were rated higher on 6 of 19 PRAXIS criteria, graduates of alternative programs were more confident in their abilities and were rated higher by employers. Graduates of collaborative programs were rated significantly higher than graduates of other alternative route programs on 3 criteria.
Nougaret & Scruggs (in press)	First-year SE teachers who were graduates of traditional programs ( $n = 20$ ) or participants in alternative route programs ( $n = 20$ )	Classroom observations and self-ratings using a system derived from PRAXIS domains	Observers rated traditionally trained teachers significantly higher than alternative route trainees on all three domains; on self-reports, however, there were no significant differences.

Note. SE = special education.

In fact, in these studies, "alternative" is used in the sense of reaching nontraditional populations of people, perhaps at nontraditional venues, or using nontraditional means and supports. Those programs that report high completion rates have a tight programmatic orientation, provide substantial supervision in the classroom, and require considerable time and effort. However, few of the programs report credible measures of teacher performance, suggesting that much remains unknown about the efficacy of ARC programs as viable substitutes for traditional special education teacher education.

**Comparative Studies.** The four comparative studies are highlighted in Table 2. In an early study of teacher longevity, Banks and Necco (1987) surveyed special education teachers in West Virginia's largest district, a subset of whom had completed ARC programs. The authors reported that initial preparation was related to years of experience: ARC teachers averaged less experience ( $M = 4$  years) than traditionally prepared teachers, who averaged 6. Although this study often is cited as evidence of higher attrition among ARC completers, the difference in average experience might also have been an artifact of how long ARC programs had been in operation. The logic of their argument implies that ARC training, like traditional training, was available continuously to prospective teachers, but the authors offer no evidence to support this assertion.

Ludlow and Weinke's (1994) findings also are of limited utility. These authors chose to study the Houston Independent

School District (ISD) and San Jose State (SJSU) programs because of their success. Thus, their conclusion that both programs prepared competent teachers comes as little surprise. More notable is the similarity of the two programs, and more relevant to our purposes is their length and the inclusion of both mentoring (by teachers) and supervision. Houston trainees were uncertified teachers who took 9 to 10 university courses; the SJSU program was also designed for practicing teachers, but it was longer (2 years) and required more courses and field experiences.

Only Sindelar, Daunic, and Rennells (2004) and Nougaret, Scruggs, and Mastropieri (2005) compared the classroom performance of traditionally and alternatively prepared teachers. Sindelar et al. studied two ARC program types, differentiated by sponsorship: some were collaborations involving universities and districts, whereas others were add-on programs sponsored by districts alone. (By add-on, we mean programs for certified teachers adding special education certification.) Graduates (or completers) of six ARC programs, three of each type, were compared with graduates of four traditional programs.

Teachers were observed using PRAXIS III, which yielded 19 criterion scores (organized into 4 domains: A, "Organizing Content Knowledge for Student Learning," B, "Creating an Environment for Student Learning," C, "Teaching for Student Learning," and D, "Teacher Professionalism"). In Domain C, graduates of traditional programs were rated higher than grad-

uates of both ARC programs on making goals and instructional procedures clear to students (C1), making content comprehensible (C2), and monitoring student learning and providing appropriate feedback (C4). They also scored significantly higher on the Domain C summary score. However, on other criteria, the patterns of differences changed. For example, in Domain A, a significant effect for program type was found on one criterion, becoming familiar with relevant aspects of student's background knowledge and experience (A1), such that graduates of traditional and collaborative programs, whose ratings did not differ, were rated higher than graduates of the add-on programs. This pattern also held true for B1 (fairness) and the Domain D Summary Score. On criterion D3, building professional relationships, the collaborative program graduates received significantly higher ratings than graduates of either the traditional or district only programs, which did not differ.

On the other hand, graduates of ARC programs felt better prepared than graduates of traditional programs and more confident in their ability to perform teaching skills related to assessment and school procedure (perhaps because they had had more experience in schools). Their principals concurred; they rated AR completers significantly higher than graduates of traditional teacher education programs on 12 of 20 items (keyed to the PRAXIS criteria). To explain these findings, Sindelar et al. distinguished between formal and procedural knowledge and argued that graduates of traditional programs tended to be rated highly on tasks involving the former, whereas graduates of ARC programs received high marks on the latter. Their findings substantiate two critical propositions: ARC programs can produce competent teachers, but not all ARCs are alike.

