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*Journal of Teacher Education* 2002; 53; 286

DOI: 10.1177/0022487102053004002

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# VARIATION IN TEACHER PREPARATION

## HOW WELL DO DIFFERENT PATHWAYS PREPARE TEACHERS TO TEACH?

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*Does teacher education influence what teachers feel prepared to do when they enter the classroom? Are there differences in teachers' experiences of classroom teaching when they enter through different programs and pathways? This study examines data from a 1998 survey of nearly 3000 beginning teachers in New York City regarding their views of their preparation for teaching, their beliefs and practice, and their plans to remain in teaching. The findings indicate that teachers who were prepared in teacher education programs felt significantly better prepared across most dimensions of teaching than those who entered teaching through alternative programs or without preparation. Teachers' views of their preparation varied across individual programs, with some programs graduating teachers who felt markedly better prepared. Finally, the extent to which teachers felt well prepared when they entered teaching was significantly correlated with their sense of teaching efficacy, their sense of responsibility for student learning, and their plans to remain in teaching.*

In recent years, questions have been raised about whether and how teacher education makes a difference in teachers' practice, effectiveness, entry, and retention in teaching. Researchers have also begun to ask whether different kinds of programs prepare teachers differently and to what effect (e.g., Darling-Hammond, 2000b; Howey & Zimpher, 1989; National Center for Research on Teacher Learning, 1992). These questions have become more important as the growing demand for teachers, coupled with growing inequality in salaries and teaching conditions, has resulted in sharper differences in the nature and extent of preparation teachers receive. Although many programs have undertaken important reforms since the mid-1980s, a growing number of entrants to teaching have experienced no teacher education at all (National Commission on Teaching and America's Future, 1997).

Do these differences in teacher education matter? Do teachers' experiences of teaching differ when they enter through distinctive programs and pathways? This study examines data from a 1998 survey of nearly 3,000 beginning teachers in New York City regarding their views of their preparation for teaching, their sense of self-efficacy, and their plans to remain in teaching. The survey allowed analysis by individual teacher education program and pathway to teaching.

### CONTEXT AND BACKGROUND

For more than a decade, two competing trends have influenced the teaching workforce. On one hand, calls for reform from groups like the Carnegie Task Force on the Future of Teaching (1986) and the Holmes Group (1986) of education deans spurred many universities to

strengthen teacher preparation by requiring more subject matter preparation, more intensive coursework on content pedagogy and strategies for meeting the needs of diverse learners, and more systematic and connected clinical experiences. Some universities have developed 5-year models that include a disciplinary major and intensive training for teaching, including a yearlong student teaching experience, often in a professional development school. Some evidence suggests that these efforts may be producing teachers who feel better prepared, who enter and stay in teaching longer, and who are rated as more effective (see, e.g., Andrew, 1990; Andrew & Schwab, 1995; Baker, 1993).

At the same time, growing demand for teachers in a labor market with funding inequities and distributional problems has led many states and districts to lower standards for entry, admitting many new teachers without preparation. In California, for example, the number of teachers hired on emergency permits increased from 12,000 in the early 1990s to more than 40,000 in 2001, or about 14% of the workforce (Shields et al., 2001). In California and nationally, underqualified teachers are disproportionately assigned to teach minority and low-income students (National Commission on Teaching and America's Future, 1996, 1997).

Increases in teacher demand have coincided with the growth of alternative teacher certification programs—so named because they provide alternatives to the traditional 4-year undergraduate program path to teacher certification. More than 40 states have alternatives in place for candidates who already have a bachelor's degree (Feistritzer, 1998). These programs vary from short summer programs that place candidates in teaching assignments with full responsibility for students after a few weeks of training to those that offer 1- or 2-year postbaccalaureate programs with ongoing support, integrated coursework, close mentoring, and supervision.

All of these trends have occurred in New York City, which recruits thousands of teachers a year from a wide variety of pathways and programs. New York City is the largest and most diverse school district in the country, serving more than 1 million public school students, 83% of whom

were identified as members of "minority" groups and 17% of whom were identified as limited English proficient in 1997-1998. In that year, more than 9,000 teachers in New York City were teaching on temporary or emergency licenses, compared with 1,185 in the rest of the state. Low-performing schools (schools under registration review)—which served primarily low-income and minority students—had the highest percentages of uncertified teachers, an average of 16% compared with 4.5% in the rest of the state (Armour-Thomas, 1999).

At the start of the 1997 school year, due to a strong press from the chancellor's office to improve hiring practices, two thirds of the city's 5,500 vacancies were filled by fully qualified teachers, an improvement from one third of a smaller number of vacancies in 1992 (National Commission on Teaching and America's Future, 1997). However, poor teaching conditions contributed to an ongoing flow of emergency-credentialed teachers into city schools. In a school finance lawsuit brought against the state, the city's below-average expenditures and non-competitive salaries were cited as reasons for difficulties in attracting and retaining teachers. As part of its interest in improving hiring and stemming attrition, the Board of Education was interested in learning about its sources of new teachers, their preparation, professional development needs, and plans to stay in teaching.

## THE SURVEY AND THE SAMPLE

A survey of beginning teachers was conducted by New Visions for Public Schools, a nonprofit organization in New York City, and the National Commission on Teaching and America's Future's Urban Initiative in the spring of 1998 (Imbimbo & Silvernail, 1999). The New York City Board of Education sent surveys to all teachers listed on the personnel list with 4 or fewer years of experience. A follow-up letter encouraging participation was sent by the New York City United Federation of Teachers. A total of 2,956 usable surveys were returned.<sup>1</sup>

Respondent characteristics resembled those of the New York City beginning teaching force: 80% were female; 68% were 35 years old or younger; 65% were White, 15% Hispanic, 13%

African American, 4% Asian or Pacific Islander, and the remainder “other.” Among the respondents, 74% held a regular New York State teaching certificate; 26% were uncertified at the time of the survey. Of those with a state teaching credential, 66% had obtained certification through a university-based credentialing program within New York State. The remaining 34% obtained certification through transcript review. This group included individuals prepared in programs outside of New York State as well as those who had taken courses in a variety of institutions, often while teaching, and who received a credential by submitting their transcript to the State Education Department for review. Among those certified, 14.7% earned their credential after they started teaching. Teachers’ pathways into teaching were highly varied. Just under half of teacher education graduates fit the traditional expectation of entry through a 4-year undergraduate program (see Table 1).

The survey asked new teachers to rate their preparedness and their personal views about teaching, including their sense of teaching efficacy and their plans to remain in teaching. Recruits were asked to assess how well prepared they felt when they entered teaching, across 39 dimensions of teaching and overall. These dimensions ranged from readiness to provide effective subject matter instruction to ability to diagnose and meet student needs (see appendix).

