

Who Stays in Teaching and Why: A Review of the Literature on Teacher Retention



**THE PROJECT ON
THE NEXT GENERATION
OF TEACHERS**

Harvard Graduate
School of Education

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WHO STAYS IN TEACHING AND WHY:

A REVIEW OF THE LITERATURE
ON TEACHER RETENTION

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About the Project on the Next Generation of Teachers

The Project on the Next Generation of Teachers, established in 1999 at the Harvard Graduate School of Education, is a research project addressing critical questions regarding the future of the nation's teaching force. Through a variety of qualitative and quantitative studies, Project researchers examine issues related to attracting, supporting, and retaining quality teachers in U.S. public schools. Recently, they published *Finders and Keepers: Helping New Teachers Survive and Thrive in Our Schools* (Johnson and the Project on the Next Generation of Teachers. San Francisco: Jossey-Bass, 2004). Articles and research papers can be found on the Project web site: www.gse.harvard.edu/~ngt. The Project on the Next Generation of teachers, which is directed by Susan Moore Johnson, the Pforzheimer Professor of Teaching and Learning, has received funding from the Spencer Foundation, the Russell Sage Foundation, the William and Flora Hewlett Foundation, and NRTA: *AARP's Educator Community* (formerly known as the National Retired Teachers Association.)

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— INTRODUCTION —

Since 2000, educational policymakers and practitioners have been guided by a common goal—substantially increasing student learning in all schools. States have adopted standards for student performance and accountability measures including public reports of school-by-school results on standardized tests. Increasingly, data on student outcomes reveal differences between classrooms within the same school, reinforcing earlier evidence that student learning is substantially affected by the quality of teachers' instruction. Thus, there are increasing efforts to provide each student with a skilled and committed teacher and to support each teacher on the job.

However, these goals present enormous challenges. Half the current teaching force is projected to retire between 2000 and 2010. Meanwhile, there is evidence that teaching has become a less attractive career than it was thirty years ago among both prospective and new teachers. Moreover, turnover rates among new teachers are rapidly increasing, particularly in low-income schools. Thus, there is a need not only to recruit talented candidates to teaching, but also to support and, thus, retain them once they have entered the classroom.

Factors That Influence Teacher Retention

Research suggests that teachers' decisions to remain in their schools and in teaching are influenced by a combination of the intrinsic and extrinsic rewards that they receive in their work. Intrinsic rewards include such things as the pleasure of being with children, the exhilaration of contributing to students' learning, the enjoyment of teaching subject matter one loves, or the chance to develop new skills and exercise expanded influence on the job. Extrinsic rewards would include salary, benefits, and bonuses, public recognition for one's accomplishments, or being chosen to take on special responsibilities. However, intrinsic and extrinsic rewards sometimes interact. For example, pay, is seldom an important incentive that draws people into teaching, but it can take on increased importance when working conditions—e.g., lack of supplies or a chaotic school environment—make it difficult or impossible to succeed with students.

In addition to these intrinsic and extrinsic rewards, there are certain conditions of work that make the day-to-day experience of teaching pleasant or at least tolerable, such as having a classroom that is well lighted, effectively ventilated, and temperature-controlled or knowing that the parking lot is safe enough to allow working late. Some of these positive working conditions may compensate for negative conditions, such as lack of materials and supplies, cynical colleagues, or very large classes. In some situations, the negative may outweigh the positive, leading teachers to leave their schools or teaching.

Of course, individual teachers have different expectations and priorities for their work and workplace; what satisfies one may be insufficient for another. For example, a new teacher may be

more concerned than a veteran about not having a curriculum. One teacher may be exasperated about the shabby condition of the school building while her colleague barely notices the disrepair. Having the chance to exercise influence in the school may be essential for one teacher's ongoing engagement in her job, while her peer in the classroom next door may care far more about having access to good professional development. Pay matters more to the teacher who does not have the down payment for a house she wants to buy than it does to another who entered teaching at mid-career and has a military pension to supplement his salary. Therefore, it is impossible to specify a simple set of elements that will satisfy all teachers, since people are different and many features of the workplace are interdependent. In order to meet the expectations of a wide array of individuals and enable them to find satisfaction in their work, all elements require attention.

Being effective in the classroom is of great importance to all teachers. If working conditions make it impossible for them to achieve the intrinsic rewards for which they entered teaching, they are likely to leave the classroom or withdraw psychologically. Research has shown that there are important links between teachers' sense of being effective, their satisfaction with their work, and retention. An unrealistically demanding workload, a lack of textbooks, or isolation from one's peers may compromise a teacher's opportunity to teach well and, thus, succeed with students. As a result, satisfaction decreases, possibly leading the teacher to change schools or leave teaching. Therefore, broadly speaking, teacher retention can be affected positively or negatively by factors that influence a teacher's sense of efficacy in the classroom and satisfaction on the job.

