Los Angeles Unified School District Intern Program: Recruiting and Preparing Teachers for an Urban Context

Trish Stoddart

Alternative routes into teaching have been widely criticized by the teacher education community as "quick fix" solutions to teacher shortages, an approach which recruits substandard teachers, provides inadequate professional education and results in a decline in the quality of instruction in the public schools (AACTE, 1986; Gideonse, 1984; Roth, 1986). Paradoxically, such programs often represent an attempt on behalf of states and school districts to upgrade teaching standards already downgraded by teaching shortages that result in the use of emergency credentialed and misassigned teachers (Feistritzer, 1985). For at least 20 years traditional approaches to teacher recruitment have not provided sufficient numbers of teachers to meet the needs of urban areas or high demand subject areas, such as mathematics, science, bilingual education, and special education (Cagampang & Guthrie, 1988; Darling-Hammond, Hudson, & Kirby, 1989; Haberman, 1986, 1988, 1990; Kerchner, 1984; NCES, 1983). A whole generation of children, particularly those from inner city and minority families, is already being educated by marginally qualified teachers. Supporters of alternative routes to teacher certification argue that these programs are an effective way to recruit academically competent individuals to teach in hard-to-staff schools (Fox, 1984; Gray, 1987; Wimpelberg & King,

TRISH STODDART *is Assistant Professor in the Department of Educational Studies, Graduate School of Education, University of Utah, Salt Lake City.*

This article was prepared under contract #433-347000208 for the Office of Educational Research and Improvement (OERI). This research was supported in part by the National Center for Research on Teacher Education (NCRTE), Michigan State University. The NCRTE is funded primarily by the Office of Educational Research and Improvement, United States Department of Education (OERI/ED). The opinions expressed in this article are those of the author and do not necessarily reflect the position, policy, or endorsement of the OERI/ED.

1983) and to allow school districts to replace the emergency credential system with a rigorous program of field-based professional training (Cooperman & Klagholtz, 1985).

Clearly, strategies need to be developed to attract talented individuals to teach in urban schools. The quality of instruction in urban schools, however, will not improve if the individuals who enter teaching through alternative routes are not academically competent and do not receive high quality professional education. While most states have established minimum academic standards for admission to alternative route programs—typically an individual must have completed a bachelors degree with at least a C+ college grade average and pass a basic skills and subject specialty area test—the quantity and quality of professional education provided by such programs varies widely (Feistritzer, 1990). Some programs grant full certification based on transcript and resume analysis while others require individuals to complete the equivalent of a traditional approved college teacher preparation program.

There is currently little information available on the outcomes of such alternative approaches to teacher recruitment and training. This article uses a case study of one program, the Los Angeles Unified School District (LAUSD) Intern Program, to investigate the use of an alternative route to teacher certification to meet the teacher recruitment and training needs of a large urban multicultural school district. It addresses four main questions: (a) How effective is an alternative route to teacher certification in recruiting academically qualified individuals to teach in urban schools? (b) Does the population of teacher candidates recruited into the alternative route program differ from the traditional college-based teacher education population? (c) What kind of professional education is provided by an alternative route to teacher certification? and (d) How do teachers in the alternative route program compare to university-educated teachers?

Teacher Shortages Tend to be Localized

Projections on teacher supply and demand over the last decade indicate that the U.S. could face a teacher shortage unless recruitment into teacher education programs increases or alternative sources of teachers are found (ASCUS, 1986; Darling-Hammond et al., 1989; Levin, 1985; Shymansky & Alridge, 1982). Increased student enrollment, a high rate of teacher attrition, an aging teaching force, and new opportunities for minorities and women in more lucrative professions are all factors that contribute to teacher shortages (CES, 1985; Darling-Hammond, 1984). Recent estimates indicate that over the next 5 years more than a million new teachers will need to be hired (CES, 1985). The situation is compli-

cated by the fact that teacher shortages tend to be located in specific subject matter areas, grade levels, and geographical contexts. Many of these new teachers will be needed in urban schools and in high demand subject areas such as mathematics and science. Even when more teachers are recruited there is no guarantee they will meet specific recruitment needs.

The traditional source of new teachers has been undergraduate college students who decide as sophomores to become teachers. The 18-to-21-year old cohort that forms the traditional college age population is declining and a smaller proportion of this cohort is entering teacher education. Between 1975 and 1984 the percentage of college students majoring in education declined from 21% to 9% and the number of newly qualified teachers dropped by more than 50%—from 261,000 to 105,000 (Carey, Mittman, & Darling-Hammond, 1989; CES, 1987; NCES, 1990a). While in recent years there has been an upswing in recruitment into teacher education programs (AACTE, 1989) the increase is not sufficient to meet demand. It has been estimated that, by 1992, the supply of new teachers may constitute less than two-thirds of the number needed (Carey et al. 1989).

This situation has led to the development of general policies which aim to improve recruitment by making the teaching profession more attractive, for example, raising beginning teacher salaries, loan forgiveness programs, and career ladders. General policies, however, ignore the fact that many teacher shortages are localized in specific geographical contexts, subject matter areas, and grade levels. Raising the beginning teacher salary across the board may encourage a new graduate to train to teach history in a suburban secondary school but is unlikely to encourage a new math or science graduate to consider a career as a teacher in an inner city school.

The inner cities have, and in the foreseeable future will continue to have, chronic shortages in all fields and at all levels. The typical teacher education graduate prefers to teach in a suburban rather than urban school (AACTE, 1987; Haberman, 1988, 1990; Stoddart, 1988; WDPI, 1986). In every state the urban areas rely on uncertified or misassigned teachers, whereas neighboring suburbs have up to 500 applicants for each job (Haberman, 1988).

This, a serious problem in itself, is exacerbated by a decline in the number of minorities entering teaching. The importance of teachers as role models for children has long been recognized, especially when the teacher is a member of the students' own cultural group (Middleton, Mason, Stilwell, & Parker, 1988; Smith, 1984). Increased opportunities for minorities in more lucrative and higher prestige occupations have re-

sulted in a dwindling supply of minority teachers (Darling-Hammond, 1984; Feistritzer, 1985; Post & Woessner, 1987; Smith & Welch, 1986). Projections based on current trends show that minorities will constitute only 5% of the teaching force by the year 2000, while the minority student population will expand from 29% to 33% (Smith, 1984). The shortage of teachers of color is of particular concern in states such as California, which are predicted to have a "majority-minority" population by the year 2000 and where school districts such as Los Angeles Unified already have child populations that are more than 70% minority (PACE, 1989).

High demand for, and high salaries paid to, the small number of skilled math and science professionals by business and industry indicate there will be a continuing and growing shortage of math and science teachers (Howe & Gervolich, 1982; Levin, 1985; Shymansky & Alridge, 1982). The National Council of Teachers of Mathematics reported a 77% decline between 1972-1982 in the number of secondary-level mathematics teachers enrolled in 600 teacher training programs nation-wide (NCTM, 1982). In the same period, the number of degrees granted in science education declined by one-third (CES, 1987). Teacher shortages in mathematics and science have been acute for at least two decades (ASCUS, 1986; Shymansky & Aldridge, 1982) and almost two thirds of the states report long-term teachers shortages in these disciplines (Darling-Hammond et al., 1989).

Emergency Certificate and Misassigned Teachers

In most states the response to teacher shortages has been to issue emergency certificates or use out-of-field teachers to fill gaps in staffing (Darling-Hammond & Hudson, 1987). Forty-six of 50 states permit the issuing of substandard, limited, or emergency certificates (Feistritzer, 1985). An emergency certificate allows someone to teach who either does not have academic qualifications in the subject to be taught or does not have a teaching credential. In at least 20 of the 46 states emergency certificates are issued to candidates who do not have a bachelor's degree (Darling-Hammond et al., 1989; Feistritzer, 1984). In 1986-1987, 22% of newly hired teachers were not endorsed for the subject or grade level they were assigned to teach (NCES, 1990a).

Hiring new teachers on emergency credentials is only part of the problem. In most states, teachers who have taught in the school system for one year can be reassigned to any subject without violating teacher certification laws. Thus it would be legal to reassign an English teacher to teach chemistry or a math teacher to teach biology. The Council of

Basic Education (CBE) and the American Federation of Teachers (AFT) surveyed the 50 states in 1983 and estimated that as many as 200,000 U.S. teachers—approximately 10% of the total—were teaching out of field (CBE, 1986). The percentages are higher for newly qualified teachers. In April 1987, only 74% of newly qualified teachers (NQTs) who were teaching were certified in their teaching field (NCES, 1990a).

As would be expected, these percentages are significantly higher in urban areas and high demand subjects. According to Darling-Hammond (cited in Landers, 1990), three-quarters of the 4,600 new teachers hired in New York City Public Schools in 1989 were not fully certified to teach. In 1987, 50% of the NQTs of mathematics, 47% of NQTs in biological science, and 31% of NQTs in physical science were not certified to teach in their assigned fields (NCES, 1990a).

Teacher Supply and Demand in California

Teacher recruitment in California is a microcosm of the national situation. By 1995, California's student population is expected to increase by 900,000 due to increases in the birthrate and immigration. At the same time, an estimated 25,000 to 60,000 teachers will retire, and an expected 35,000 to 65,000 teachers will leave education for the private sector (Educational Employment Quarterly, 1985). In the next decade, therefore, California will need to recruit, depending on estimates, between 90,000 to 190,000 additional teachers (Cagampang, Garms, Greenspan, & Guthrie, 1986; Cagampang & Guthrie, 1988). Cagampang et al. (1986), using conservative estimates of the state's ability to train new instructors, to attract out-of-state professionals to California, and to induce reserve-pool teachers to re-enter the profession, forecast a possible shortfall of between 21,300 and 34,800 teachers by 1990.

Large numbers of these new teachers will be needed in the urban areas of Southern California. Schools in the Los Angeles Metropolitan area alone are adding students at the rate of 14,000 a year (Educational Employment Quarterly, 1985). Unfortunately, these urban schools have the most difficulty in recruiting and retaining teachers. Los Angeles Unified School District reportedly accounts for more than half the teacher shortages in the western region and one-fourth of all the shortages in the nation.