Nougaret and Scruggs (in press) studied 1st-year special education teachers using an observation system with three domains corresponding to PRAXIS domains A, B, and C. All teachers also completed a self-assessment of teaching competence. The participants in the alternative group were teaching on emergency certification while completing a licensure program and had completed no more than 6 credits at the time of the study. Nougaret and Scruggs reported that, on observational data, traditionally trained teachers scored significantly higher than alternative route participants on all three domain scores. However, on self-reports of preparedness, the two groups did not differ.

Because alternative participants in the Nougaret and Scruggs (in press) study were essentially untrained, it is not surprising that teachers who had completed traditional preparation were rated higher by observers. And although the comparison (between trained and untrained 1st-year teachers) may seem unfair, it does illustrate the potentially deleterious impact on children that on-the-job trainees may have. It is difficult to compare Nougaret and Scruggs's findings with those of Sindelar et al., because all of the teachers in that study had completed training before being observed. Nonetheless, the two studies do affirm that not all alternative routes are the same and that, regardless of whether graduates of alternative routes had completed their programs, graduates of traditional

programs are likely to outperform them on objective measures of teacher performance.

## Indicators of Effective ARC Programs

The available evidence on special education ARC programs is limited, and the studies we found represent merely the tip of the ARC iceberg. Large numbers of special education trainees currently are being prepared in alternative routes, and little on the nature and efficacy of these programs has been reported in the professional literature. In this section, we identify indicators of successful special education ARC programs, including meaningful collaboration, program length and rigor, and high-quality supervision. However, because our conclusions are based on so few studies—the tip of the iceberg, if you will—generalizations from the literature may or may not hold true for alternative routes generally.

### *Meaningful IHE/LEA Collaboration*

It is clear that collaboration among key stakeholders was an essential element of several successful programs (Burstein & Sears, 1998; Epanchin & Wooley-Brown, 1993; Rosenberg & Rock, 1994; Sindelar et al., 2004). How was collaboration achieved? In two programs (Burstein & Sears; Rosenberg & Rock), collaborative planning was expedited because IHE and LEA stakeholders had collaborated before. In other situations (e.g., Epanchin & Wooley-Brown), a deliberative process of agenda building, negotiation, and consensus building was necessary before substantive programmatic planning could commence. As Epanchin and Wooley-Brown worked both to establish an explicit, common agenda that addressed the needs of both the LEA and the IHE, discussions were heated, and “both groups struggled with issues of mistrust, territory, control, and beliefs about educational practice” (p. 113). Clearly, the time and effort necessary to develop and sustain partnerships can be considerable, and those considering IHE/LEA collaborative efforts should not underestimate the level of commitment necessary for success.

### *Adequate Program Length With a Variety of Learning Activities*

The content of the programs seemed substantial, rigorous, and programmatic. For example, the effective on-the-job teacher preparation programs (Burstein & Sears, 1998; Evans, 2002; Rosenberg & Rock, 1994) all required 36 or 37 units of seminars, fieldwork, and traditional courses. In all cases, great care was taken to integrate competencies of the field-based seminars and traditional courses. Similarly, the independent evaluation conducted by Sindelar et al. found that extensive degree-linked ARC programs were superior to those programs that made extensive use of unanchored courses and “add-on” activities that lacked a unified programmatic approach.

To meet the needs of the nontraditional students, it was also necessary for programs to deliver content innovatively. For example, because many of their candidates were working as paraprofessionals, going to school, and balancing family responsibilities, Epanchin and Wooley-Brown used block scheduling rather than presenting content in separate courses. Four other programs (Burstein & Sears, 1998; Edelen-Smith & Sileo, 1996; Evans, 2002; Rosenberg & Rock, 1994) complemented courses with specialized seminars. Due to geographic constraints that limited access to training activities, Edelen-Smith and Sileo (1996) delivered their coursework and seminars via distance education. In all cases, programs were responsive to needs of their students and adjusted their instructional delivery systems in a fashion that is consistent with the available literature on the recruitment, education, and retention of nontraditional students (Caffarella & Barnett, 1994; Zemsky, 1993).