Although improving rates of retention among teachers is currently a high priority for many school districts, retention, in and of itself, is not a worthy goal. Students are not served well when a district retains teachers without regard to quality. Little can be achieved (and much might be lost) when a district succeeds in reducing teacher turnover if some of those teachers are incompetent, mediocre, disengaged, or burnt out. Instead, student learning is the goal, and schools must seek to retain teachers who demonstrate that they are skilled and effective in the classroom, are committed to student learning, and are ready and able to contribute to the improvement of their school.

The Scope Of This Review

This literature review focuses on the issue of teacher retention in U.S. public schools. It considers research that can provide insight into problems of teacher shortage and turnover, offer a comprehensive explanation for why some able teachers leave the classroom prematurely, and suggest current strategies for increasing retention rates. In conducting this review, we have taken a broad perspective on what makes teaching attractive, engaging, and rewarding work. Surveys of teachers conducted by an array of individuals and organizations over a number of years reveal that many factors of the teachers' workplace influence their decisions about whether to enter and remain in teaching.

As we consider it here, the teachers' workplace is conceptually very broad, including the more obvious elements such as pay, the condition of a school facility, and the teacher's assigned workload, as well as factors that may seem at first to be less relevant to retention, such as how well individuals were prepared to teach or whether they have opportunities to exercise influence beyond their classroom. Given this array of factors, school officials and policymakers cannot choose what they believe to be an essential lever—for example, increasing salaries or repairing a facility—and expect to substantially influence teachers' career decisions. From the perspective of teachers, these factors are all important.

Moreover, they are interdependent. How a teacher prepares to teach may determine whether she copes effectively during her first years in the classroom. How a teacher is hired can influence how much collegial support he will find on entry. A district's salary scale may determine whether a teacher must take a second job in the evenings or can attend graduate school to acquire skills that the school needs. Whether her classroom has adequate equipment and supplies may determine whether a teacher can use a new curriculum. The difficulty of a new teacher's course assignment can determine whether she has time to collaborate with colleagues. How a principal makes decisions—unilaterally or involving the staff—may decide whether students throughout the school benefit from a teacher's ideas and talents. Thus, a complex set of factors must be taken into account in any effort to support and retain good teachers.

The studies that are reviewed

Given the many inter-related factors that influence the retention of teachers, we have chosen to review literature that broadly informs policy and practice. As there is no established body of literature on teacher retention, the topics and studies that we have chosen are intended both to draw together information on the issue and to stake out the territory that warrants further investigation.

We have chosen to include in this review qualitative and quantitative studies that inform some important aspect of teacher retention. For the most part, we have chosen relatively recent research that examines U.S. public education. However, older studies that have continuing importance and non-U.S. studies that are relevant to the U.S. context are included as well. We have sought to be even-handed in the extent of attention given each topic, although available research is unevenly distributed and there are many studies about certain subjects, such as pay, and surprisingly few about others, such as hiring. Although some of the research we review focuses directly on teachers and their workplace, many other studies were conceived and conducted to address different topics, such as school improvement or student support, and thus we must infer what their findings imply for teacher retention.

Over the past five years at the Project on the Next Generation of Teachers, we have studied ways to attract, support, and retain new teachers. One longitudinal study following 50 new teachers' experiences over their first four years helped us understand the breadth of teachers' concerns and the interdependence of many elements that influence teachers' career decisions. We have conducted qualitative and quantitative studies about a range of topics—teachers' attitudes toward the teaching career; the experiences of new teachers with colleagues; the role of pay and incentives; new teachers' experiences with hiring; alternative certification programs; signing bonuses; mentoring and induction programs. In choosing to include our own work on the various topics, we were not seeking to feature ourselves to the exclusion of others. In fact, we worked hard to identify studies from many sources that could inform understanding of teacher retention.

Often, however, we found that an important topic had received little empirical attention. In such a case, we include an account of our research and encourage additional inquiry about the topic. We recognize the tension that inevitably exists in setting out to review research about a topic that we have studied and written about extensively. Our goal here is not to claim that we have the answers or even all the questions, but to encourage further study and analysis that will ultimately lead to deeper understanding and better policy and practice in support of student learning.