School districts in Southern California rely disproportionately on emergency credentials or using out-of-field teachers to fill gaps in staffing. The California Basic Educational Data System (CBEDS) shows that in 1985-1986 (the latest year for which data are available) emergency credentials represented 20% of all first-issued and added credentials in

California (PACE, 1988). In 1985-1986, and for each of the five consecutive years, 40-45% of all new teachers hired by LAUSD were on emergency credentials (LAUSD Personnel Division, 1986-90).

A PACE analysis of CBEDS data for 1985-1986 indicates that 12% of California teachers were instructing outside of the field for which they are certified (PACE, 1988). The number of classes taught by inappropriately credentialed teachers is largest in the areas of bilingual education (60% of classes taught by misassigned teachers), followed by mathematics (26%), social science (21%), science (21%), and English (15%). In California high schools during the 1985-1986 school year, 36,652 math classes and 29,302 science classes (between 18 and 30% depending on type of class) were taught by teachers with emergency certificates (Cagampang & Guthrie, 1988). This means in one year alone approximately 1,900,000 California high school students were taught math and science by teachers who were not certified to teach these subjects.

Once again the effects of the teacher shortage are particularly obvious in Southern California, where a disproportionately high number of teachers are inadequately qualified in the subject they teach. Three adjacent counties in the Los Angeles Basin—Los Angeles, Orange, and San Diego—employed 53% of inappropriately credentialed California math teachers and 54% of inappropriately qualified science teachers (Cagampang & Guthrie, 1988).

Southern California has a particular need for bilingual teachers. The number of limited-English-proficient (LEP) students in California public schools has nearly tripled over the past decade—from about 230,000 to approximately 600,000 in 1987 or about 13% of the student population (PACE, 1988). The majority of these students—67.6%—attended school in nine southern counties. Los Angeles County alone enrolled more than 240,000 LEP students, accounting for 46% of the statewide total. More than one-third of the bilingual credentials issued in 1985-1986 (32.4%) were emergency certificates, up more than 6% from 1984-1985: Sixty percent of the teachers who are teaching classes designated by school districts as "bilingual" do not possess bilingual credentials (PACE, 1988).

There is little hope of recruiting sufficient teachers to meet Southern California's need through traditional sources of teacher supply. Overall enrollment in basic teaching credential programs declined by 1,228 (5%) from 1984-1985 to 1985-1986 and by 6,280 (32%) from 1985-1986 to 1986-1987 (California Commission on Teacher Credentialing, 1987b). In 1986-1987, the majority of these new teachers were white—minorities represent only about 13% of candidates recommended for credentialing by California State University System (CSU) which trains approximately

70% of teachers hired in California (PACE, 1988). Traditional approaches to teacher recruitment and training are unlikely to reverse this trend. A recent survey indicates that many California teacher education institutions, in an attempt to raise academic standards, are limiting enrollments by reducing or capping the number of students admitted into the program or into student teaching (Roth, 1988). In areas where California teacher education institutions have been successful in increasing enrollments, these increases are not sufficient to meet demand; there are still more emergency credentials than first credentials of other types being issued (Cagampang & Guthrie, 1988).

Alternative Certification as a Response to Teacher Shortages

Proponents of alternative routes to teacher certification have argued that an appropriate response to the teacher shortage would be to restructure teacher certification regulations to expand the recruitment population beyond the traditional teacher education cohort and make entry into teaching easy for individuals at other ages and stages in their careers. Early in the decade, several national reports included recommendations aimed at attracting outside experts into mathematics and science teaching (Boyer, 1983; National Commission on Excellence in Education, 1983; National Science Board, 1983). These reports suggested that having qualified scientists and mathematicians assist in developing and delivering instruction would improve school instructional programs. Other have suggested that eased entry into teaching should be provided for mature individuals willing to transfer into teaching from other professions. These recruits might include early retirees, including technical experts from the armed services, homemakers who wish to reenter the work force and bright young graduates of the arts and sciences who are undecided about their career direction and are willing to devote a few years to teaching (Gray, 1987; Wimpelberg & King, 1983).

Another perspective has been offered by Haberman (1990) who argues that in order to recruit large numbers of individuals willing to and capable of teaching in difficult school environments—particularly urban areas with diverse student populations—a different type of individual needs to be recruited into teaching. The traditional route into teaching has been through the undergraduate major. As a consequence about 70% of newly qualified teachers are under 25 years of age (NCES, 1990a). Haberman argues for recruiting a greater number of mature individuals into teaching. He believes that college-age students, still in the stages of late adolescence and early adulthood, are not developmentally mature enough to teach in difficult environments.

Under traditional certification standards, potential teachers in all these groups would have to complete professional education college coursework before they could be granted a teaching credential and be allowed to assume full-time paid teaching jobs (Feiman-Nemser, 1990). Proponents of alternative routes to teacher certification believe that most of these individuals would be unwilling to take college-based coursework or assume the educational costs of becoming a teacher. Alternative routes to teacher certification, therefore, allow individuals to earn a teaching credential while they work and are paid as full-time teachers. Such routes reduce the time and financial costs of entry into teaching (Adelman, 1986; Carey et al., 1989; Stoddart, 1988).

Although alternative routes to teacher certification usually do not require college-based teacher education, most do provide some form of professional education (Adelman, 1986; Neuweiler, 1988). It has been argued that this on-the-job teacher education is a significant improvement over the emergency credential system which allows unqualified individuals to teach with no formal system of guidance or support (Cooperman, 1985).

The LAUSD Intern Program: A Case Study

The research reviewed in the first half of this article indicates traditional methods of teacher recruitment have been unable to deal effectively with the staffing needs of many urban school districts. In 1983, in response to growing concerns about the chronic teacher shortage in the urban districts of Southern California, the California State Legislature included a teacher trainee provision as part of the Hughes-Hart Education Reform Bill (Senate Bill 813). This regulation allowed school districts which can verify teacher shortages to hire uncertified individuals as secondary school teachers and to offer a training program through which they can become licensed. The individual to be appointed must have a baccalaureate degree with 20 units in a subject matter major, pass a state-approved exam in the subject area to be taught, and pass the California Basic Educational Skills Test (CBEST). Participating school districts must create and implement a 2- to 3-year program of professional training and provide the intern with support by a mentor teacher.

In developing the program, the school district is required to consult with an accredited institution of higher education but is not legally mandated to implement recommendations offered by the institution. The school district must submit its professional development plan to the Commission on Teacher Credentialing for verification. In 1987, Assembly Bill 1728 authorized expansion of the program to include elemen-

tary and bilingual teachers and renamed it the District Intern Program. In 1988, the Bergenson Act (Senate Bill 148) made it more difficult for school districts to hire emergency credential teachers, requiring that they focus on recruiting certified teachers and teacher candidates pursuing full certification through the District Intern Program.

In 1984, LAUSD instituted a District Intern Program (originally called the Teacher Trainee Program) designed to recruit academically competent individuals in areas of subject matter shortage to teach in hard-to-staff schools (Stoddart, 1988; Stoddart & Floden, 1989). Originally developed to recruit secondary English, mathematics, and science teachers in 1988, the program was extended to include elementary and bilingual education teachers. Since 1984, LAUSD has recruited and trained 1100 novice teachers—approximately 96% of the alternative route candidates trained in California (California Commission on Teacher Credentialing, 1987a; LAUSD Personnel Division, 1989-1990).

The second half of this article uses the Los Angeles Unified School District Intern Program as a case study to examine the use of an alternative route to teacher certification as a context-specific teacher recruitment and training policy. It addresses four main questions: (a) How effective is the LAUSD Intern Program in meeting the District's teacher recruitment needs? (b) What kind of individuals does the program recruit and how do they differ from the traditional teacher education population? (c) What kind of professional education does the LAUSD program provide? and (d) How do alternative route teachers compare to university-educated teachers?

Method

The analyses reported in this article are based on two sources of data: (a) demographic data supplied by the LAUSD Personnel Division, and (b) data drawn from the "Teacher Education and Learning to Teach" study (TELT) of the National Center for Research on Teacher Education (NCRTE) at Michigan State University (Ball & McDiarmid, 1988, NCRTE 1988). To analyze the success of the LAUSD intern program in recruiting teacher candidates to meet the District's needs, demographic statistics provided by LAUSD Personnel Divisions for the years 1984-1990 were used to examine intern recruitment patterns, attrition rates, academic qualifications, school assignments, and background characteristics. To provide a context for evaluating these recruitment trends, comparison statistics are cited, when available, from the American Association of Colleges of Teacher Education RATE III study (AACTE, 1989) and the National Center for Educational Statistics data on newly qualified teach-

ers (NCES, 1990a). NCRTE interviews with the program director, instructors, and mentor teachers, and tape recordings of a sample of teacher education classes were used to evaluate the focus and content of the program.

Findings

Teacher Recruitment

One of the main goals of the LAUSD program is to recruit academically competent individuals to teach in its hard-to-staff schools. As Table 1 shows, the LAUSD District Intern Program has recruited 1100 new teachers into the district in the last 6 years—103 bilingual teachers, 316 elementary teachers, 240 English teachers, 184 math teachers, and 257 science teachers. Eight hundred and fifty-five of these recruits, about 70%, are still teaching in the District. The intern program now trains about 300 new teachers a year. This number is equivalent to one of the smaller California State University (CSU) campuses (Morey, 1983).

Another of the main goals of the program is to reduce the number of marginally qualified emergency credential teachers working in the district. Among all new LAUSD teachers recruited, the percentage in the intern program increased from 3.7% in 1987-1988 to 11.4% in 1989-1990. During the same period the percentage of new teachers who had emergency credentials decreased from 47% to 34%. The percentage of college-trained teachers entering the district with a clear teaching credential, however, remained constant—between 34-36%. The District Intern Program appears to be serving its purpose by decreasing the proportion of emergency credential teachers entering the district's schools. It is not, however, adversely affecting the recruitment of college-trained teachers.