## FINDINGS

### *Differences by Certification Status and Pathway*

In an earlier analysis of the data, Silvernail (1998) conducted a factor analysis that grouped 36 of the 39 survey items into five factors describing teachers’ sense of preparedness to (a) Promote Student Learning (Items 1-9, 16, 25, 28, 29), (b) Teach Critical Thinking and Social Development (Items 17-24), (c) Use Technology (Items 35-39), (d) Understand Learners (Items 11-13, 26, 27), and (e) Develop Instructional Leadership (Items 31-34). For each factor, he compared the perceptions of New York State

**TABLE 1 Pathways Into Teaching**

<i>Pathway</i>	<i>Proportion of Sample</i>
University-based program <sup>a</sup>	
Undergraduate	30.6
Graduation program of 1 year or more	24.2
Combined undergraduate/graduate (typically 5 years)	7.9
Non-university-based route	
Substitute teaching	17.4
Private school teaching	8.2
Alternate route program (Peace Corps, Teach for America, Teacher Opportunity Corps)	2.0
No prior experience	13.6
Other	12.5

NOTE: Responses do not sum to 100% because multiple responses were allowed regarding non-university-based routes.

a. This question asked only for programs through which respondents earned New York State certification. It does not include respondents who first earned a credential in another state ( $n = 44$  or 1.5% of the total sample).

certified teachers to those of noncertified teachers and those of teachers licensed through an approved program to those licensed through transcript review.

Certified teachers felt better prepared than noncertified teachers on every factor except preparation to use technology. The differences were highly significant (at the .001 level) on the two factors that most pertain to teaching skills: (a) Ability To Promote Student Learning—14 questions including such items as “teaching subject matter concepts, knowledge and skills in ways that enable students to learn”—and (b) Ability To Teach Critical Thinking and Social Development—8 questions including such items as “developing a classroom environment that promotes social development and group responsibility.” Neither group felt well prepared to use technology or to teach new English language learners. On Item 40, which asked respondents for an overall assessment of their preparation, certified teachers felt adequately prepared ( $M = 2.08$ ,  $SD = 0.97$ ),<sup>2</sup> and their average rating was significantly higher ( $p < .001$ ) than that of noncertified teachers, who felt less than adequately prepared on average ( $M = 1.86$ ,  $SD = 1.04$ ). Finally, certified teachers exhibited a much stronger sense of responsibility for student learning than did uncertified teachers ( $p < .001$ ). The latter were more likely to believe that “students fail because they do not apply them-

selves," "students' peers have more influence on their motivation and performance than I do," and "most of a student's performance depends on the home environment, so teachers have little influence."

Silvernail's (1998) comparisons of the ratings of teachers who completed a New York State teacher education program with those of teachers who were licensed through transcript review showed similar trends but smaller differences. This analysis was intended to examine whether completing a single, coherent program for a credential was associated with a different entry experience than stitching together courses from multiple sources. However, the transcript review group also included those who had completed a teacher education program in another state. Those who completed an approved teacher education program in New York State felt much better prepared on the items regarding Promoting Student Learning ( $p = .0002$ ) and somewhat better prepared than those who received credentials through transcript review on three of the other four factors: Teaching Critical Thinking and Social Development ( $p = .03$ ), Understanding Learners ( $p = .01$ ), and Developing Instructional Leadership ( $p = .05$ ). There was no difference on Using Technology. Program-prepared teachers were significantly more likely than transcript review entrants to feel that students' success is influenced by teaching rather than by peers or home factors ( $p < .001$ ).

Silvernail (1998) also compared data from this survey to data from a national survey of beginning teachers and a survey of 7 exemplary teacher preparation programs.<sup>3</sup> Graduates of the exemplary teacher preparation programs felt significantly better prepared than the national random sample of beginning teachers, and both groups felt better prepared, on average, than New York City teachers. However, one of the exemplary programs was in New York City, and its graduates scored significantly above the New York City and national norms on both surveys. This suggests that there may be measurable differences across preparation programs in terms of how well prepared graduates feel when they enter the classroom.

### **Differences by Teacher Education Program or Pathway**

Our analysis of beginning teachers focused on the individual pathways they followed to enter teaching. Since teachers' practice and views are affected by other professional development the longer they are in the profession, we felt that analyses of program effects would be best examined within 3 years of entry. We eliminated those in the initial sample who had 4 or more years of experience (20.1%), leaving 2,302 teachers with 3 or fewer years of experience as the sample for this analysis. We examined the differences among the preparation perceptions of teachers from different teacher education programs versus those who entered teaching without prior preparation (emergency credentialed), through transcript review, or through alternate routes operating only in New York City. This last group includes teachers who enter teaching on an emergency credential, sometimes after a few weeks of summer training (Teach for America [TFA]) or while enrolled in a master's program (Peace Corps and Teacher Opportunity Corps).

We were interested in determining whether recruits rated their preparation similarly within preparation programs and whether there were programs whose graduates rated their preparation significantly higher or lower than those of other programs. An earlier study (Darling-Hammond, 2000b) found that there is often a consensus among employers about teacher education programs that produce teachers who seem better prepared at entry to meet the needs of diverse learners. The study of teacher education program outcomes is one strategy that may enable us to understand features of successful programs. The analyses compared

- mean ratings of teacher education program graduates and those without program preparation (using  $t$  tests of group means for each survey item),
- mean ratings of graduates of individual teacher education programs and other pathways in New York State compared to the overall mean ratings of teacher education program graduates, and
- relationships between overall feelings of preparedness and teachers' sense of self-efficacy and plans to stay in teaching (using correlations and regression analyses).

*Graduates of teacher education programs versus alternative pathways.* The mean ratings of graduates of teacher education programs were significantly higher than ratings of teachers without program preparation<sup>4</sup> on 32 of the 40 survey items assessing feelings of preparedness. The sharpest differences ( $p < .01$ ) were on those items that rated teachers' knowledge about curriculum and teaching strategies, including how to meet students' learning needs. In relation to the factors reported by Silvernail (1998), program-prepared teachers rated their readiness for teaching higher than non-program-prepared teachers on all 14 items in Factor 1 (Promote Student Learning), all 8 items in Factor 2 (Teach Critical Thinking and Social Development), all 5 items in Factor 3 (Understand Learners), and on 2 of 4 items in Factor 5 (Develop Instructional Leadership).

On the "use of technology for communication with others in the world" (Item 38), teachers without program preparation rated their preparedness higher than program graduates. We suspect that those who entered from other occupations had more experience with these uses of technology than did individuals who went directly into teacher education. Both groups rated their preparation less than adequate on items dealing with the use of technology to support research and track student achievement (Items 36, 37) and with respect to teaching English language learners (Item 14).