The contents of this report

Each section of this report addresses a topic that is relevant to the challenge of retaining a strong and effective teaching force. In Section One, we define key terms and present background on the issue, explaining the reasons for teacher shortages and examining the causes, effects, and extent of turnover, including its uneven impact on certain schools and regions and its costs for districts and students. In Section Two, we review research on various approaches to teacher preparation—both traditional and alternative—and consider how pre-service preparation might affect teachers' sense of competence and efficacy. Section Three, which examines hiring, reviews the small number of studies that examine how hiring practices are carried out and how they can affect both a teacher's satisfaction and a school's success. In Section Four, we review research about teachers' compensation—salaries, incentives, and benefits—and discuss what is known about the role of pay in teachers' performance and career decisions. Section Five explores three elements of working conditions, all of which affect teachers' capacity to succeed in the classroom—facilities and equipment; workload and assignments; curriculum and assessments. The broad topic of school community is addressed in Section Six. It first reviews studies that illuminate teachers' experiences with colleagues, school improvement, and the principals' leadership, explaining the relationships among them. Then it proceeds to consider the role that students, themselves, play in teachers' sense of satisfaction and ultimate retention and considers how parents can be engaged by schools to support teachers' success with students. Finally, Section Seven first examines the stages of the teaching career, with attention to the kinds of support and opportunity that teachers seek at particular stages. It then explores research about traditional and differentiated career models. In a Conclusion, we offer general recommendations for improving research on retention.

In each section of the report, we suggest future directions for research about each topic. In doing so, we hope to establish the importance of conducting further research on the topic and provoking interest in such efforts. With our specific recommendations, we intend to illustrate possibilities, not to establish priorities. There are many other worthy examples that we and others might suggest. So that various sections of this report can be read separately, we have included the relevant references at the end of each. However, for key studies and reports, we have prepared annotated bibliographic entries, which are grouped at the end of the report.

Although this review considers a wide array of topics, it does not address some important ones that also influence teacher quality and, thus, student learning. For example, there are large issues about the composition of the workforce that we judged to be beyond the bounds of this literature review. Who enters teaching and why? Why is today's teaching force not more diverse by race, social class and gender? What role do race and social class play in the distribution of well-qualified teachers? How do teacher unions and local contracts influence teacher hiring and assignment practices? What role do unions play in the development of innovative compensation plans or peer support and review? How do supervision and evaluation practices affect a school's or district's capacity to strengthen its faculty? Because this review focuses primarily on the career choices that teachers make and the conditions of work that influence their choices, we decided not to include such questions. In defining the limits of our review, however, we do not mean to underestimate the importance of such issues.

1

— BACKGROUND —

In recent years, nearly 450,000 teachers—one-sixth of the teacher workforce—have left American schools annually. Some have transferred to other schools or districts and others have left the teaching profession altogether. It is clear that turnover, whether due to migration or a complete exit from the profession, occurs on a grand scale among American schools. It is also clear that some schools—namely, those that serve low-income students and students of color—experience turnover disproportionately. What is the impact of this turnover? What are the costs of turnover shouldered by the schools these teachers leave? Framed differently, among those schools that retain high portions of their faculty, what are the benefits? As stated in the previous chapter, the purpose of this review is to bring research to bear on such questions, to provide sensible recommendations for practitioners and policy makers, and to identify promising new directions for research regarding teacher retention and turnover.

The Challenge of Teacher Turnover and Shortage

On the face of it, teacher turnover and shortage may appear relatively benign. Today's teaching force is the largest in history, and in recent years over 150,000 new teachers have graduated from preparation programs annually (National Commission on Teaching and America's Future, 2003; National Education Association, 2003). Although teachers have moved out of their positions in large numbers (456,100 in 2000-2001) more than enough replacements (534,861 in 2000-2001) have moved into new classrooms (Luekens, Lyter, Fox, & Chandler, 2004). While at this aggregate level the state of affairs appears relatively innocuous, a closer, more nuanced look at turnover and shortage reveals a troubling picture.

In recent years, demand for teachers has grown. Increased enrollment has been a primary contributor to the expanded need for teachers. This has been particularly acute in regions of the country, such as the Southwest, that are experiencing elevated birthrates and immigration. Additionally, policy mandates, such as class size reduction, have expanded schools' need for teachers. California felt the aftershock of such a policy change in the late 1990s; Florida recently passed comparable legislation and is sure to experience amplified demand.

Simultaneously, research suggests that teacher supply has not kept pace with demand in all schools, districts, and subject areas. This is due in part to the non-entry of certified teachers. A recent study estimates that approximately half as many new graduates of teacher education programs entered teaching jobs in 1999 as graduated from such programs in the same year (National Commission on Teaching and America's Future, 2003). Although this non-entry may

be explained in part by delays caused by licensing requirements or further teacher training (Henke, Choy, Chen, Geis, & Alt, 1997), the fact remains that large numbers of prepared teachers never enter classrooms.