Another of the program's goals is to recruit competent teachers who are willing to work in hard-to-staff schools. An increasing number of interns are teaching in the district's "priority staff program" (PSP) schools—which are hard-to-staff inner city schools with high proportions of low-income and minority students. The proportion of all new teachers in PSP schools who were district interns increased from 5.3% in 1987-1988 to 18.5% in 1989-1990. In the same period the proportion of emergency credential teachers hired into PSP schools declined from 43% to 32%.

LAUSD has high recruitment needs for teachers in mathematics, science, and bilingual education, subject areas where there are chronic national shortages (ASCUS, 1986; LAUSD Personnel Division, 1986-1990). Between 1984-1990, the intern program recruited 184 mathe-

Table 1
Number of Teachers Trained by LAUSD by Subject Area and Level of Teaching

Cohort	*English*	*Math*	*Science*	*Elementary*	*Bilingual Elementary*	*Total*
I (1984-1985)	93	30	64	0	0	187
II (1985-1986)	36	32	63	0	0	131
III (1986-1987)	46	33	38	0	0	117
IV (1987-1988)	19	37	36	0	0	92
V (1988-1989)	20	29	33	105	56	243
VI (1989-1990)	26	23	23	211	47	330
Totals	240	184	257	316	103	1100

matics teachers (between 15-34% of its recruitment needs per year) and 257 science teachers (between 17%-31% of its recruitment needs per year). This was a remarkable achievement considering that in the same period it has been estimated that the universities and colleges were producing less than one new math or science graduate for every 10 school districts in the United States (Darling-Hammond et al., 1989). In 1984, 775 students graduated nationally with a degree in mathematics education, 103 from California institutions. In the same year, LAUSD began training 30 new math teachers, about 4% of the national figure and 16% of the California figure. Also in 1984, 702 science education majors graduated nationally, 191 of them from California institutions. In 1984-1985, LAUSD began training 64 new science teachers or approximately 9% of national production and 34% of California production (Cagampang & Guthrie, 1988; CES, 1987).

In 1988, to fill its need for bilingual teachers in elementary schools—about 60% of students in kindergarten and first grade come from homes where English is not the primary language—LAUSD began to recruit bilingual elementary education teachers into the intern program. In 1988-1989 and 1989-1990, respectively, 17% and 25% of new elementary bilingual teachers were recruited through the Intern Program.

These figures suggest that district-run alternative certification programs can recruit candidates in high demand subject areas to teach in hard-to-staff urban schools, and they reduce the need to hire teachers on emergency credentials.

Subject matter preparation. The LAUSD Intern program is recruiting individuals to teach in hard-to-staff schools, but are they academically competent? In recent years there has been an increasing focus in teacher education policy and research on the subject matter preparation of teachers. Reform groups such as the Holmes Group (1986) and the Carnegie Task Force on Teaching as a Profession (1986) emphasize the pivotal role of subject matter knowledge in teaching and argue for increased emphasis on subject matter preparation. This focus on the content knowledge of teachers follows a decade of concern about teachers' general academic competence. A number of studies concluded that teaching tends to attracts students of low academic ability and fails to attract substantial numbers of academically gifted students (Lanier & Little, 1986; Vance & Schlechty, 1982; Weaver, 1979). The Holmes Group, the major university-based reform group in teacher education, has proposed that a baccalaureate degree with general liberal arts education and subject matter specialization should be a prerequisite for entering teacher education (Holmes Group, 1986).

To examine the subject matter preparation of LAUSD interns an analy-

sis was made of the academic transcripts of the 92 secondary English, mathematics, and science interns who entered the program in the Fall of 1987. Three variables were used to assess subject matter preparation: the number of courses taken in the academic major, GPA in the academic major, and institution attended.

In order to be admitted to the intern program all candidates must have a baccalaureate degree with an academic major. In addition, the secondary interns must have completed 20 semester or 30 quarter units in the subject area to be taught. The majority of LAUSD secondary interns have substantial preparation in the academic disciplines they teach. Fifty-two percent of mathematics interns, 83% of English interns, and 84% of science interns have completed at least twice that number of units in the academic subjects they are teaching. Approximately 60% of these courses were taken at the upper division level and about one-quarter were graduate courses. To ensure that this subject matter knowledge is current, secondary interns must also pass the National Teacher Exam (NTE) in the content area they teach: the passing score for English is 620, mathematics 630, biological science 680, and physical science 630. Academic transcripts were not available for elementary interns (who were not part of the NCTE study), but each must have a baccalaureate degree with any academic major (the general liberal arts education recommended by the Holmes Group, 1986), and with college level course work in 8 of the following 10 subject areas: language studies, literature, history, social sciences, mathematics, sciences, humanities, visual/performing arts, physical education, and human development. They must also pass the NTE general knowledge exam with a score of 660. In contrast, 75% of new qualified elementary and secondary school teachers who graduated in 1986 majored in education, not in an academic discipline (NCES, 1990a).

The GPAs of the secondary interns compare favorably to those of the college-based teacher education population. Sixty-five percent of science interns, 61% of English interns, and 39% of mathematics interns have GPAs of 3.25 or higher on a four point scale in their subject area specialty and only 9% of interns have GPAs below 2.75. NCES (1990a) statistics for teachers who qualified in 1987 show that 48% had GPAs of 3.25 or higher and 14.5% had GPAs below 2.75. The higher proportion of lower achieving math interns is probably related to California's highly competitive job market for graduates in mathematics (Levin, 1985).

Finally, analysis of subject matter preparation can be examined in relationship to the degree granting institution, since student populations, grading practices, and rigor of the curriculum vary widely between institutions. The majority of the secondary interns graduated

from academically rigorous institutions. Forty-five percent of these interns attended University of California campuses which select from the top 10% of the high school graduating class and 28% attended other institutions with comparable academic standards. The remaining 27% graduated from California State University campuses that recruit from the top 40% of high school seniors.

Attrition. The LAUSD intern program appears to be making a significant contribution in recruiting academically able individuals to teach in hard-to-staff inner city schools. But will they remain in teaching? Nationally, the attrition rate among newly-prepared and beginning teachers appears to be high. A recent NCES (1990a) survey reports that only 61% of newly qualified teachers who received their degrees in 1985-1986 were teaching in April 1987. The most recent data available on attrition in the first 3 years of teaching indicates that 40% of the cohort of teachers who entered the profession in the late 1970s left teaching (Schlechty & Vance, 1983). Given that many of the LAUSD interns are placed in difficult-to-staff PSP schools and hold qualifications which would enable them to easily obtain other jobs, the LAUSD intern attrition rate might be expected to be high. As Table 2 shows, the attrition rate for cohorts of LAUSD interns in the first 3 years of teaching is lower than would be expected on the basis of national figures: Only 18% of cohort IV interns who entered the program and began teaching in 1987 have left the profession. The figures from cohorts I, II, and III indicate the rate of attrition from LAUSD increases after the 3rd year of teaching. Of the first cohort, who entered teaching in 1984 and have been teaching for 6 years, only 53% are still working in the LAUSD public schools. It is unclear how many of the interns who resigned from LAUSD left the teaching profession. Of 245 interns who resigned between 1984 and 1989, 46 indicated they were leaving the profession, 43 indicate they were mov-

Table 2
LAUSD District Intern Attribution Rates

	Active	*Inactive*	*% of Attrition*
Cohort I 1984-1985	88	99	53%
Cohort II 1985-1986	68	63	48%
Cohort III 1986-1987	76	41	35%
Cohort IV 1987-1988	75	17	18%
Cohort V 1988-1989	225	18	7%
Cohort VI 1989-1990	323	7	2%
Total	855	245	29%

ing to another teaching position, and the rest cited family or personal reasons or did not specify (LAUSD Personnel Division, 1989).

Two factors may influence the relatively low intern attrition rates in the first 2 years of teaching: (a) LAUSD interns are enrolled in a program which provides support from a mentor teacher and weekly teacher education seminars, while most beginning teachers receive little support, and (b) they must successfully complete 2 years of full-time teaching in order to receive their teaching credential.

Why did interns choose an alternative route to teacher certification? When asked why they chose to enter the LAUSD program rather than enrolling in a college-based teacher education program, interns gave three main responses: (a) financial need, (b) the belief that one could learn to teach more effectively by practical experience, and (c) reluctance to take more university coursework. Sixty-four percent of interns said they chose the alternative route program for financial reasons—they had a family to support or they had a high debt load from financing their undergraduate education. Twenty-eight percent said they preferred learning to teach on the job. Justifications two and three were frequently linked together; for example, "University courses are too theoretical; they don't have anything to do with doing a job. I think I can learn more by getting out there and doing it" (secondary science intern). The remaining 8% gave idiosyncratic answers such as "it was there," or "my mom's a teacher." These data indicate that many of these new recruits to teaching would not or could not have entered teaching through the traditional college-based route.

How Do Interns Compare to College-Based Teacher Education Candidates?

Age and prior work experience. One of the arguments in favor of alternative routes into teaching is that such programs could change the demographics of the teacher pool. Older individuals, it has been suggested, bring greater maturity and resilience to the teaching situation along with the accumulated expertise they have acquired in the workplace; they are also more likely to cope in difficult teaching environments (Fox, 1984; Gray, 1987; Haberman, 1990). LAUSD elementary and secondary interns tend to be older than the general teacher education population, with about two thirds of the interns being 26 years or older and almost a third of them being over 35 years of age. In 1987, only 29% of newly qualified teachers were older than 26 years (NCES, 1990a).

NCRTE researchers collected data on the prior work experiences of secondary interns who enrolled in the program in 1987-1988 and 1988-1989. As would be expected from the age distribution, many of the

LAUSD interns have transferred into teaching from other occupations. Table 3 shows the percentage of these secondary interns in three categories of prior work experience: (a) those who had not held a full-time job and entered teaching straight from school or college; (b) those who had worked in an occupation related to the subject they are teaching (e.g. English—copywriter, secretary, journalist; mathematics—engineer, accountant, surveyor; science—researcher, laboratory technician, marine biologist, forest service); and (c) those who had worked in occupations unrelated to what they are teaching (e.g. musician, salesman, truck driver, substance abuse counselor). Overall, 58% of secondary interns had transferred from other professions. Mathematics candidates were least likely to have transferred from another profession—53% of math interns entered teaching directly from college. The science interns were most likely to have transferred from another profession and to have worked in a job related to the discipline they teach. Data are not available for the elementary interns who were not part of the NCRTE study.