### *IHE Supervision and Building-Based Mentor Support*

With the exception of the VCAAP program (Gaynor & Little, 1997), each of the programs used both IHE supervisors and building-based mentors. In both the ALTCERT and California On-The-Job programs (Burstein & Sears, 1998; Rosenberg & Rock, 1994), for example, explicit criteria guided the selection of mentors, and mentors were provided with ongoing training throughout the programs. Mentors regularly visited candidates' classrooms, provided feedback on teaching performance, and guided teachers in their acquisition of the procedural knowledge. Unfortunately, little information regarding the amount of supervisory and mentor support time provided to candidates was reported in any of the ARC program evaluations.

## ARC Unknowns: Areas of Concern

If indicators of effective ARC preparation are considered the tip of the iceberg, the issues raised in this section relate to what remains unknown, below the surface of our understanding.

### *The Shortage of High-Quality Research*

Unbridled program development and the scarcity of existing literature to guide it has created a situation that cries out for additional research. We found only 10 data-based studies of ARC preparation in special education, hardly enough to allay our concerns about the proliferation of alternative routes. If the existing literature proves anything, it is that no two programs are alike and not all programs are effective. In this context, teacher educators are obligated to demonstrate the effects of what they do and will remain obligated until an adequate research base has been developed.

We need research in which the teaching competence of program graduates is assessed. Obviously, the ultimate measure of a preparation program's effectiveness is on the outcomes of the students experiencing the instruction of the teachers it produces. However, until we are able to solve the myriad of methodological problems involved in attempts to link special education teacher preparation to the outcomes of students with disabilities (see Brownell, Rosenberg, Sindelar, & Smith, 2004), we need studies of preparation programs that contain reliable, valid, and independent judgments of teacher performance. We also need longitudinal research to determine graduates' career paths and career longevity; we need to know how many participants complete programs and how many enter teaching. Cost also is an important outcome, as is a program's contribution to supply. In some markets, it is possible that ARC programs merely cannibalize existing traditional programs and do not contribute, in real numbers, to the supply of potential teachers. Studies to date have focused on graduates' competence—too often self-assessed—and attrition. Future research may be enriched by the addition of these other variables.

It goes without saying that studies must be as methodologically sound as possible; in research on teacher preparation requires careful definition of the participants and programs being compared. For example, in many ARC programs, participants are in classrooms functioning as teachers at the start of their preparation programs (cf. Burstein & Sears, 1998; Nougaret et al., 2005). Because these individuals are teaching students as well as participating in a preparation program, we must consider what standard of performance to use. Is it fair to compare the performance of 1st-year teachers in ARC programs to 1st-year teacher graduates of traditional programs? One problem with interpreting the findings of Nougaret and Scruggs was that traditional graduates had completed training, whereas ARC participants had only just begun.

In raising these issues, we are cognizant that poor teacher preparation, regardless of its nature, is not benign. Credentialing incompetent or ill-trained individuals may result in woeful outcomes for generations of students. The work of Sanders and his colleagues (e.g., Sanders & Horn, 1998; Sanders & Rivers, 1996) speaks eloquently to this point by demonstrating the compounding effects of repeated exposure to poor teaching. These researchers found that groups of students with comparable abilities and achievement levels have vastly different academic outcomes as a result of the teachers to whom they are assigned. The deleterious impact of poor, underperforming teachers is both additive and cumulative, and it is not easily overcome by more effective teachers in later grades.

In citing these data, we do not intend to single out ARC programs. In fact, we see little reason to exempt traditional teacher education from the same standards and the same obligation to demonstrate product quality. We believe that if there were an adequate body of research to substantiate its effectiveness, teacher education might have avoided the vitriolic criticism to which it has been subjected in recent years.