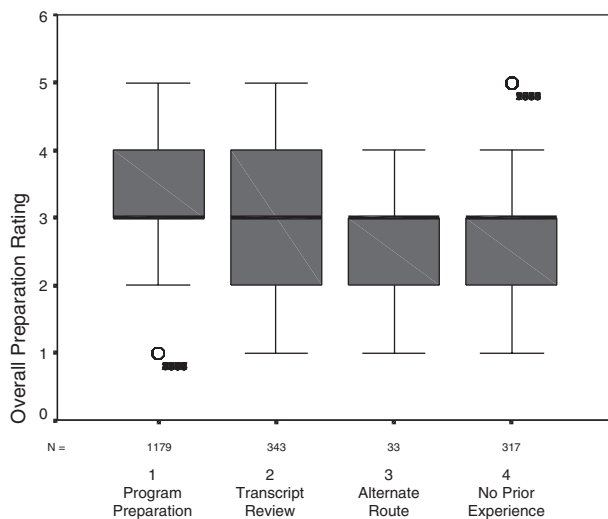
Recruits who had taken other pathways into teaching felt less well prepared than teacher education program graduates overall. Teachers who gained state certification through transcript review—who had taken all of the required certification courses but not necessarily from a single institution—had lower mean ratings on most items, but significantly lower mean ratings on only 10 out of 40 items. The areas in which transcript review entrants felt least well prepared included more sophisticated aspects of instructional planning (Item 8, "use community resources to create a multicultural curriculum," and Item 28, "use a variety of assessments [e.g., observation, portfolios, tests, performance tasks, anecdotal records] to determine student strengths, needs, and progress").

Teachers who entered through alternative pathways such as Peace Corps, TFA, or Teacher Opportunity Corps also rated their initial preparedness significantly lower than did graduates of teacher education programs on 25 out of 40 items. These included core tasks of teaching such as designing curriculum and instruction, teaching subject matter content, using instructional strategies, and understanding the needs of learners.

Finally, teachers who began teaching on emergency credentials without previous experience in classrooms<sup>5</sup> rated their readiness significantly lower than graduates of teacher education programs on 35 out of 40 survey items. The only nonsignificant differences were on items dealing with the use of technology. The overall ratings of both alternative program teachers and those with no prior experience fell below a 3 (*adequately prepared*), suggesting that recruits who had not had teacher preparation often felt insufficiently prepared when they entered teaching.

We found that there was less variability in individuals' reported readiness among graduates of teacher education programs than there was among other entrants, especially transcript review entrants. This makes sense because teacher education provides some common experiences that should reduce variability. Alternate route recruits and those with no prior experience had significantly lower ratings within a narrower range (see Figure 1).

*Differences among teacher education programs and pathways.* We disaggregated the data further to compare the responses associated with the 18 teacher education programs that had sample sizes of at least 20 to see if there were differences among them.<sup>6</sup> These included public and private institutions offering both graduate and undergraduate programs. Among the alternate routes, only one program, TFA, had a sample size adequate to include in this analysis. Ratings of program preparation were relatively consistent within programs and were distinct across programs, suggesting that there might be program effects that outweigh candidate differences. An analysis of variance showed greater between-group than within-group variance in responses ( $F = 1.84, p = .017$ ).



**FIGURE 1: Variability in Ratings of Overall Preparedness of Recruits From Different Pathways**

*Outlier teacher education programs.* We compared the item ratings of graduates from different teacher education programs with the ratings for all program-prepared recruits combined and found significant differences from the mean in 4 of the programs. Of the teacher education programs, 2 had significantly higher mean ratings on a number of the 40 items, and 2 had significantly lower mean ratings on some of the items. Graduates' overall ratings of preparedness (Item 40) were significantly different from the mean in only 1 program (Program 98), whose graduates felt significantly better prepared overall. TFA recruits felt significantly less well prepared than teacher education graduates overall and on most items.<sup>7</sup>

The programs with significantly higher mean ratings were Program 3, Bank Street College, and Program 98, Wagner College, a small college on Staten Island. Bank Street College graduates, who are primarily elementary teachers, rated their preparation higher than the average teacher education graduate on 30 items and significantly so on 6 items ( $p < .05$ ), especially those dealing with understanding children and developing curriculum, two hallmarks of Bank Street training. Wagner College graduates rated their preparation higher than the average on 39 of 40 items and significantly so on 21 items ( $p < .05$ ). Among these were preparation to use technol-

ogy, an area in which teacher education graduates and nongraduates alike generally felt underprepared. On the 5 items evaluating preparedness to use technology, Wagner College graduates' ratings ranged from 3.14 to 3.52 whereas other program graduates' ratings ranged from 2.18 to 2.83.

On the other hand, graduates of two programs—both campuses of the City University of New York—rated some aspects of their preparation lower than the average teacher education graduate, although higher than alternate route recruits and those without preparation on most items and overall. (Graduates of the other 7 City University of New York campuses rated their preparation at or above the average among teacher education graduates.) Program 17 had significantly lower ratings on 23 items, and Program 20 had significantly lower ratings on 20 items ( $p < .05$ ). Despite these differences, graduates of both of these 2 lower-rated programs rated themselves adequately prepared on 28 of the 39 aspects of teaching and rated themselves adequately prepared overall. The areas where these graduates felt less than adequately prepared (mean ratings below 3) mirrored the trends in the general teacher education population: use of technology to support learning, teaching of English language learners, and helping students to assess their own learning. In addition, graduates of these 2 programs felt less than adequately prepared to identify and address special learning needs and to use a variety of assessments to gauge and direct student learning.

TFA recruits rated their preparation lower than the average teacher education graduate on 39 of 40 items, significantly so on 19 of these ( $p < .05$ ). Mean ratings for TFA recruits were consistently lower than the mean ratings for the lowest rated teacher education program and were significantly lower on 5 items, including Item 40, overall preparation to teach. TFA recruits' ratings of their preparation were also consistently lower than those for the mean of the alternative routes category, perhaps because the other two programs in this category (Peace Corps and Teacher Opportunity Corps) enrolled candidates in master's degree programs and offered them university-based supervision and course-