The percentage of mathematics and English interns who have prior work experience in an occupation related to the discipline they teach is low—22% and 11% respectively. Few of these interns, therefore, bring into teaching the espoused benefits of applied experience in their discipline. The number of LAUSD interns transferring into teaching from science occupations, however, is comparatively high. Over the past 20 years experienced scientists have rarely entered teaching. Darling-Hammond et al. (1989) report that of 21,423 respondents employed in

Table 3
Percentage of Secondary Interns in Three Categories of Full-time Work Experience

	Straight from College	*Work Experiences in Field Related to Academic Discipline Taught*	*Unrelated Work Experience*
English (n=36)	44%	11%	45%
Mathematics (n=61)	53%	22%	45%
Science (n=63)	28%	44%	28%

scientific and technical occupations in 1970, no more than 121 (about 0.5%) switched to precollege teaching during the course of the decade. Moreover, most of these did not stay in teaching for more than 1 or 2 years. Only three of these 121 appear to have worked as teachers over the entire decade. Their analysis of the NSF data from the 1980s revealed a similar pattern among scientists of whom only about 0.2% entered precollege teaching in 1982 or 1984. Over the past 6 years LAUSD has consistently recruited small but significant numbers of qualified and experienced scientists into teaching.

Gender. The college-based teacher education population is predominantly white and female (AACTE, 1989). The LAUSD Intern Program recruits a greater number of men than the typical college-based teacher education program. During the period 1984-1989, 60% of LAUSD interns were male compared to about 30% of newly qualified teachers (NCES, 1990a). Of particular interest is the number of males recruited into elementary education—40% of elementary interns are male compared to only 7% of elementary teacher education candidates (AACTE, 1989).

Ethnicity. The percentage of minority teachers in U.S. schools is declining at the same time as the proportion of minority students is increasing. In 1987, about 13% of all American teachers were from minority groups (NCES, 1990b). In the same year, approximately 12% of newly qualified teachers were from minority groups—4.8% Hispanic, 5% Black, 1.2% Asian, and 0.6% American Indian (NCES, 1990a). In 1988, only 8% of teacher education students enrolled in a nationally representative sample of college programs were minorities (AACTE, 1989). In the same period the LAUSD intern program was recruiting minority teachers at a much higher rate than the percentage recruited through traditional university routes. Over the 6 years since the program's inception, almost one-third (307 out of 1100), of the teachers recruited through the intern program have been from minority groups—12% were Hispanic, 9% Black, 6% Asian, and the remaining 2% American Indian, Filipino, or Pacific Islander. Darling-Hammond et al. (1989) also found that teachers recruited through alternative route programs were more likely to be from minority groups.

It could be argued that this comparatively high recruitment rate for minorities is a function of California's ethnic diversity. California is the most racially and ethnically diverse state in the country; about half the population comes from minority groups (PACE, 1989). The LAUSD Intern Program, however, recruits minorities at a much higher rate than the California State University System (CSU) which prepares 70% of teachers in California (PACE, 1988). The most recent figures from the CSU show that in 1986-1987 about 13% of teachers recommended for

credentialing from that institution were from minority groups—2.2% Asian, 1.9% Black, 7.2% Hispanic, and 1.6% other.

The program also has a good retention rate for minority teachers. Of the 307 minority interns recruited by the district, 266 are still teaching in LAUSD—an overall retention rate of 87% compared to 74% for white interns.

Dispositions towards teaching in urban schools. A prevailing problem in urban education is the recruitment of qualified teachers willing to teach in urban schools. In every state the urban areas rely on uncertified or misassigned teachers, while neighboring suburbs have up to 500 applicants for each job (Haberman, 1988). The typical college teacher education graduate prefers to teach in a suburban rather than an urban school. The data presented above demonstrate that the population recruited into the LAUSD alternative route program differs from the traditional teacher education pool on several demographic dimensions—they are older, more likely to be male, to be persons of color, and to have transferred from other occupations. They also differ in their prior experience with and dispositions towards teaching in urban schools.

LAUSD elementary and secondary interns have more experience living and working in urban environments than the typical teacher education graduate. Seventy percent of LAUSD interns grew up and attended school in a city compared to only 22% of teacher education students in the RATE III national survey of teacher education programs (AACTE, 1989). Also a large percentage of the interns are positively disposed towards teaching in urban schools. About 70% of interns compared to only 18% of the RATE III teacher education students say they would prefer to teach in an urban school. The majority of the teacher education students want to teach in suburban neighborhoods or small towns (AACTE, 1989).

The LAUSD interns also hold higher expectations for low income and minority students when compared to a NCRTE national sample of college-educated candidates enrolled in traditional teacher education programs. Ninety-five percent of elementary interns, 95% of secondary English interns, and 81% of secondary mathematics interns believe that low income and minority students are capable of learning higher order concepts in the subject areas they teach. In contrast, only 76% of elementary teacher education candidates, 70% of English teacher education candidates, and 60% of mathematics teacher candidates held the same expectations. At least one third of the traditional teacher education candidates believed these students should be only taught basic skills in reading, writing and grammar, and arithmetic.

These findings are not surprising given that LAUSD interns are "self-

selected"—they have chosen to live and work in a large multicultural city. In many cases, the students they work with come from backgrounds similar to their own and they can identify with the students (Gomez & Stoddart, 1991). In contrast, the typical teacher education graduate grows up in a small town or suburb and chooses to work close to home (AACTE, 1989). They are not familiar with urban schools or diverse student populations and often find it difficult to relate to students they view as different from themselves (Gomez & Stoddart, 1991). LAUSD interns also tend to be older and come into teaching with a wide range of life experiences. Haberman (1990) has argued that maturity makes it easier for teachers to relate to students who are different from themselves.

The LAUSD Intern Program is recruiting and retaining academically competent teachers in subject shortage areas to teach in hard-to-staff inner city schools. Many of these teachers bring with them positive dispositions towards teaching in urban schools, dispositions not commonly found in the traditional teacher education population. Recruitment is only the first step, however, in professional development. The next section of this article discusses the structure and content of the professional education provided by the LAUSD program.

Training and Support

Critics of alternative routes to teacher licensure have cautioned that such programs may not be equivalent in substance and rigor to college-based programs of teacher education (AACTE, 1986; Gideonse, 1984; Roth, 1986). The basic structure of the LAUSD Intern Program, however, is similar to that of a California college-based program. The California Teacher Preparation and Licensing Act of 1970, also known as the Ryan Act, sets out the basic requirements for teaching credentials in California. As Table 4 shows, candidates in both college-based and alternative groups are required to complete a baccalaureate degree, pass a subject matter competency exam or approved coursework, pass the CBEST, and complete a program of post-baccalaureate professional training before being recommended for a teaching credential.

The amount of time spent in coursework is also equivalent to the requirements for California college-based programs. The Ryan Act requires that candidates enrolled in college-based teacher education programs must take at least nine units of professional education coursework and one semester of student teaching (California Commission on Teacher Credentialing, 1985). The majority of California teacher education institutions limit their programs to one academic year—three quar-

Table 4
Comparison of Routes to Teacher Certification in California

College-Based Route	*LAUSD Alternate Route*
Earn a bachelor's degree from an accredited college or university.	Earn a bachelor's degree from an accredited college or university.
Pass the state Basic Skills proficiency test (CBEST).	Pass the state Basic Skills exam, proficiency test (CBEST) and the NTE.
Be admitted to teacher education program.	Be hired as district intern by school district.
Complete one year of post-graduate study consisting of supervised teaching and professional courses, including courses in reading instruction, health education and special education.	While teaching satisfactorily for two years with a mentor, complete a professional development program which is developed by the school district.
Be recommended for a teaching credential by the college or university.	Be recommended for a teaching credential by the school district.

ters or two semesters—including student teaching (Morey, 1983; Roth, 1988). Coursework in a typical California post-baccalaureate 5th year program, therefore, is equivalent to about 200 clock hours: Coursework in the LAUSD program amounts to about 240 clock hours in the secondary program and 256 clock hours in the elementary program. This is also comparable to typical undergraduate college-based secondary education programs in which students complete 26 credit hours (260 clock hours) in professional education, including student teaching, but less than the typical elementary education program where students complete an average of 50 credit hours (500 clock hours) including student teaching (AACTE, 1987).

The focus of the coursework provided by the intern program is also similar to that provided by college programs. The professional sequence for college-based elementary teachers typically covers some sort of introduction to education; a course in educational psychology; six or seven methods courses for teaching reading, social studies, arithmetic, science, art, and music; and student teaching. For secondary teachers, it involves a course in educational psychology, a general methods course, a subject-specific methods course, and student teaching (Feiman-Nemser, 1990; Scannell, 1987). As Tables 5 and 6 show, the LAUSD intern program covers similar topics.

Table 5
Schedule of LAUSD Elementary Intern Classes

Yearly Schedule	*Clock Hours*	*Course Titles*
Fall Semester	16	Stages of child psychological and cognitive development
	16	Curriculum and methods of teaching reading and the language arts
	16	Practice in teaching skills
Spring Semester	16	Aligning classroom organization and management with development
	16	Curriculum and methods of teaching mathematics and science
	16	English for speakers of other languages
	16	Practice in teaching skills
Summer	32	Multicultural education: General
Fall Semester	16	Curriculum and teaching methods of teaching social science, music, and art
	16	Multicultural education: Specific
	16	Practice in teaching skills
Spring Semester	16	Curriculum and methods of teaching movement, health, safety, and environmental education
	16	Overview of children with special needs
	16	Computer literacy
	16	Practice in teaching skills

The LAUSD Intern program, however, is not as academically rigorous as a typical college-based program. In the LAUSD program there are no formal assignments or examinations; regular class attendance is the only criterion for passing a course. The emphasis of instruction is also different. College-based programs attempt to prepare teachers who can critically analyze and reflect on a wide range of educational theory and curriculum and instructional practices (Feiman-Nemser, 1990). The LAUSD Intern Program focuses on preparing teachers to effectively use the District's approach to curriculum and instruction.