## *Developing a Sense of Professionalism*

*Professionalism* refers to the attitudes and behaviors of those who aspire to, or are considered to be, professionals (Connelly & Rosenberg, 2003; NCES, 1997). In reference to special education, more than 20 years ago, Birch and Reynolds (1982) observed that calling an activity a profession does not automatically make it one. Professions are differentiated from other kinds of occupations by the level of expertise and complexity involved in the work; it is assumed that professional work requires intellectual functioning and a knowledge base that is not easily acquired or widely held (NCES, 1997). Although teachers believe that they are professionals (Day, 1999), recognition as a profession derives from public perception. Criteria used to determine professional status typically include (a) the requirement of formal credentials or licensing to practice one's craft, (b) formal and informal mechanisms for induction, (c) continuous professional development to upgrade one's skills, (d) the ability to exercise substantial authority in regard to workplace policies and practices, (e) having a commitment to client needs, (f) possessing a strong collective identity, and (g) receiving relatively high levels of compensation (Birch & Reynolds, 1982; Day, 1999; NCES, 1997).

Controversy abounds about teaching as a profession. In it, the deregulation agenda (as exemplified by NCLB) is pitted philosophically against the professionalization agenda, as best expressed by the National Commission on Teaching and America's Future and Linda Darling-Hammond (1996). We can only speculate as to what effects the proliferation of ARC programs will have on efforts to professionalize teaching, but special education seems to have gotten caught in the crossfire. We recognize the need for additional teachers and programs that attract and prepare them well. At the same time, to promote our field as a profession, we can go only so far in reducing the requirements for training and licensure.

## Conclusions

A number of years ago, the U.S. Department of Agriculture was concerned that free and reduced-price lunches lacked fruits and vegetables. Rather than increasing portions, it was suggested that the ketchup in the lunches be counted as a vegetable. Not surprisingly, the general public was shocked and outraged that a governmental agency responsible for children's health would attempt to represent ketchup as a vegetable.

We are now being told that someone trained to be a special education teacher through an alternative route is as highly qualified as a graduate of a traditional teacher-training institution. Is this another condiment being passed off as a vegetable? Unfortunately, we do not know enough to say. The range and variability of ARC programs, coupled with a shortage of reliable evidence, create a murky landscape, replete with potential threats, promises, and challenges. With this in mind, here is what we can surmise from the existing literature.

1. Special education teacher preparation is like an iceberg. The small visible portion, evidenced in published research and conference presentations, suggests that training is effective when certain programmatic conditions are met. However, most of the ARC enterprise is hidden below the surface. We need to know more about the nature and extent of ARC, both above and below the waterline.
2. ARC programs can produce competent teachers, but not all ARC programs are alike. The limited research base indicates that successful ARC programs are planned and delivered collaboratively by IHEs and LEAs, often with policy support from SEAs. Effective programs are of adequate length and employ a variety of learning activities.
3. Successful ARC programs make considerable use of IHE supervision and building-based mentor support to guide teacher development. Mentors are selected based on their superior teaching skills, experience working with student teachers, and willingness to participate in novel approaches to the development of novice teachers.
4. The existing database has insufficient information to judge the long-term efficacy of various types of ARC programs. The predominant outcome variables in the research involve completion rates, demographics, and rudimentary, often self-report measures of competence. Future research efforts should contain enhanced measures of teacher performance, and indexes of cost, as well as longitudinal assessments of attrition and retention.
5. We know little about how (or if) the proliferation of ARC programs will affect the professionalization of special education teaching or whether abbreviated training will foster teachers' professional comportment.

We recognize the pressing need to maximize the supply of new teachers and, to this end, the necessity of training options. Still, in the absence of evidence about the effectiveness of traditional teacher preparation, the temptation to cut corners in content or supervision and mentoring is great. The great demand for special education teachers has transformed teacher preparation and licensure into commodities and has spawned mass-market options before our knowledge of effective ARC teacher preparation is usable. Determining where effective preparation ends and ineffective preparation begins—and why—awaits further study. Until research strengthens our understanding of effective teacher preparation, it behooves us to move ahead on the ARC agenda cautiously. We believe that

an open marketplace will foster innovation in solving the problem of special education teacher shortages. However, it is critical that we remain vigilant of those who would capitalize on the problem by delivering hasty, low-cost, and low-quality ARC programs.