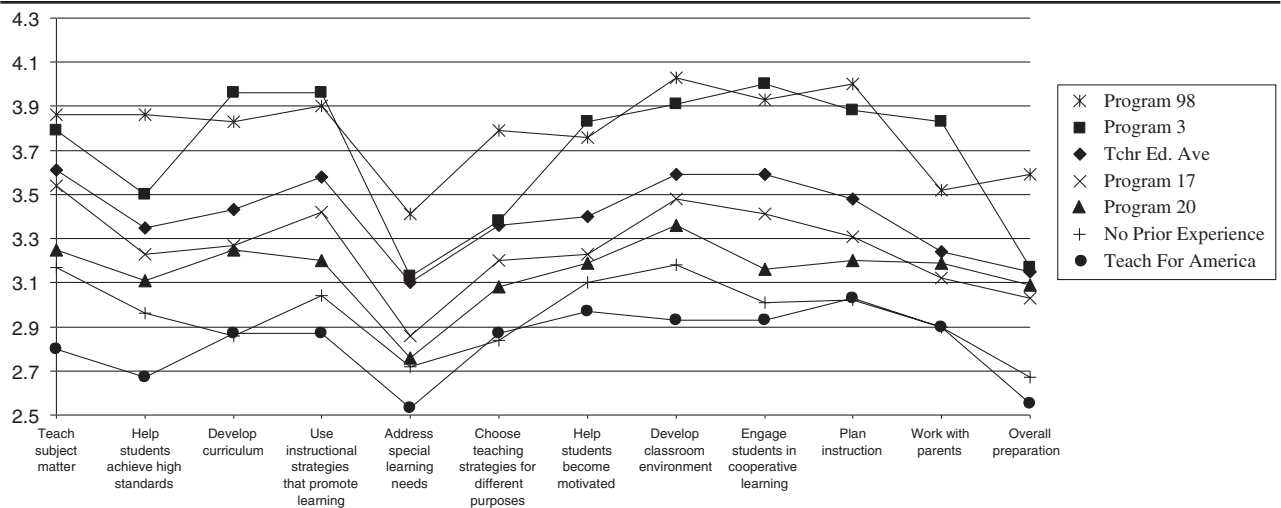


FIGURE 2: Mean Ratings of Preparedness for Beginning Teachers From Different Programs

work while they were teaching. TFA recruits and recruits with no prior experience or training rated their preparation comparably on most items (see Figure 2).

In contrast to program graduates, TFA recruits felt unprepared for many of the core tasks of teaching. For example, whereas nearly 55% of program graduates rated themselves as “well” or “very well” prepared on Item 1, “teach subject matter concepts, knowledge, and skills in ways that enable students to learn,” only 12% of TFA participants did so. On 25 of 40 items, including overall preparation for teaching, TFA recruits felt less than adequately prepared (below a 3 on the scale). In addition to the use of technology—an area in which almost all of the respondents felt underprepared—these included fundamental aspects of teaching for which graduates of all of the 18 teacher education programs rated themselves adequately or well prepared: developing curriculum to support student learning, helping all students achieve high academic standards, using instructional strategies to promote active learning, developing a classroom environment that promotes motivation and responsibility, and working with parents and families.

### Characteristics of Highly Rated Programs

What do we know about the design and characteristics of the two programs that enabled

their graduates to feel particularly well prepared? A previous case study of Bank Street College (Darling-Hammond & MacDonald, 2000) found that both program graduates and employing principals rated Bank Street preparation very highly. Since its founding in 1916, Bank Street has aimed to develop child-centered education grounded in knowledge of human development. These emphases are reflected in the comments of principals about why they hire Bank Street teachers:

I think they are the best-trained teachers in progressive education that I can find. . . . I think their understanding of curriculum is very deep.

I have sought out Bank Street graduates in all my positions in the last ten years. I hire them for their high level of professionalism and for their willingness to engage in serious conversations about children, their needs, and their potential. For me, it is important that they are able to balance the development of serious curriculum while paying attention to the needs of students in a diverse population. (Darling-Hammond & MacDonald, 2000, pp. 10-11)

Bank Street enrolls about 200 teachers annually in early childhood, elementary, and middle school programs. Several hundred teachers also take in-service courses. The 42-credit, graduate-level, preservice programs take from 12 to 24 months to complete, depending on how students organize their course taking. Every program includes a full academic year of student teaching under close supervision from university supervisors who also work as course in-



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structors and advisors and who often work with both the master teacher and the student teacher on developing classroom practice. The practicum experiences are interwoven with coursework.

The program design deliberately combines experience, reflection, and study. Student teaching placements are in classrooms with cooperating teachers who model Bank Street practices like those candidates are learning in their courses on child development (observation and recording of child behavior and learning through child study are key components of the Bank Street method), subject-specific teaching methods, language and literacy development, curriculum development, families, and community. Many placements are with Bank Street graduates, and a growing number are in schools where Bank Street has professional development relationships. These arrangements foster an analytical and practical approach to the development of practice.

Wagner College, a small college located on Staten Island, does not have Bank Street's national reputation, but its graduates had the most positive preparation perceptions of all teacher education program graduates in our sample. Wagner prepares about 110 elementary and secondary teachers each year, a cohort of about 40 undergraduates and another cohort of 70 graduates who take a three-semester program. Most graduates take teaching jobs in New York City.

Wagner emphasizes a strong liberal arts education plus intensive preparation for teaching. Elementary education students take a dual major in a discipline and in education. Secondary candidates major in the discipline they want to teach and minor in education or stay on for a 5th year of education coursework. In addition to their disciplinary major, students complete coursework in English, mathematics, science, and social studies (for elementary education majors); a year of language other than English; a computer science course; and professional coursework—three courses in foundations of education and five courses in methods and content of education, including two courses in math and science methods for elementary teachers and three courses in clinical practice, including

student teaching. A series of course-linked practicum experiences combined with two rotations of student teaching result in about 24 weeks of supervised clinical work, of which at least one placement must be urban. In recent years, Wagner has decreased the number of schools involved in student teaching placements to build partnerships with the schools. In some cases, Wagner's methods courses are taught at the schools and offer professional development for school faculty as the college moves toward a professional development school model.

In addition to strong school relationships, Wagner College and Bank Street share an emphasis on extensive, carefully supervised clinical work (24 or more weeks of student teaching in settings selected to ensure modeling of desired teaching strategies) tightly linked to coursework that places significant attention on the development of content-based pedagogy.

#### **DO TEACHERS' PERCEPTIONS OF PREPARATION MAKE A DIFFERENCE?**

This study examined teachers' perceptions of their preparedness rather than direct measures of their effectiveness. Teachers' perceptions may depend on both individual differences and contextual differences (e.g., the kind of school where a teacher begins teaching, whether the teacher is working in his or her field of preparation, what kinds of supports are available). We could not evaluate all of these factors, but we were able to use school identifiers to ascertain that there were not significant differences in student poverty rates and proportions of minority students for entrants from different pathways. Recruits' perceptions of their preparedness may or may not be related to their actual teaching effectiveness. Another study linking New York City beginning teacher data with longitudinal student achievement data has found, however, that teachers' certification status is related to student learning gains in Grades 3 through 8 (Darling-Hammond, forthcoming), but more research on the relationship between perceptions, program pathway, and effectiveness is needed.