District interns teach full-time while they participate in a 2-year program developed and administered by the district's staff development personnel. The training program has four components: (a) a 15-day

Table 6
Schedule of LAUSD Secondary Intern Classes

Yearly Schedule	*Clock Hours*	*Course Titles*
Fall Semester	16	Classroom management in an urban setting
	16	Reading instruction in the content fields and quality skill building
	16	Practice teaching skills
Spring Semester	16	Bilingual, ESL and other language development and instructional practices
	16	Assessing, diagnosing, and reporting achievement
	16	Practive in teaching skills
Summer Five Days	32	Multicultural education: General
Fall Semester	16	How learning occurs
	16	Methods of teaching English, Mathematics, and science
	16	Practice in teaching skills
Spring Semester	32	Multicultural education: Specific Practice in teaching skills
	16	Interdisciplinary overview of Children with special needs
	16	Practice in teaching skills

preservice orientation to LAUSD's policies, procedures, and curriculum held in the 2 weeks before interns begin teaching; (b) 2 years of in-service training, which comprises 18 modules organized around the Carnegie units and which is taught in a 2-hour after-school weekly seminar; (c) one week of multicultural education at the end of the 1st year of teaching; and (d) support by a mentor teacher. If they complete the program and receive a positive evaluation from the school principal, the school district recommends them to the California Commission on Teacher Credentialing for a teaching credential.

The training is district-specific. The content of the LAUSD Intern Program covers many topics that would be included in most college-based teacher preparation programs, and also includes substantial attention to areas that are specific to Los Angeles or are of special importance for

teaching in inner-city schools. The program developers recognize that this approach is different from that taken by a university-based program that attempts to prepare students for the wide variety of teaching jobs graduates may undertake. As one program director stated,

> That's what I think is real different, that we're district specific. So that's what I notice about some university-prepared teachers, is that they have to relearn, and I think one of the side benefits [for the interns] is that they have an initial learning. One way, the way things are done in the district.

Throughout, the training is oriented toward helping teachers succeed in the LAUSD schools. Thus, for example, modules on teaching reading, mathematics, science, and so on, focus on analyzing representative objectives from the subject and grade-level specific LAUSD *Guidelines for Instruction* (LAUSD, 1985) and planning appropriate instructional activities. All the instructors are trained in, explicitly teach, and model the "Madeline Hunter" method which is the approach to instructional organization and delivery prescribed by the district and the basis of the district's evaluation process.

In selecting content and procedures, the program developers and instructors focus on content that will help the interns improve their instruction to their current students at that moment. There is a strong emphasis on demonstrating instructional activities and providing lesson plans, dittos, and instructional materials for trainees to use with their own classes. Courses do not typically discuss theory or research other than summaries of research, for example, instructional practices derived from the effective teaching literature (e.g., Good & Brophy, 1984). A lot of time is spent discussing the application of the material the instructor is presenting to specific incidents that have occurred in interns' classrooms. The emphasis on district curriculum and instructional practices is reinforced by the experienced teachers who teach the classes and mentor teachers who give generously of their wisdom of practice—"what works for me in my classroom."

Pre-service training. The 15-day pre-service training consists of a series of seminars and 2 days of observation in school. Secondary students are grouped by subject matter specialty (English, math, or science); elementary students into regular or bilingual groups. It is explicitly focused on inducting interns into the district. The training was described by the program directors as a "crash course in survival skills." Analysis of transcripts of the classes offered in the 3 weeks of pre-service training revealed four main categories of knowledge taught in the pre-service component: (a) procedural knowledge, including the regulations and

procedures of LAUSD (how to fill in a roll book, how to make sure you get your paycheck on time, how to get a substitute teacher if you are ill, how to report child abuse, etc.); (b) the subject matter content prescribed by the state and LAUSD, published in curriculum guidelines which specify learning objectives for each grade level; (c) the district's approach to organizing and planning instruction based on the Madeline Hunter five-step lesson plan; and (d) survival skills—how to get through the 1st day or week, lists of things for students to do referred to as "sponge activities" (dittos, handouts, games) which "mop up" extra time, what to do with disruptive students, and lessons prepared by the L.A. Times.

Three themes pervaded the pre-service training: (a) "You are now part of the LAUSD team." Instructors and personnel department staff pointed out the benefits of working in LAUSD and stressed that it should be viewed as a longterm career commitment; (b) "You will fail at first, but you will survive and become an effective teacher." Instructors provided many examples of beginning teachers, including themselves, who experienced difficulties when they first began teaching but eventually became effective teachers; and (c) all children regardless of race, gender, or social class can learn effectively, and it is your duty as teachers to ensure that they succeed.

The year-round training. Throughout their 2 years in the program, trainees attend 2-hour training sessions every Thursday afternoon from 4:00 to 6:00 p.m. They can choose to attend one of three regional training centers. Over the 2-year period they take a series of seminars organized around Carnegie units. Each 16-hour (8 week) module is regarded as equivalent to one college unit (nontransferable) and earns the intern a one-point advancement towards salary.

At the beginning of each session, interns meet as a group with an intern program supervisor to discuss practical problems and issues that have come up in their teaching during the week. Interns find these weekly discussion sessions a useful way to vent frustrations and a source of ideas for dealing with specific classroom problems. Because they spend 2 years as a cohort going through the weekly after-school training, interns tend to form a support group for each other which helps them deal with the stresses of teaching.

The discussion of interns' school and classroom problems which precedes each session sets the context for the class which follows. Seminars cover topics similar to those taught in college-based programs of teacher education, but they tend to focus almost exclusively on practical and immediate application in interns' classrooms rather than discussion of underlying principles or critical approaches. Interns do not usually develop curriculum and instructional methods themselves but are pre-

sented with a variety of examples they can choose to use. A typical example of how instructors model instruction was provided in the English methods unit taught by an experienced English teacher. The course focused on teaching language arts through literature—"teaching into, through, and beyond literature"—the approach to English education developed by the district's advisory staff. The main goal of this program is to present "integrated, interrelated" lessons where integration is defined as blending reading, writing, speaking, and analysis of literature in one unit. The classes focused on presenting practical examples of this approach, not theory or research related to this approach. For example, in one class the instructor presented a model of a unit which used a short story to achieve a variety of instructional goals. The story was read aloud by students to promote reading skills, a class discussion helped develop student comprehension and communication skills, and students were required to write a letter to one of the characters to practice writing, grammar, and punctuation skills. The instructor engaged interns in thinking about the practical aspects of teaching this unit: sequencing and timing of instruction, adapting instruction to differing student needs, and fitting in with the district's curriculum and testing guidelines.

Multicultural education. In line with the program's emphasis on teaching in the context of the LAUSD schools, there is a strong focus on multicultural education. Approximately 40% of the time spent on coursework is devoted to this topic, including two courses and a "Multicultural Week" at the end of interns' 1st year of teaching. The LAUSD intern program assigns significantly more instructional time to multicultural education than is required by the state credentialing regulations for college-based programs. In California, college-based programs are required to include an emphasis on cultural diversity and the education of children whose primary language is other than English, but are not required to offer a specific course on the topic. Multicultural education may be integrated into other courses (California Commission on Teacher Credentialing, 1987c).

During Multicultural Week, administrators and specialists from the district office, teachers in district secondary schools, consultants, and university faculty make presentations to the trainees on multicultural issues. These sessions attempt to sensitize interns to the perspectives, backgrounds, and instructional needs of students from different cultures. Most of the instructors are themselves persons of color. McDiarmid (1990) analyzed the transcripts of the sessions in Multicultural Week and found four main objectives:

1. To influence interns' attitudes towards children culturally different from themselves and towards including information on cultural minorities and their contributions to history and knowledge.

2. To inform trainees about the history, customs, language, family life, religion, values and intra-group differences of various groups including Asian-Americans, Afro-Americans, and Mexican-Americans and other Latinos.

3. To inform interns about the effects of teacher behaviors (expectations and differences in "learning styles") on the achievement of students from non-Anglo backgrounds.

4. To demonstrate pedagogical techniques—for dealing with controversial topics in the classroom, for learning cooperatively, for incorporating information on black leaders into teaching, and for assessing students' "learning styles." (p. 10)

According to McDiarmid (1990) the program's emphasis on providing information about different cultural groups, the deleterious effects of prejudice and differential expectations, and demonstrating classroom techniques such as cooperative learning, is similar to the approach used in many traditional pre-service programs of teacher education. The LAUSD intern program, however, spends more time on multicultural aspects of education than do typical college-based programs (Grant & Secada, 1989).

Mentoring. The third component of training and support is the mentor teacher program. The California Senate Bill 813 specifies that if a district sets up a district intern program, they must provide mentors to guide and assist these new teachers for 2 years. The legislation allocates funds to districts participating in the mentor teacher program: $4,000 in stipends for each mentor, and an additional $2,000 per mentor to cover such costs as training, substitutes, release time, and travel. In addition to the $4,000 stipend above their salary, LAUSD mentor teachers are paid mileage and have a $150 budget to buy curriculum materials for the interns. They are given 23 days release time to work with interns, during which a substitute is assigned to their classrooms.

There are currently 1058 mentor teachers in LAUSD assigned to work with all beginning teachers or teachers new to the district (Weisbender, Champagne, & Maddahian, 1989). In line with the District's emphasis on multicultural education, many of the interns will be assigned a mentor who is a person of color. Forty-three percent of mentors are from minority groups—approximately 1% American Indian, 4% Asian, 32%

Black, 8% Hispanic, 57% White—a slightly higher overall percentage than in the total teacher population, which is 37% minority (Weisbender et al., 1989).

The mentors are selected through an elaborate screening process (training is even provided for the selection committees) in which about two thirds of the applicants are rejected. The mentor selection committee is composed of six teachers and five administrators. Teacher applicants submit written applications. Applications are evaluated on such elements as educational background, educational experiences, teaching performance evaluations (based on the Stull criteria described in the next section), a personal statement, professional references, and service record for the last 5 years (Weisbender et al., 1989). Those accepted are given a 30-hour training program based on research on effective teaching and mentoring techniques (Feiman-Nemser, Parker, & Zeichner, 1990). They are trained specifically in (a) the district's approach to instructional planning, classroom management, and organization which they will communicate to novices; and (b) techniques of classroom consultation, observation, and coaching—for example how to write a "script" of the lesson they are observing and how to structure a conference with a novice teacher (Little & Nelson, 1990).