### AUTHORS' NOTE

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### REFERENCES

- Baines, L., McDowell, J., & Foulk, D. (2001). One step forward, three steps backward: Alternative certification in Texas, Georgia, and Florida. *Educational Horizons, 80*, 32–37.
- Banks, S. R., & Necco, E. (1987). Alternative certification, educational training and job longevity. *Action in Teacher Education, 9*(1), 67–73.
- Berry, B. (2004). Recruiting and retaining “highly qualified teachers” for hard-to-staff schools. *NASSP Bulletin, 87*(638), 5–27.
- Billingsley, B. S. (2002). *Beginning special educators: Characteristics, qualifications, and experiences*. Retrieved May 26, 2004, from <http://ferdigcoe.ufl.edu/spense/IHESummaryfinal.pdf>
- Birch, J. W., & Reynolds, M. C. (1982). Special education as a profession. *Exceptional Education Quarterly, 2*(4), 1–13.
- Boe, E. E., & Barkanic, G. (2000, April). *Influences on the supply and allocation of quality teachers: Analyses of the schools and staffing survey*. Paper presented at the meeting of the American Education Research Association, New Orleans, LA.
- Boe, E. E., Cook, L. H., Bobbitt, S. A., & Terhanian, G. (1998). The shortage of fully certified teachers in special and general education. *Teacher Education and Special Education, 21*(1), 1–21.
- Brownell, M. T., Rosenberg, M. S., Sindelar, P. T., & Smith, D. D. (2004). Teacher education: Toward a qualified teacher in every classroom. In A. McCray-Sorrells, H. J. Reith, & P. T. Sindelar (Eds.), *Critical issues in special education* (pp. 243–257). Boston: Allyn & Bacon.
- Buck, G. H., Polloway, E. A., & Montorff-Robb, S. (1995). Alternative certification programs: A National Survey. *Teacher Education and Special Education, 18*, 39–48.
- Burstein, N. D., & Sears, S. (1998). Preparing on-the-job teachers for urban schools: Implications for teacher training. *Teacher Education and Special Education, 21*, 47–62.
- Caffarella, R. S., & Barnett, B. G. (1994). Characteristics of adult learners and foundations of experiential learning. In L. Jackson & R. Caffarella (Eds.), *Experiential learning: A new approach* (pp. 29–42). San Francisco: Jossey-Bass.
- Conderman, G., Stephens, J. T., & Hazelkorn, M. (1999). A “select” method to certify special education teachers. *Kappa Delta Pi Record, 36*(1), 16–18.
- Connelly, V. J., & Rosenberg, M. S. (2003). *The development of teaching as a profession: Comparison with careers that have achieved full professional standing* (COPSSE Document No. RS-9). Gainesville: University of Florida, Center on Personnel Studies in Special Education.
- Connelly, V. J. (2003). *An analysis of alternatively prepared teachers using the School and Staffing Survey*. Paper presented at the meeting of the Teacher Education Division, Biloxi, MS.
- Darling-Hammond, L. (1996). *What matters most: Teaching for America's future*. New York: National Commission on Teaching & America's Future.
- Darling-Hammond, L. (1999). Solving the dilemmas of teacher supply, demand, and standards. *Quality Teaching, 9*(1), 3–4.
- Darling-Hammond, L. (2000a). *Solving the dilemmas of teacher supply, demand, and standards: How we can ensure a competent, caring, and qualified teacher for every child*. New York: national Commission on Teaching & America's Future.
- Darling-Hammond, L. (2000b, January). Teacher quality and student achievement: A review of state policy evidence. *Education Policy Analysis Archives* [retrieved July 8, 2004 from On-line serial], *1*(8). Available <http://olam.ed.asu.edu/epaa/v8n1> (1 of 48).
- Darling-Hammond, L. (2001). The challenge of staffing our schools. *Educational Leadership, 58*, 12–17.