Although these data do not allow a direct examination of teacher effectiveness, they do

allow us to explore the relationships between teachers' views of their preparedness and their sense of teaching efficacy—a variable found to be correlated with teacher effectiveness—as well as their views of their entry pathway and their plans to remain in teaching.

Table 2 shows that teachers' ratings of their overall preparedness (Item 40) are significantly related to their sense of efficacy about whether they are able to make a difference in student learning. Teachers who felt better prepared were significantly more likely ( $p < .001$ ) to believe they could reach all of their students, handle problems in the classroom, teach all students to high levels, and make a difference in the lives of their students. Those who felt underprepared were significantly more likely to feel uncertain about how to teach some of their students and more likely to believe that students' peers and home environments influence learning more than teachers do.

To examine whether these relationships are mediated by other factors that might influence a teacher's sense of efficacy, we also conducted a regression analysis that took into account teaching level, age, race, gender, in- or out-of-field placement, and experience. We found that teachers' sense of teaching efficacy is not influenced by age or gender but that sense of efficacy is generally higher for teachers with more experience, those at the elementary level, those teaching within their area of certification, and for Black and Hispanic teachers. Even after these variables are controlled, sense of preparedness is by far the strongest predictor of teaching efficacy (see Table 3).

Teachers' views of teaching as an occupation are also strongly related to how well prepared they felt when they entered. A chi-square analysis showed that teachers who felt poorly prepared are significantly less likely to say they would choose to become a teacher if they had it to do over again and significantly less likely to say they plan to remain in teaching (see Tables 4 and 5).

These results underestimate the relationship between preparation and retention in teaching because the sample does not represent those who have already left the system during their

**TABLE 2** Relationship Between Overall Sense of Preparedness and Teacher Efficacy

<i>Item</i>	<i>Spearman's Rho Correlation<sup>a</sup></i>
If I try hard I can get through to almost all of my students.	.170***
I am confident in my ability to handle most discipline problems that may arise in my classroom.	.230***
Students fail because they do not apply themselves.	.039*
My students' peers have more influence on their motivation and performance than I do.	-.083***
I am confident in my ability to teach all students to high levels.	.297***
I am confident I am making a difference in the lives of my students.	.215***
I am uncertain how to teach some of my students.	-.286***
I am confident of my ability to integrate information technology into my students' learning.	.315***
Most of a students' experience depends on the home environment, so teachers can have little influence.	-.067***

a.  $p$  value, two-tailed test,  $n = 2,863$ .

\* $p < .05$ . \*\*\* $p < .001$ .

1st years of teaching—a time when attrition is highest and when underprepared teachers have been found to leave at higher rates (Darling-Hammond, 2000a).

Finally, teachers who felt poorly prepared were much less likely to say they would pick the same route into teaching again: Only 36% said they would choose the same program or pathway, compared to 76% of those who felt well prepared for teaching (see Table 6).

## DISCUSSION

The findings of this study indicate that beginning teachers who have experienced different teacher education programs or pathways into teaching feel differently about their preparation, that those feelings are relatively stable within programs, and that there is substantial variation across programs and pathways. Teachers prepared in a single formal program of preparation feel better prepared than those who take a series of courses from different institutions, who in turn feel better prepared than those who enter through alternative programs that minimize preservice training and those

**TABLE 3** Estimated Effects of Teaching Variables on Sense of Teaching Efficacy

	"If I try hard I can get through to most of my students."		"I am confident in my ability to handle most discipline problems."		"I am confident in my ability to teach all students to high levels."		"I am confident I am making a difference in the lives of my students."		"I am uncertain how to teach some of my students."	
	B	t	B	t	B	t	B	t	B	t
Constant	3.015	23.12***	2.631	22.139***	2.749	25.790***	3.417	34.062***	4.491	33.392***
Level										
K-12	-.134	-1.80	-.016	-.235	-.041	-.677	-.089	-1.556	.138	1.792
7-12	-.138	-2.70**	.162	3.473***	.033	.782	-.145	-3.677***	.053	1.000
Teaching within certification area	.157	2.16*	.220	3.313***	.093	1.560	.110	1.956	-.116	-1.537
Female	.037	.65	-.008	-.152	-.086	-1.811	.089	.198	.081	1.359
Age										
25-35	.003	.05	-.002	-.035	-.029	-.553	.020	.404	.147	2.229*
36-45	.054	.70	-.104	-1.490	-.118	-1.883	-.003	-.060	.045	.573
Older than 45	.035	.41	-.114	-1.467	-.087	-1.245	-.155	-2.346*	.017	.194
Race										
Asian	.072	.58	-.052	-.464	-.044	-.431	-.116	-1.202	.250	1.970*
Black	.122	1.80	.234	3.814***	.335	6.036***	.182	3.514***	-.285	-4.124***
Hispanic	.039	.61	.212	3.594***	.206	3.906***	.162	3.235***	-.241	-3.590***
Native American	.482	1.24	.575	1.626	.555	1.626	.471	1.592	.053	.133
Other non-White	.049	.40	-.029	-.270	.017	.141	.175	1.890	-.125	-1.033
Years teaching	.053	2.69**	.116	6.400***	.072	4.438***	.051	3.351***	-.111	-5.454***
Sense of preparedness	.179	7.89***	.254	12.268***	.301	16.219***	.178	10.152***	-.350	14.967***
R <sup>2</sup>	.042		.100		.134		.075		.124	

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

**TABLE 4** Sense of Preparedness and Decision To Become a Teacher

Sense of Preparedness (Question 40)	Probably or Certainly Would Become a Teacher Again (%)		Probably or Certainly Would Not Become a Teacher Again (%)		n
	Chances Are About Even (%)	Chances Are About Even (%)	Chances Are About Even (%)	Chances Are About Even (%)	
Poorly prepared	68	19	13	814	814
Adequately prepared	80	14	6	1,142	1,142
Well prepared	90	6	4	862	862
Total	79	13	7	2,818	2,818

NOTE: Chi-square = 122.67,  $df = 4$ ,  $p < .0001$ .

**TABLE 5** Sense of Preparedness and Plans To Stay in Teaching

Sense of Preparedness (Question 40)	As Long as I Am Able (%)	Until Something Better Comes Along (%)	Am Planning To Leave as Soon as Possible (%)	n
Adequately prepared	88	9	3	1,139
Well prepared	90	8	2	861
Total	87	10	3	2,799

NOTE: Chi-square = 35.15,  $df = 4$ ,  $p < .0001$ .