New teachers are assigned to mentors on a 4:1 ratio, except in PSPs (priority staffing programs), where the ratio may be 2:1. Wherever possible, mentor teachers work in the same school and same subject area as the intern. Mentors provide guidance and support but do not evaluate the interns. In the first years of the program, at least 95% of the interns were assigned someone to work with them (about two thirds of these were mentors selected and trained through the process just described; the rest were other teachers and administrators). In contrast, only 32% of California's 1st-year teachers from college certification programs and 71% of emergency credential teachers received such support from a mentor teacher (California Commission on Teacher Credentialing, 1987a). These findings are in line with other research on alternative certification programs which indicates that they offer more clinical supervision than the typical teacher education program (Adelman, 1986).

A key question is, what do the interns learn from mentor teachers? Research on mentoring in the LAUSD intern Program indicates that mentor teachers, in line with the Program's context-specific emphasis, tend to induct interns into current school policy, procedures, and instructional practices rather than engaging them in reflection on a variety of approaches to instruction (Feiman-Nemser et al., 1990).

Criteria for successfully completing the program. To successfully complete the program, an intern must attend the pre-service training, Multi-

cultural Week, and 2 years of weekly seminars. There are no written assignments or examinations. Three times a year the intern must complete forms that describe some of their own instructional practices, with a focus on classroom management and instructional planning. These forms must be shown to the site coordinator, the mentor teacher, and the principal, so that each has a chance to monitor and react to how the teacher is managing instruction. Interns must attend all classes and make up those they miss by taking a Saturday class or some other equivalent experience.

The main evaluation of the intern is conducted by the school principal according to the criteria in the Stull Evaluation Guidelines, which are the state-mandated beginning teacher evaluations. The intern must receive positive evaluations from the school principal to remain in the intern program and to be recommended for a teaching credential. At least three times a year, the intern prepares a statement of instructional objectives for a class which the principal observes, and subsequently the intern teaching receives written feedback on their performance. The evaluation focuses on five areas of teacher performance: (a) achievement of instructional objectives evaluated primarily by student performance; (b) preparation and planning focusing on specifying instructional objectives and providing appropriate instructional materials; (c) classroom performance evaluated by adherence to the Madeline Hunter model, setting homework, and maintaining discipline; (d) general professional skills including relations with other faculty and staff, professional appearance, and record keeping; and (e) punctuality and attendance. The intern is graded as "satisfactory," "unsatisfactory," or "needs improvement" on 22 subcategories. If an intern receives more than three "needs improvement" grades, he or she may be removed from the program.

The criteria for successful completion of the program are thus strongly loaded towards demonstration of ability to teach in the particular classroom to which the teacher has been assigned, using the curriculum and approaches to instruction defined by the district to the satisfaction of the school principal. Interns are required to participate in classes that cover the foundational content covered in college-based programs, but they are not tested on this content, nor required to write papers that might demonstrate their understanding. Consistent with the local emphasis of the program, the requirements for completion are oriented towards success in the practice of teaching in this particular context as defined by the Stull Evaluation Guidelines.

Comparisons of LAUSD Interns With University-Educated Teachers

The LAUSD Intern Program provides a comprehensive program of on-the-job professional training which focuses on preparing teachers to work in the Los Angeles public schools. Eight hundred and fifty-five of these alternative route teachers are currently teaching in LAUSD (LAUSD Personnel Division, 1986-1990). How do these teachers compare to university educated teachers? This section discusses the findings of several recent studies which compared the pedagogical knowledge and skills of LAUSD secondary alternative route teachers with those of conventionally educated teachers (Ball & Wilson, 1990; California Commission on Teacher Credentialing, 1987a; Gomez & Stoddart, 1991; Stoddart, 1991).

Researchers from the California Commission on Teacher Credentialing compared the classroom effectiveness of 82 California alternative route teachers (77 of them LAUSD interns) in relation to that of 32 university teacher education graduates and 34 emergency credential teachers (California Commission on Teacher Credentialing, 1987a). The beginning teachers were evaluated by trained observers on an average of three occasions on six criteria—classroom environment, student involvement, presentation skills, content and method, classroom management, and cognitive activity. There were no significant differences between the groups on any of the criteria. The researchers concluded that the alternative route teachers, as a group, were as instructionally effective as their university-educated counterparts. This research, however, focuses primarily on the generic characteristics of classroom management and instruction in which the LAUSD interns have been extensively trained. It did not look at the more substantive issues of teaching subject matter to diverse learners.

Between 1987 and 1990, researchers at the National Center for Research on Teacher Education studied the development of pedagogical knowledge and skills in LAUSD alternative route interns and three groups of university-trained secondary math and English teacher candidates (Ball & McDiarmid, 1988; NCRTE, 1988). The study tracked the novice teachers through their teacher education program and into their 1st year of independent teaching and involved repeated interviews with and classroom observations of each candidate. It focused specifically on teaching mathematics and writing to diverse learners.

Ball and Wilson (1990) analyzed the data on secondary mathematics teachers. They found little difference in mathematical knowledge and skill between the alternative route and university trained groups, either at the beginning or end of the program. Both groups of teachers could competently solve mathematical problems themselves—they knew the

correct rules and procedures—but had difficulty explaining the underlying mathematical meaning of the concepts. The majority of teachers in both groups believed that effective teaching involved showing and telling students how to solve mathematical problems and giving them practice. They had difficulty in generating concrete examples or activities which would enable students to construct mathematical understanding. These ideas about effective teaching were manifested in their teaching practices (Stoddart, 1991). The majority of novice teachers in both groups used traditional didactic instructional methods in their classrooms—teacher lecture and demonstration of problem solutions on the blackboard followed by individual student work on problems from the textbook with feedback from the teacher. Ball and Wilson (1990) argue that neither group of teachers is being prepared to teach mathematics in a way that will adequately develop students' conceptual understanding. Both the traditional and alternative route approaches to teacher education produce teachers who focus on drilling algorithms into students.

Gomez and Stoddart (1991) compared the development of skills for teaching writing in secondary English teacher candidates in the LAUSD alternative route program and a group of secondary English teachers who graduated from a post-baccalaureate university program. Both groups of teachers came to teacher education with extensive subject matter preparation—all the candidates had completed baccalaureate degrees with an English major, with a GPA of 3.0 or more—and there were no significant differences in their content knowledge. The researchers did find differences, however, in candidates pedagogical knowledge and instructional practices.

The university-educated English teachers were significantly more knowledgeable about specific approaches to teaching writing. They had gone through a teacher education program which emphasized the "process approach" to teaching writing which views students as "authors" who own the text they are producing and who learn to improve their writing through the processes of drafting, revising, and publishing. All these teachers were extremely knowledgeable about this approach and as part of their program had developed an extensive curriculum resource file to draw on in their teaching practice. When these university-educated novice teachers began teaching in schools with high percentages of low-income and minority students, however, most of them had difficulty in implementing the process approach to writing in their multicultural classrooms. They quickly adopted the school district's competency-based drill and practice approach to teaching writing. Gomez and Stoddart (1991) argue that these novices did not use the student-centered curriculum because it was incompatible with their views of the students they

were teaching. Many of these teachers held "cultural deficit" perspectives on student achievement and believed that their poor and minority students' lack of enriching life experiences made it difficult for them (a) to function as autonomous learners, or (b) to understand higher-order concepts. They believed that such students required a structured, drill and practice approach, and thus they taught that way. This view of learners was more consonant with the school district's curriculum than the university's process approach.

In contrast, the alternative route interns held higher expectations for low-income and minority students and attempted to develop curriculum and instructional responsive to the needs of diverse learners. Their approaches to instruction, however, were highly idiosyncratic and tended to be based on their own experiences as learners and prior life and work experience (Gomez & Stoddart, 1991). For example, one intern named Chad, a lay preacher and political activist, developed an approach to English instruction which focused almost exclusively on developing the ability to communicate orally. At times this worked very effectively; for example, he engaged low-achieving seventh and eighth graders in researching, writing, and debating arguments for and against year-round schooling. At other times, however, his approach was ineffective. For example, he tried to get a group of poor readers to sight read plays aloud and he taught basic vocabulary to an 11th grade honors class. The majority of interns, like Chad, had difficulty in evaluating the appropriateness of their teaching practice, and although highly creative, their approaches were often unresponsive to the needs of learners.

This preliminary research contrasting the development of instructional expertise in traditional and alternative routes into teaching only serves to emphasize the complexity of learning to teach and reinforces the findings of other research on novice teachers. As has been found in studies of the teaching of mathematics, both the alternative route and university-educated mathematics teachers appeared to be dominated by a powerful subject culture that emphasizes a lockstep drill and practice approach to instruction (Goodson, 1987; Porter, 1989; Stoddart, 1991; Stodolsky, 1988). They looked very different from the university-educated and alternative route English teachers. Here the NCRTE studies support Grossman's (1989) finding that university-educated English teachers develop greater pedagogical sophistication than alternative route teachers. Unfortunately, as has been previously observed, the university-educated novice teachers were quickly socialized into the prevailing school culture (Zeichner & Gore, 1989). The influence of personal perspective (Zeichner, Tabachnick, & Densmore, 1987) was also apparent in the practice of both groups of secondary English teachers: The LAUSD interns developed

highly idiosyncratic approaches to instruction and the university-educated teachers views of diverse learners exerted a powerful influence on their developing practice. These findings indicate that many of the same factors operate in learning to teach in traditional and alernative routes to teacher certification. They underscore the research that has demonstrated that novice teachers are influenced by multiple factors, including personal history, subject matter specialization, the backgrounds of the learners they are teaching, and the school context, as well as professional education (Ball & Goodson, 1985; Bullough, 1989; Crow, 1987; Hargreaves, 1989; Gomez & Stoddart, 1991; Shulman, 1986; Zeichner & Gore, 1989; Zeichner et al., 1987).