- Day, C. (1999). *Developing teachers: The challenges of lifelong learning* (Educational change and development series). Philadelphia: Falmer Press.
- Denton, J. J., & Smith, N. J. (1985). Alternative teacher education programs: A cost-effectiveness comparison. *Educational Evaluation and Policy Analysis, 7*, 197–205.
- Edelen-Smith, P., & Sileo, T. W. (1996). The alternative basic certification program in special education: In search of quantity and quality in special education. *Teacher Education and Special Education, 19*, 313–330.
- 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*, 110–123.
- Evans, S. (2002). *Alternative routes to teaching (ART): Qualifying minority and bilingual paraeducators and noncertified substitutes for urban multicultural classrooms*. San Francisco, CA: San Francisco State University. (ERIC Document Reproduction Service No. ED 478 924)
- Feistritzer, C. E. (1998, February). *Alternative teacher certification—An overview* [On-line, retrieved July 8, 2004]. Available: <http://www.ncei.com/Alt-Teacher-Cert.htm>
- Feistritzer, C. E., Haar, C. K., Hobar, J. J., & Losselyong, S. E. (2004). *Alternative teacher certification: A state-by-state analysis 2004*. Washington, DC: National Center for Educational Information.
- Fowler, R. C. (2003, April 22). The Massachusetts signing bonus program for new teachers: A model of teacher preparation worth copying? *Education Policy Analysis Archives, 11*(13). Retrieved September 10, 2003, from <http://epaa.asu.edu/epaa/v11n13/>
- Gaynor, J. F., & Little, M. E. (1997). The expanding role of LEAs in special education teacher preparation: The view from a local school district. *Teacher Education and Special Education, 20*, 281–300.
- Hawley, W. D. (1992). The theory and practice of alternative certification: Implications for the improvement of teaching. In W. D. Hawley (Ed.), *The alternative certification of teachers* (pp. 3–34). Washington, DC: Eric Clearinghouse on Teacher Education.
- Henke, R. R., Choy, S. P., & Geis, S. (1996, July). *Schools and staffing in the United States: A statistical profile, 1993–94*. Washington, DC: U.S. Department of Education.
- Hillkirk, R. K. (2000). Effective models for alternative programs in teacher education. In D. J. McIntyre & D. M. Byrd (Eds.), *Research on effective models for teacher education: Association of teacher educators yearbook VIII* (pp. 195–202). Thousand Oaks, CA: Corwin Press.
- Kirby, S. N., Darling-Hammond, L., & Hudson, L. (1989). Nontraditional recruits to mathematics and science teaching. *Educational Evaluation and Policy Analysis, 11*, 301–323.
- Laczko-Kerr, I., & Berliner, D. C. (2002, September 6). 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). Retrieved February 4, 2004, from <http://epaa.asu.edu/epaa/v10n37/>
- Lewis, D. R. (1990). Estimating the economic worth of a 5th-year licensure program for teachers. *Educational Evaluation and Policy Analysis, 12*, 25–39.
- Ludlow, B. L. (1998). Preparing special education personnel for rural schools: Current practices and future directions. *Journal of Research in Rural Education, 14*, 57–75.
- Ludlow, B. L., & Weinke, W. D. (1994). Alternative certification in special education: A qualitative study of two models. In D. Montgomery (Ed.), *Rural partnerships: Working together* (Proceedings of the annual national conference of the American council on rural special education). (RC 019 557)
- Mann, G., Henderson, E., & Guffy, T. (2002). *Meeting the unmet challenge: Alternative certification programs through the use of technology*. Paper