**TABLE 6** Sense of Preparedness and Feelings About Pathway Into Teaching (in percentages)

Sense of Preparedness (Question 40)	Probably or Definitely Would Choose the Same Program or Pathway		Probably or Definitely Would Not Choose the Same Program or Pathway	
	Chances Are About Even	Chances Are About Even	Chances Are About Even	Chances Are About Even
Poorly prepared (n = 812)	36	18	46	
Adequately prepared (n = 1,131)	59	16	25	
Well prepared (n = 858)	76	10	14	
Total (n = 2,801)	57	15	28	

NOTE: Chi-square = 295.13,  $df = 4$ ,  $p < .0001$ .

who enter without prior experience or training. These last categories of teachers reported feeling poorly prepared for many tasks of teaching and less than adequately prepared overall.

### Differences Among Teacher Education Programs and Pathways

The contributions made by teacher education programs are most noticeable with respect to

the core tasks of teaching, such as the ability to make subject matter knowledge accessible to students, to plan instruction, to meet the needs of diverse learners, and to construct a positive learning environment. Although programs appear to prepare teachers more and less well across various dimensions of teaching, no teacher education program resulted in teachers' feeling less than adequately prepared overall. The general sense of preparedness of teacher education graduates is consonant with the findings of other recent studies of teacher education (Howey, Arends, Galluzzo, Yarger, & Zimpher, 1994, pp. 24-29; Kentucky Institute for Education Research, 1997) that have found graduates rating themselves well prepared by their teacher education programs. This represents a shift from the findings of similar studies two decades ago that found greater dissatisfaction with preparation for teaching. The change may reflect the efforts to reform preparation that have been underway since the mid-1980s (e.g., Carnegie Task Force on the Future of Teaching, 1986; Holmes Group, 1986).

Like other studies, however, we found that graduates rated their preparation less than adequate for teaching English language learners ( $M = 2.9$ ) and, though improved from earlier years, lower than other areas for meeting the needs of special education students ( $M = 3.1$ ). Nonprogram recruits rated their preparation even lower in these areas ( $M = 2.8$  and  $2.9$ , respectively). All groups rated their preparedness below adequate on readiness to use technology for purposes ranging from research on the Internet to tracking student achievement and for helping students learn how to assess their own learning.

### ***Teachers' Sense of Efficacy***

These feelings of preparedness are also significantly related to teachers' sense of efficacy and their confidence about their ability to achieve teaching goals. This survey included two items similar to those originally used by a team of RAND researchers (Armor et al., 1976) to evaluate teachers' sense of general efficacy

about what teachers can influence ("Most of a student's performance depends on the home environment, so teachers have little influence") and their sense of personal efficacy about what they themselves can accomplish ("If I try hard, I can get through to almost all students"). Items like these were strongly correlated with student achievement in the RAND study and in other studies since (e.g., Anderson, Greene, & Loewen, 1988; Ashton, 1985; Ashton & Webb, 1986; Berman, McLaughlin, Bass, Pauly, & Zellman, 1977; Gibson & Dembo, 1984; Ross, 1992). Our study included additional efficacy items assessing teachers' confidence in their ability to accomplish certain teaching goals (e.g., handle discipline problems, teach all students to high levels, and integrate technology) and their sense of certainty about how to help students learn.

In a recent review of research on teacher efficacy, Tschannen-Moran, Woolfolk Hoy, and Hoy (1998) noted that various measures of this construct have also been found to be related to student motivation (Midgley, Feldlaufer, & Eccles, 1989) and students' sense of efficacy (Anderson et al., 1988). Teachers' sense of efficacy is related to behaviors that affect student learning, such as teachers' willingness to try new instructional techniques (Allinder, 1994; Berman et al., 1977; Guskey, 1984; Rose & Medway, 1981; Smylie, 1988), teachers' affect toward students (Ashton, Olejnik, Crocker, & McAuliffe, 1982; Gibson & Dembo, 1984; Rose & Medway, 1981), and their persistence in trying to solve learning problems (Gibson & Dembo, 1984). Teachers' sense of personal teaching efficacy has also been related to their practices—for example, the use of more effective, hands-on science techniques (Enochs, Scharmann, & Riggs, 1995).

Other researchers have found, as we did, that teachers' sense of preparedness and sense of self-efficacy seem related to their feelings about teaching and their plans to stay in the profession. Teacher efficacy has been linked to teachers' enthusiasm for teaching (Allinder, 1994; Guskey, 1984) and their commitment to teaching (Coladarci, 1992; Evans & Tribble, 1986). Perhaps not surprisingly, teachers' sense of their

ability to influence student learning appears related to their stress levels (Parkay, Greenwood, Olejnik, & Proller, 1988) and attrition from teaching (Glickman & Tamashiro, 1982).

Earlier studies have found, like ours, that teachers' sense of efficacy is related to perceptions about how well they were prepared (Raudenbush, Rowen, & Cheong, 1992). There is also some evidence that teachers' sense of efficacy increases when they receive learning opportunities that provide them with greater skills (Ross, 1992). Tschannen-Moran and colleagues (1998) noted that views of self-efficacy appear to form fairly early in the career and are relatively difficult to change thereafter. Thus, they argue it is important to develop teachers' knowledge and skills early on.

The findings of efficacy research, along with the results of our study, are consistent with other research that has found relationships between teachers' preparation and their effectiveness with students (Ashton & Crocker, 1987; Darling-Hammond, 2000c; Monk, 1994; Wenglinsky, 2000). Our findings are also consistent with those of other studies suggesting that those who enter teaching with little professional education have greater difficulties in the classroom (Darling-Hammond, 1992; Grossman, 1989; Jelmberg, 1996; National Center for Research on Teacher Learning, 1992) and that they tend to leave teaching at higher rates than those with professional preparation (Darling-Hammond, 2000a).

## CONCLUSION

Proponents of an open-market approach to entry into teaching have argued that teacher education offers little to the effectiveness of teachers and that preparation for entry into the profession should be minimized to lower the opportunity costs of entry (Fordham Foundation, 1999). This study suggests that one cost of this approach may be reduced teacher confidence and efficacy, with implications for beginning teachers' effectiveness and their commitment to teaching.

Our study suggests that based on their graduates feelings of preparedness, teacher education programs do differ in the quality of preparation they provide, although not as much as we ini-

tially expected, and that many teachers do not feel that their programs adequately prepared them for certain teaching tasks, such as using technology and teaching English language learners. The variability among teacher education programs in terms of graduates' perceptions of preparation suggests the importance of ensuring that programs be expected to evaluate and improve their work.