Discussion

This article uses a case study of the Los Angeles Unified School District Intern Program to examine the use of an alternative route to teacher licensure as a context-specific teacher recruitment and training policy. The findings indicate that the program is effective in attracting and retaining academically competent individuals to teach in inner city schools in Los Angeles. It has a strong record, in comparison to national figures for college-based teacher education programs, in recruiting individuals in subject shortage areas, from minority groups, and individuals with positive dispositions towards teaching in urban schools (AACTE, 1989; NCES, 1990a)

The alternative route program in California is not a replacement for college-based teacher education; it is a context-specific recruitment policy. Alternative route candidates represent less than 2% of California's newly-credentialed teachers: 96% of these are trained in the LAUSD Intern Program (California Commission on Teacher Credentialing, 1987a). The program has reduced the district's need to hire emergency credential instructors without impacting on the recruitment of conventionally educated and licensed teachers.

Alternative route programs like the LAUSD intern program can be successful in recruiting teachers to work in hard-to-staff schools, but do they provide adequate teacher education? Critics have argued that teacher candidates in alternative route programs receive little or no pedagogical preparation (Gideonse, 1984; Watts, 1986). The LAUSD Intern program does provide a program of professional preparation that is, on the surface, similar in the topics addressed and class hours to many college-based teacher education programs. It is, however, very different in its academic rigor and content. In most college-based programs, recommendation for a teaching credential is based on successful completion of

university coursework—based on academic criteria of written essays and examinations—and a positive evaluation from a university supervisor based on approximately 10 to 16 weeks of supervised student teaching (Feiman-Nemser, 1990). In LAUSD the main criteria for being recommended for a teaching credential is a positive evaluation from the school principal based on 2 years of full-time teaching experience in an urban school. Although the program provides courses, these courses require little academic work.

The content of the courses also differs. University programs expose students to a wide variety of educational theories and curriculum and instructional approaches (Howey & Zimpher, 1989) and faculty engage candidates in a process of reflection and critical evaluation of prevailing school practice (Feiman-Nemser, 1990). The LAUSD Intern Program focuses on training interns to effectively implement the district's curriculum in a prescribed manner. The content of the coursework emphasizes the local and specific needs of an urban multicultural school district and student population instead of focusing on a wide variety of contexts.

What kind of teachers does the program produce? Preliminary research indicates that the LAUSD interns do not develop flexible or reflective approaches to instruction. Although the mathematics teachers are characterized by their remarkably homogenous didactic approaches to instruction and the English teachers by their diversity of instructional approaches, both groups are essentially "singers with only one song" (Stoddart, 1991). They develop modal approaches to instruction which they apply and misapply routinely.

Do the alternative route teachers differ significantly from their college-educated counterparts? The preliminary research from NCRTE which compares secondary LAUSD interns with a sample of university-educated novice teachers reveals some interesting similarities and differences between and within the groups. A primary differentiating factor was subject matter discipline irrespective of program. There were few differences between the university-trained and alternative route mathematics teachers: Both groups viewed mathematics as a body of facts and procedures to be memorized, and used didactic show and tell approaches to instruction. But the mathematics teachers, across groups, looked very different from the English teachers, who showed a greater diversity in their approaches to instruction. The effects of teacher education were apparent in the university-educated English teachers, who showed a pedagogical sophistication not demonstrated by the LAUSD interns. They had difficulty, however, in applying their university-learned pedagogy with learners who were different from themselves. The alternative route teachers, on the other hand, while feeling comfortable with the

diverse learners they taught, developed highly idiosyncratic personalized approaches to instruction which were often inappropriately applied.

These similarities and differences between the secondary alternative route and university-educated teachers emphasize the influence of subject matter, views of learners, and school context, as well as programs, on novice teachers' developing practices. The interactions may be quite different for teachers learning to teach in elementary schools, which traditionally place less emphasis on subject matter and more on "student-centered" approaches. The findings indicate the need for caution in making generalizations about either form of teacher preparation; they demonstrate the importance of comparative research which looks at the influences of type of teacher preparation, level of schooling, teaching assignment, social and geographical context, and individual biography on learning to teach.

Conclusions

These different approaches to teacher education raise questions about the preparation of teachers for urban schools. Should teacher recruitment and training be context specific or can it be context free? The LAUSD Intern Program attracts into teaching academically competent individuals with a strong commitment to working in its multicultural inner city schools—people who want to live and teach in Los Angeles. By focusing on educating "context-specific" teachers to fit in with local policies, practices, and procedures, however, the program may simply serve to socialize candidates into the prevailing school culture and institutionalize inadequate instructional practices. Many college-based teacher education programs, on the other hand, while advocating critical analysis of and experimentation with wide variety of approaches to instruction, appear to operate on the assumption that schools are monocultural and monosocial (Contreras, 1988). They aim to educate "context-free" teachers who can teach any group of student in any school in any part of the country. Such programs, however, have consistently failed to address the needs of urban schools. They do not recruit sufficient numbers of individuals who are committed to teach in urban schools (AACTE, 1989; Haberman, 1990) and most do not emphasize multicultural education in their curriculum (Grant & Secada, 1989).

The findings of this article underscore the need for teacher educators and policymakers to consider issues of context when developing teacher recruitment policies and training programs. The demand for teachers willing to teach in multicultural student populations in inner city schools will increase as the ethnic minority population grows and the urban areas

continue to expand (Grant & Secada, 1990). Traditional programs, unless radically restructured, are unlikely to recruit sufficient teachers to meet this need. Developing alternative route programs which primarily serve to socialize teacher candidates into prevailing school practice, while providing teachers, will not help improve instruction for at-risk students. Universities need to work with school districts to develop programs which recruit teachers willing to teach in multicultural inner-city schools and provide them with state-of-the-art professional preparation.

References

Adelman, N. E. (1986). *An exploratory study of teacher alternative certification and retraining programs.* Washington, DC: Policy Studies Associates.

American Association of Colleges of Teacher Education (AACTE). (1986). Alternative certification: A position statement of AACTE. *Journal of Teacher Education, 36*(3), 24.

American Association of Colleges of Teacher Education (AACTE). (1987). *Rate II Teaching teachers: Facts and figures.* Washington, DC: Author.

American Association of Colleges of Teacher Education (AACTE). (1989). *Rate III Teaching teachers: Facts and Figures.* Washington, DC: Author.

Association for School, College, and University Staffing (ASCUS). (1986). *Teacher supply/demand 1986.* Madison, WI: Author.

Ball, D. L., & McDiarmid, G. (1988). Research on teacher learning: Studying how teachers' knowledge changes. *Action in Teacher Education 10*(2), 17-24.

Ball, D. L., & Wilson, S. (1990, April). *Becoming a mathematics teacher through college-based and alternate routes: The relationship between knowing your subject and learning to teach it.* Paper presented at the annual meeting of the American Educational Research Association, Boston.

Ball, S. J., & Goodson, I. F. (1985). *Teachers' lives and careers.* Lewes, England: Falmer Press.

Boyer, E. (1983). *High school: A report on secondary education in America.* New York: Harper & Row.

Bullough, R. V., Jr. (1989). *First year teacher: A case study.* New York: Teachers' College Press.

Cagampang, H., Garms, W. I., Greenspan, T. J., & Guthrie, J. W. (1986). *Teacher supply and demand in California: Is the reserve pool a realistic source of supply?* Berkeley: University of California, Policy Analysis for California Education, PACE.

Cagampang, H., & Guthrie, J. W. (1988). *Math, science and foreign language instruction in California: Recent changes and prospective trends.* Berkeley: University of California, Policy Analysis for California Education, PACE.

California Commission on Teacher Credentialing. (1985). *Manual for developing, evaluating, and approving professional preparation programs for the multiple subjects/single subject credentials.* Sacramento: Author.

California Commission on Teacher Credentialing. (1987a). *The effectiveness of the teacher trainee program: An alternate route into teaching in California.* Sacramento: Author.

California Commission on Teacher Credentialing. (1987b). *Report on teacher supply: Enrollments in professional preparation programs in California institutions 1985-86.* Sacramento: Author.

California Commission on Teacher Credentialing. (1987c). *Manual for developing, evaluating,*

and approving professional preparation programs for the multiple subjects/single subject credentials. Sacramento: Author.

Carey, N., Mittman, B., & Darling-Hammond, L. (1989). *Recruiting mathematics and science teachers through non-traditional programs: A survey.* N-2736-FF/CSTP. Santa Monica, CA: Rand Corporation.

Carnegie Forum on Education and the Economy's Task Force on Teaching as a Profession. (1986). *A nation prepared: Teachers for the 21st century.* New York: Carnegie Corporation.

Center for Education Statistics (CES). (1985). *Projections of education statistics to 1992-93.* Washington, DC: U.S. Department of Education.

Center for Education Statistics (CES). (1987). *Digest of education statistics.* Washington, DC: U.S. Department of Education.

Contreras, A. R. (1988, April). *Multicultural attitudes and knowledge of education students at Indiana University.* Paper presented at the annual meeting of the American Educational Research Association, New Orleans.

Cooperman, S. (1985, June 5). In defense of New Jersey's alternate certification plan. *Education Week,* p. 24.

Cooperman, S., & Klagholtz, L. (1985). New Jersey's alternate route to teacher certification. *Phi Delta Kappan, 66*(10), 691-695.

Council for Basic Education (CBE). (1986, February). The widespread abuse of out-of-field teaching. *Education Digest,* pp. 36-39.

Crow, N. (1987, April). *Preservice teachers' biography: A case study.* Paper presented at the annual meeting of the American Educational Research Association, Washington, DC.

Darling-Hammond, L. (1984). *Beyond the commission reports: The coming crisis in teaching.* Santa Monica, CA: Rand Corporation.

Darling-Hammond, L., & Hudson, L. (1987). *Precollege science and mathematics teachers: Supply, demand and quality.* Paper prepared for the National Science Foundation.