- presented at the annual meeting of the American Association of Colleges for Teacher Education, New York.
- May, P. B., Katsinas, S. G., & Moore, L. (2003). Alternative teacher certification programs and Texas community colleges. *New Directions for Community Colleges*, 121, 67–77.
- Miller, J. W., McKenna, M. C., & McKenna, B. A. (1998). A comparison of alternatively and traditionally prepared teachers. *Journal of Teacher Education*, 49, 165–176.
- National Center for Education Statistics. (1997). *Teacher professionalization and teacher commitment: A multilevel analysis* (U.S.D.E. Publication No. NCES 97-069). Washington, DC: Author.
- National Commission on Teaching and America's Future. (1996). *What matters most: Teaching for America's future*. New York: Author.
- Newman, C., & Kay, T. (1999). *Alternative teacher certification*. Dallas, TX: University of North Texas. (ERIC Document Reproduction Service No. ED440087)
- Nougaret, A. A., Scruggs, T. E., & Mastropieri, M. A. (2005). Does teacher education produce better special education teachers. *Exceptional Children*, 21(3), 217–229.
- Otis-Wilborn, A., & Winn, J. (2000). The process and impact of standards-based teacher education reform. *Teacher Education and Special Education*, 23, 78–92.
- Qu, Y., & Becker, B. J. (2003). *Does traditional teacher certification imply quality? A meta-analysis*. Paper presented at the annual meeting of the American Educational Research Association, Chicago.
- Rice, J. K., & Brent, B. O. (2002). An alternative avenue to teacher certification: A cost analysis of the pathways to teaching program. *Journal of Education Finance*, 27, 1029–1048.
- Rosenberg, M. S., Boyer, K. L., Sindelar, P. T., & Misra, S. (2004). *Indexing and describing alternative route to certification programs for the preparation of special educators*. Paper presented at Joint Personnel Preparation/State Improvement/CSPD Conference, Crystal City, VA.
- 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, 141–153.
- Roth, R. A., & Lutz, P. R. (1986). *Alternative certification: Issues and perspectives*. Charleston, WV: Appalachia Education Laboratory. (ERIC Document Reproduction Service No. ED296980).
- Sanders, W. L., & Horn, S. (1998). Research findings from the Tennessee Value-added Assessment System (TVAAS) data-base: Implications for educational evaluation and research. *Journal of Personnel Evaluation in Education*, 12(3), 247–256.
- Sanders, W. L., & Rivers, J. C. (1996). *Cumulative and residual effects of teachers on future academic achievement*. Knoxville: University of Tennessee, Value-Added Research and Assessment Center.
- Shen, J. (1997). Has the alternative certification policy materialized its promise? A comparison between traditionally and alternatively certified teachers in public schools. *Educational Evaluation and Policy Analysis*, 19, 276–283.
- Shen, J. (1998). The impact of alternative certification on the elementary and secondary public teaching force. *Journal of Research and Development in Education*, 32, 9–16.
- Shen, J. (2000). The impact of the alternative certification policy: Multiple perspectives. In D. J. McIntyre & D. M. Byrd (Eds.), *Research on effective models for teacher education: Association of teacher educators yearbook VIII* (pp. 235–247). Thousand Oaks, CA: Corwin Press.
- Shen, J. (2003, April). *New teachers' certification status and attrition pattern: A survival analysis using B&B: 93/97*. Paper presented at the annual meeting of the American Educational Research Association, Chicago.
- Sindelar, P. T., Daunic, A., & Rennells, M. S. (2004). Comparisons of traditionally and alternatively trained teachers. *Exceptionality*, 12, 209–223.
- Sindelar, P. T., & Marks, L. J. (1993). Alternative route training: Implications for elementary and special education. *Teacher Education and Special Education*, 16, 146–154.
- Sindelar, P. T., & Rosenberg, M. S. (2000). Serving too many masters: The proliferation of ill-conceived and contradictory policies and practices in teacher education. *Journal of Teacher Education*, 51(3), 188–193.
- Townsend, B. K., & Ignash, J. M. (2003). Community college roles in teacher education: Current approaches and future possibilities. *New Directions for Community Colleges*, 121, 5–16.
- Tyler, N., Yzquierdo, Z., Lopez-Reyna, N., & Flippin, S. (2004). Cultural and linguistic diversity and the special education workforce: A critical overview. *The Journal of Special Education*, 38, 22–38.
- U.S. Department of Education. (2002). *Meeting the highly qualified teacher challenge: The secretary's annual report on teacher quality*. Washington, DC: Author.
- U.S. Department of Education. (2003). *Individuals with Disabilities Education Act data*. Retrieved July 8, 2004 from <http://ideadata.org>
- Zeichner, K. M., & Schulte, A. K. (2001). What we know and don't know from peer-reviewed research about alternative teacher certification programs. *Journal of Teacher Education*, 52(4), 266–282.
- Zemsky, R. (1993). Consumer markets and higher education. *Liberal Education*, 79, 14–17.