Accreditation is an avenue professions have traditionally used for quality control. Since this study was completed, New York has moved to require national accreditation for teacher preparation programs, joining 17 other states that expect public colleges of education to attain National Council for Accreditation of Teacher Education (NCATE) accreditation and 46 that have state partnerships using NCATE standards (NCATE, 2001). These standards include areas such as special needs and technology that appeared weak in many programs. Although there is little research on the relationship of accreditation to teacher preparedness, a recent study found that graduates of NCATE-accredited institutions pass licensing tests at significantly higher rates than graduates of unaccredited institutions and teachers who have not completed a teacher education program (Gitomer & Latham, 1999).

However, measures to improve teacher education programs will do little to improve teacher quality if states allow schools to hire teachers without preparation, as more than 30 currently do. States that do not hire unprepared teachers have developed successful strategies for boosting the supply of qualified teachers. These include increasing and equalizing teacher salaries, subsidizing candidates' teacher education costs with service scholarships, providing incentives for teachers to enter high-need fields and locations, and ensuring mentoring for beginners to reduce attrition (National Commission on Teaching and America's Future, 1997). Some evidence suggests that in the long run, the greater entry and retention rates of well-prepared teachers may actually save money over the costs of hiring, inducting, and replacing underprepared recruits who leave at high rates (Darling-Hammond, 2000a).

These strategies require states and districts to make investments to improve teachers' access to high-quality preparation and their incentives for becoming well prepared. Until these investments are made, many students will continue to be taught by teachers who are inadequately pre-

pared to help them learn. If our society really expects all students to learn to high levels, as current rhetoric suggests, a more deliberate set of strategies for ensuring that their teachers gain access to knowledge will be needed.

## APPENDIX

### Differences Between Mean Ratings of Preparedness for Beginning Teachers With and Without Program Preparation

	<i>Teachers With 3 or Fewer Years of Experience; Teachers With and Without Program Preparation</i>				
	<i>Program Prepared Mean (n = 1,307)</i>	<i>Non- Program Prepared<sup>a</sup> Mean<sup>a</sup> (n = 597)</i>	<i>Transcript Review Mean (n = 502)</i>	<i>Alternate Route Mean<sup>b</sup> (n = 48)</i>	<i>No Prior Experience Mean (n = 326)</i>
<i>Survey Section B: Professional Knowledge and Skills</i>					
When you first started teaching, how well prepared did you feel to do the following:					
1. Teach subject matter concepts, knowledge, and skills in ways that enable students to learn.	3.6113	3.3065**	3.5458	3.1875**	3.1748**
		(-6.5894)	(-1.3950)	(-3.2491)	(-7.7456)
2. Understand how different students in your classroom are learning.	3.2708	2.9430**	3.2395	3.1521	2.7802**
		(-6.5280)	(-0.6093)	(-0.8011)	(-7.8857)
3. Set challenging and appropriate expectations of learning and performance for students.	3.3853	3.1697**	3.3247	3.1875	3.0615**
		(-4.7035)	(-1.3069)	(-1.5462)	(-5.7973)
4. Help all students achieve high academic standards.	3.3482	3.1431**	3.2696	2.9583**	2.9596**
		(-4.2850)	(-1.6054)	(-2.8448)	(-6.6585)
5. Develop curriculum that builds on students' experiences, interests, and abilities.	3.4326	3.0892**	3.346	3.0000**	2.8576**
		(-7.0448)	(-1.6927)	(-3.0873)	(-9.6352)
6. Evaluate curriculum materials for their usefulness and appropriateness for your students.	3.3676	3.0964**	3.3227	3.1042	2.9231**
		(-5.5526)	(-0.8874)	(-1.9072)	(-7.4789)
7. Create discipline-based and interdisciplinary curriculum.	3.2822	2.9139**	3.156*	2.9792*	2.7515**
		(-6.8850)	(-2.2675)	(-1.9694)	(-8.0715)
8. Identify and obtain materials and use community resources to create a multicultural curriculum.	3.1508	2.8936**	3.012*	2.8085*	2.7422**
		(-4.7781)	(-2.5185)	(-2.2151)	(-6.2713)
9. Use instructional strategies that promote active student learning.	3.5677	3.2159**	3.4499*	3.1458**	3.0433**
		(-7.4290)	(-2.3982)	(-3.1452)	(-9.0748)
10. Relate classroom learning to the real world.	3.8048	3.7158	3.7673	3.5745	3.5895**
		(-1.9144)	(-0.7750)	(-1.7149)	(-3.7450)
11. Understand how students' social, emotional, physical, and cognitive development influences learning.	3.708	3.3550**	3.6157	3.5833	3.1963**
		(-6.5358)	(-1.6661)	(-0.7821)	(-7.7402)
12. Understand how students' family and cultural backgrounds may influence learning.	3.6495	3.5278*	3.5544	3.4042	3.3746*
		(-2.4252)	(-1.8003)	(-1.6658)	(-4.4142)
13. Identify and address special learning needs and/or difficulties.	3.1032	2.9329**	3.0522	2.6383**	2.7214**
		(-3.1470)	(-0.9010)	(-2.9174)	(-5.6845)
14. Teach in ways that support new English language learners.	2.8625	2.8162	2.832	2.8085	2.5813**
		(-0.8131)	(-0.5146)	(-0.3256)	(-4.0641)
15. Choose teaching strategies for different instructional purposes.	3.3564	3.0575**	3.262*	3.0833*	2.8426**
		(-6.3688)	(-1.9725)	(-2.0850)	(-9.0049)
16. Choose teaching strategies to meet different student needs.	3.2816	3.0118**	3.2204	3.0000*	2.8462**
		(-5.7381)	(-1.2567)	(-2.0937)	(-7.4926)
17. Help students become self-motivated and self-directed.	3.3982	3.2293**	3.33	3.0000**	3.1000**
		(-3.5249)	(-1.3503)	(-2.8196)	(-5.0041)
18. Develop a classroom environment that promotes social development and group responsibility.	3.5926	3.2605**	3.4498**	3.0625**	3.1759**
		(-6.5751)	(-2.7082)	(-3.6422)	(-6.6824)
19. Develop students' questioning and discussion skills.	3.4881	3.2391**	3.4769	3.1702*	3.1579**