Darling-Hammond, L., Hudson, L., & Kirby S. (1989). *Redesigning teacher education: Opening the door for new recruits to science and mathematics teaching.* Santa Monica, CA: The Rand Corporation.

Educational Employment Quarterly. (1985, Winter). *Teacher shortage: Fact of fiction.* Sacramento: California Educational Personnel Services.

Feiman-Nemser, S. (1990). Teacher preparation: Structural and conceptual alternatives. In W. R. Houston, M. Haberman, & J. Sikula (Eds.), *Handbook of research on teacher education* (pp. 212-223). New York: Macmillan.

Feiman-Nemser, S., Parker, M. B., & Zeichner, K. (1990, April). *Are mentor teachers teacher educators?* Paper presented at the annual meeting of the American Educational Research Association, Boston.

Feistritzer, C. E. (1984). *The making of a teacher.* Washington, DC: National Center for Educational Information.

Feistritzer, C. E. (1985). *The condition of teaching: A state by state analysis.* Princeton, NJ: The Carnegie Foundation for the Advancement of Teaching.

Feistritzer, C. E. (1990). *Alternative certification: A state-by-state analysis 1990.* Washington, DC: National Center for Education Information.

Fox, J. N. (1984). Restructuring the teacher workforce to attract the best and brightest. *Journal of Education Finance, 10,* 214-237.

Gideonse, H. D. (1984). State education policy in transition: Teacher Education. *Phi Delta Kappan, 66,* 205-208.

Gomez, M. L., & Stoddart, T. (1991). Learning to teach writing: The balacing of personal and professional perspectives. In R. Clift & C. M. Evertson (Eds.), *Focal points: Qualitative inquiries into teaching and teacher education.* Washington, DC: The ERIC Clearing House on Teacher Education and AERA Division K.

Good, T. L., & Brophy, J. E. (1984). *Looking in classrooms*. New York: Harper & Row.

Goodson, I. (1987). *School subjects and curriculum change*. Lewes, England: Falmer Press.

Grant, C. A., & Secada, W. G. (1989). Preparing teachers for diversity. In W. Houston, M. Haberman, & J. Sikula (Eds.), *Handbook of Research on Teacher Education* (pp. 403-422). New York: Macmillan.

Gray, B. P. (1987, March/April). Let scientists teach in the science classroom. *Curriculum Review*, pp. 32-33.

Grossman, P. L. (1989). Learning to teach without teacher education. *Teachers College Record, 91*(2), 191-208.

Haberman, M. (1986). Alternative teacher certification programs. *Action in Teacher Education, 8*(2), 13-18.

Haberman, M. (1988). Proposals for recruiting minority teachers: Promising practices and attractive detours. *Journal of Teacher Education, 39*(4), 38-44.

Haberman, M. (1990). The rationale for training adults as teachers. In C. Sleeter (Ed.), *Empowerment through multicultural education* (pp. 275-286). Buffalo, NY: SUNY Press.

Hargreaves, A. (1989). *Curriculum and assessment reform*. Milton Keynes, England: Open University Press.

Holmes Group. (1986). *Tomorrow's teachers: A report of the Holmes Group*. East Lansing, MI: Author.

Howe, T. A., & Gervolich, J. A. (1982). *National study of the estimated supply and demand of secondary science and mathematics teachers*. Des Moines: Iowa Department of Public Instruction.

Howey, K., & Zimpher, N. (1989). *Profiles of preservice teacher education*. Albany, NY: SUNY Press.

Kerchner, C. T. (1984). Shortages and gluts of public school teachers: There must be a policy problem here somewhere. *Public Administrative Review, 44*(4), 292-298.

Landers, R. K. (1990). Should teaching be made into a profession? *Congressional Quarterly's Editorial Research Reports, 1*(17), 254-266.

Lanier, J., & Little, J. (1986). Research on teacher education. In M. Wittrock (Ed.), *Handbook of research on teaching* (3rd ed., pp. 527-569). New York: Macmillan.

Levin, H. M. (1985). *Solving the shortage of mathematics and science teachers*. (Report No. 85-AZ). Stanford, CA: Stanford University Institute for Research on Education Finance and Governance.

Little, J. W., & Nelson, L. (1990). *A leaders guide to mentor training*. San Francisco: Far West Laboratory for Educational Research and Development.

Los Angeles Unified School District. (1985). *Guidelines for instruction: Secondary school curriculum English*. Publication No. SC-863.14. Los Angeles, CA: Author.

Los Angeles Unified School District Personnel Division. (1986-1990). *Teacher demographics*. Los Angeles, CA: Author.

Los Angeles Unified School District Personnel Division. (1989-1990). *District intern program 1984-1989: Overview and analysis*. Los Angeles, CA: Author.

McDiarmid, G. W. (1990, April). *What to do about differences: A study of multicultural education in the Los Angeles Unified School District*. Paper presented at the annual meeting of the American Educational Research Association, Boston.

Middleton, E. J., Mason, E. J., Stilwell, W. E., & Parker, W. C. (1988). A model for recruitment and retention of minority students in teacher preparation programs. *Journal of Teacher Education, 1*, 14-18.

Morey, A. (1983). *Excellence in professional education: A report of the advisory committee to study programs in education in the California State University*. Long Beach, CA: California State University System.

National Center for Education Statistics (NCES). (1983). *The condition of education*. Washington, DC: U.S. Department of Education.

National Center for Education Statistics (NCES). (1990a). *New teachers in the market, 1987 update*. Washington DC: U.S. Department of Education.

National Center for Education Statistics (NCES). (1990b). *Selected characteristics of public and private school teachers*. Washington, DC: U.S. Department of Education.

National Center for Research on Teacher Education. (1988). Teacher education and learning to teach: A research agenda. *Journal of Teacher Education, 39*(6), 27-32.

National Commission on Excellence in Education. (1983). *A nation at risk*. Washington, DC: U.S. Government Printing Office.

National Council for Teachers of Mathematics (NCTM). (1982). *Mathematics teacher shortage: The facts*. Reston, VA: Author.

National Science Board Commission on Precollege Education in Mathematics, Science, and Technology. (1983). *Educating Americans for the 21st century*. Washington, DC: Author.

Neuweiler, M. B. (1988). *Teacher education policy in the states: A 50 State Survey of legislative and administrative actions*. Washington, DC: American Association of Colleges of Teacher Education.

Plisko, V. W., & Stern, J. D. (1985). *The condition of education*. Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement, National Center for Education Statistics.

Policy Analysis for California Education (PACE). (1988). *Conditions of education in California*. Berkeley, CA: Author.

Policy Analysis for California Education (PACE). (1989). *Conditions of children in California*. Berkeley, CA: Author.

Porter, A. (1989). A curriculum out of balance: The case of elementary school mathematics. *Educational Researcher, 18*(5), 9-15.

Post, L. M., & Woesnner, M. (1987). Developing a recruitment and retention support system for minority students in teacher education. *Journal of Negro Education, 56*(2), 203-211.

Roth, R. A. (1986). Emergency certificates, misassignment of teachers, and other dirty little secrets. *Phi Delta Kappan, 67*(10), 725-727.

Roth, R. A. (1988). California contradictions: Creating your own crisis. *Action in teacher education, 10*(3), 41-45.

Scannel, D. P. (1987). Fifth year and extended programs. In M. Haberman & J. M. Backus (Eds.), *Advances in teacher education* (Vol. 3, pp. 168-180). Northwood, NJ: Ablex.

Schlechty, P. C., & Vance, V. (1983). Recruitment, selection and retention: The shape of the teaching force. *Elementary School Journal, 83*, 469-87.

Shulman, L. S. (1986). Those who understand: Knowledge growth in teaching. *Educational Researcher, 15*(2), 4-14.

Shymansky, J., & Alridge, B. (1982). The teacher crisis in secondary school science and mathematics. *Educational Leadership, 40*(2), 61-62.

Smith, A. P. (1984). The critical issue of excellence and equity in competency testing. *Journal of Teacher Education, 35*(2), 6-9.

Smith, J. P., & Welch, F. R. (1986). *Closing the gap: Forty years of economic progress for blacks*. Santa Monica, CA: Rand Corporation.

Stoddart, T. (1988, April). *Who is entering the alternate routes into teaching and what views do they bring with them*. Paper presented at the annual meeting of the American Education Research Association, New Orleans.

Stoddart, T. (1991). Learning to teach English and mathematics in an alternative route to teacher certification. *The Curriculum Journal, 2*(3), 259-281.

Stoddart, T., & Floden, R. E. (1989, April). *School district-based teacher training: An alternative*

route to teacher certification. Paper presented at the annual meeting of the American Educational Research Association, San Francisco.

Stodolsky, S. S. (1988). *The subject matters: Classroom activity in math and social studies*. Chicago: University of Chicago Press.

Vance, V., & Schlechty, P. C. (1982). The distribution of academic ability in the teaching force: Policy implications. *Phi Delta Kappan, 64*(1), 22-27.

Watts, D. (1986). Alternate routes to teacher certification: A dangerous trend. *Action in Teacher Education, 8*(2), 25-29.

Weaver, T. M. (1979). The need for new talent in teaching. *Phi Delta Kappan, 61*, 29-46.

Weisbender, L., Champagne, L., & Maddahian, E. (1989). *Preventing teacher dropout: Volume I—Mentors helping new LAUSD teachers*. Publication No. 531. Los Angeles, CA: LAUSD Program Evaluation and Assessment Branch.

Wimpelberg, R. K., & King, J. A. (1983). Rethinking teacher recruitment. *Journal of Teacher Education, 34*(1), 5-8.

Wisconsin Department of Public Instruction. (1986). *Supply and demand of teachers in Wisconsin*. Madison: University of Wisconsin System.

Zeichner, K. M., & Gore, J. (1989). Teacher socialization. In W. R. Houston, J. Sikula, & M. Haberman (Eds.), *Handbook of research on teacher education* (pp. 329-348). New York: Macmillan.

Zeichner, K. M., Tabachnick, B. R., & Densmore, K. (1987). Individual, instructional and cultural influences on the development of teachers' craft knowledge. In J. Calderhead (Ed.), *Exploring teachers' thinking* (pp. 21-59). Eastbourne, England: Cassell.