## APPENDIX Continued

	<i>Teachers With 3 or Fewer Years of Experience; Teachers With and Without Program Preparation</i>				
	<i>Program Prepared Mean (n = 1,307)</i>	<i>Non- Program Prepared Mean<sup>a</sup> (n = 597)</i>	<i>Transcript Review Mean (n = 502)</i>	<i>Alternate Route Mean<sup>b</sup> (n = 48)</i>	<i>No Prior Experience Mean (n = 326)</i>
<i>Survey Section B: Professional Knowledge and Skills</i>					
20. Engage students in cooperative group work as well as independent learning.	3.5866	3.1757**	3.4028**	3.0208**	3.0124**
		(-7.8504)	(-3.3920)	(-3.7594)	(8.8276)
21. Use effective verbal and nonverbal communication strategies to guide student learning and behavior.	3.5235	3.3193**	3.4659	3.3125	3.2112**
		(-4.3140)	(-1.1761)	(-1.5618)	(-5.3838)
22. Use questions to stimulate different kinds of student learning.	3.5492	3.3793**	3.5475	3.4468	3.2477**
		(-3.7147)	(-0.0357)	(-0.7733)	(-5.3139)
23. Help students learn to think critically and solve problems.	3.4417	3.3210**	3.496	3.2766	3.1975**
		(-2.6405)	(-1.1256)	(-1.2411)	(-4.3319)
24. Encourage students to see, question, and interpret ideas from diverse perspectives.	3.3834	3.2547**	3.3682	3.2609	3.1049**
		(-2.6744)	(-0.3055)	(-0.8788)	(-4.7859)
25. Plan instruction by using knowledge of learning subject matter, curriculum, and student development.	3.4822	3.1846**	3.4516	3.0652**	3.0185**
		(-5.9890)	(-0.5894)	(-2.8561)	(-7.4760)
26. Understand how factors in the students' environment outside of school may influence their life and learning.	3.6579	3.5398*	3.5425*	3.5532	3.382**
		(-2.3016)	(-2.1470)	(-0.6986)	(-4.3318)
27. Work with parents and families to better understand students and to support their learning.	3.2348	3.0705**	3.142	3.0213	2.9108**
		(-3.0822)	(-1.6628)	(-1.3574)	(-4.9412)
28. Use a variety of assessments (e.g., observation, portfolios, tests, performance tasks, anecdotal records) to determine student strengths, needs, and programs.	3.1389	2.7172**	3.002*	2.8333*	2.6123**
		(-8.2296)	(-2.5103)	(-2.0237)	(-8.1210)
29. Help students learn how to assess their own learning.	2.788	2.5572**	2.7706	2.4792*	2.4489**
		(-4.8737)	(-0.3492)	(-2.2202)	(-5.6947)
30. Evaluate and reflect on your practice to improve instruction.	3.5238	3.3238**	3.4194*	3.3958	3.2092**
		(-4.3300)	(-2.1964)	(-0.9748)	(-5.5051)
31. Resolve interpersonal conflict in the classroom.	3.2213	3.1734	3.1914	3.0208	3.0586**
		(-0.9452)	(-0.5609)	(-1.3662)	(-2.5923)
32. Maintain an orderly, purposeful learning environment.	3.4466	3.2869**	3.3427	3.2500	3.146**
		(-3.1176)	(-1.9483)	(-1.3300)	(-4.7701)
33. Plan and solve problems with colleagues.	3.5096	3.4027*	3.4148	3.1042**	3.3447**
		(-2.0711)	(-1.7877)	(-2.7309)	(-2.6213)
34. Assume leadership responsibilities in your school.	3.1648	3.1315	3.1215	2.8958	2.9814**
		(-0.5929)	(-0.7452)	(-1.6382)	(-2.6493)
How well prepared did you feel to use technology to do the following:					
35. Increase student interest and learning.	2.9573	3.0566	2.9657	2.7826	2.9654
		(1.7052)	(0.1364)	(-1.0155)	(-0.1114)
36. Support research and analysis (i.e., accessing the Internet).	2.5892	2.6569	2.5573	2.5217	2.6057
		(1.0523)	(-0.4775)	(-0.3566)	(0.2055)
37. Assess and track student achievement.	2.6901	2.7969	2.7304	2.7174	2.6719
		(1.8315)	(0.6555)	(0.1583)	(-0.2522)
38. Communicate with others (in school, city, state, country, and world).	2.7185	2.8990**	2.7951	2.8478	2.8531
		(2.8559)	(-1.1633)	(0.7012)	(1.7285)
39. Enhance group collaboration and teamwork.	2.7681	2.8805	2.7899	2.7391	2.7834
		(1.8647)	(-0.3447)	(-0.1641)	(0.2057)
40. Overall, how well prepared did you feel when you first started teaching?	3.1543	2.8117**	3.0466*	2.6809**	2.6719**
		(-7.0540)	(-2.1387)	(-3.3968)	(-7.9559)

NOTE: Numbers in parentheses are standard deviations. All *t* tests were conducted in relation to mean values for program-prepared recruits.

a. Non-program prepared includes those without formal preservice program preparation. It does not include teachers certified through transcript review.

Alternate route includes Teach for America, Teacher Opportunity Corps, and Peace Corps.

\**p* < .05. \*\**p* < .01.

## ACKNOWLEDGMENT

The authors are grateful for the assistance of Heidi Fischer in assembling these data.

## NOTES

1. This represents a response rate of about 33%. The personnel list used for mailing included all of the beginning teachers who had been hired in the past 4 years. Although new teachers were added as they were hired, the list had not been updated in the previous 4 years to remove the names of those who had left the system, so many of the names were no longer appropriate. Based on Board of Education estimates, at least 35% of beginning teachers would normally have left the system in the first 4 years of service. Thus, we estimate that at least 7,000 of the 20,000 individuals to whom surveys were mailed were no longer teaching in the system. Teachers who had left the system were instructed not to return the survey. Those who did were excluded from the sample. In addition, because of list inaccuracies and system delivery difficulties, about 4,000 additional surveys could not be delivered to the intended addressees and were returned undelivered. Thus, the denominator for calculating the response rate is approximately 9,000. The usable surveys returned were representative of the demographic characteristics of New York teachers, but they underrepresented 5 of the 32 community school districts in the city. The districts that were underrepresented were on Staten Island and in Queens, areas that serve more affluent students on average than other districts.

2. Silvernail (1998) collapsed the Likert scale ratings to a 4-point scale on which 2 represented *adequately prepared*.

3. The 7 programs were Alverno College in Milwaukee, Wisconsin; Bank Street College in New York City; Trinity University in San Antonio, Texas; University of California at Berkeley; University of Southern Maine; University of Virginia; and Wheelock College in Boston, Massachusetts. The findings are reported in Darling-Hammond (2000b).

4. For this analysis, we excluded transcript review recruits because they had completed the equivalent of a program either in an out-of-state program or through more than one site.

5. This group excluded participants in the alternatives listed above—Peace Corps, Teach for America, and Teacher Opportunity Corps—all of whom have at least a few weeks of classroom experience prior to hiring.

6. The survey listed 100 individual teacher education institutions in New York State, of which 71 were represented in respondent replies. Institutions from outside of New York State were not listed individually.

7. The program-by-program results of these analyses are presented in a longer version of this article published by the National Commission on Teaching and America's Future and retrievable at [www.nctaf.org](http://www.nctaf.org).

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