Decreased supply is also due to turnover and, more specifically, to attrition and mobility. As the teacher workforce ages, large numbers of veteran teachers are leaving the profession. Surveys of retired teachers suggest that early retirement incentives may play a role in this large-scale departure (Luekens et al., 2004). Yet recent estimates suggest that only about 12 percent of today's turnover is due to retirement (Ingersoll, 2001). Most of turnover is thus due to causes other than retirement.

Teacher supply, moreover, is not evenly distributed across schools, districts, regions, and subject or grade assignments. A suburban district may have a surplus of teachers while its urban neighbor five miles away struggles to fill job openings. Similarly, in the same district, a school with a good reputation may draw hundreds of applications for one position while a school identified as "failing" may generate little interest among teacher candidates. Schools may have no difficulty finding qualified candidates in history or English, but encounter problems in finding similarly qualified math teachers. Thus, while some communities or regions of the country experience shortage regularly, others operate with relatively full staffing and without the distractions and cumulative costs of persistent shortages.

Teacher Turnover Today

DEFINITION OF TERMS.

In the literature on turnover and retention, the general term turnover is used as an umbrella term to describe "the departure of teachers from their teaching jobs" (Ingersoll, 2001, p. 500). However, the policy implications are different when large numbers of teachers leave their jobs for other teaching jobs as opposed to when they leave the teaching profession altogether. To reflect this important difference, researchers often use the term attrition to refer to the phenomenon of teachers leaving the profession, and the term migration to describe the transfer of teachers from one school to another (Ingersoll, 2001, p. 503).

For this review, we follow Ingersoll's lead in defining turnover as the departure of teachers from their teaching jobs in schools. These individuals may be leaving teaching for good or they may be moving across the district to another school. However, from the perspective of their school, this distinction matters little, since the school must deal with the loss regardless of whether the teacher moves to another school or out of the profession altogether (Ingersoll, 2001). In this review and elsewhere (see Johnson & Birkeland, 2003; Johnson et al., 2004; Luekens et al., 2004) researchers label those who continue to teach in the same school from one year to the next "stayers," those who migrate "movers," and those who leave teaching altogether "leavers."

A BROAD PICTURE OF TURNOVER TODAY.

Currently there is relatively high turnover of teachers in American schools. In 2000-2001, the last year for which data are available, 221,400, or 7.4 percent of public school teachers left the teaching profession, and 231,000, or 7.7 percent moved to a different school (Luekens et al., 2004). Thus, as shown in Table 1, in that year 15.1 percent of American public school teachers left their schools. Recent turnover rates are higher than in the prior decade or so; NCES reports that teacher turnover

TABLE 1

<i>Public School Stayers, Movers, and Leavers by Selected School and Teacher Characteristics, 1999-2000 to 2000-01</i>				
School or Teacher Characteristic	Total Number	Percentage of Stayers	Percentage of Movers	Percentage of Leavers
Total	2,994,600	84.9	7.7	7.4
Age				
Under 30	494,400	74.7	15.7	9.6
30-39	708,300	84.9	8.6	6.5
40-49	913,600	88.7	6.7	4.6
50 or more	880,400	86.8	3.6	9.8
Gender				
Male	731,300	86.7	6.0	7.4
Female	2,263,300	84.3	8.3	7.4
Race/Ethnicity				
White, non-Hispanic	2,540,400	85.0	7.6	7.5
American Indian or Alaska Native	22,700	87.9	4.7	7.5
Asian or Pacific Islander	52,800	81.7	16.2	2.1
Black, non-Hispanic	217,900	84.3	8.3	7.4
Hispanic	160,900	85.4	7.1	7.5
Main Assignment Field				
Arts and music	192,900	80.6	11.4	8.1
English/language arts	304,700	86.3	7.4	6.3
General elementary	1,015,800	84.5	8.3	7.2
Mathematics	211,400	84.6	6.4	9.0
Science	184,200	85.9	6.7	7.3
Social studies	155,000	86.5	4.7	8.8
Special education	324,800	81.1	10.2	8.7
Other	605,800	87.6	6.0	6.4
Community Type				
Central city	806,300	84.8	8.1	7.1
Urban fringe/large town	1,511,900	84.5	7.8	7.8
Rural/small town	676,400	86.0	7.2	6.8
Minority Enrollment				
Less than 10 percent	1,010,300	86.5	6.6	6.9
10-34 percent	838,100	85.3	7.7	7.0
35 percent or more	1,146,300	83.2	8.7	8.1

Source: Luekens, Lyter, Fox, & Chandler (2004). *Teacher attrition and mobility: Results from the teacher follow-up survey, 2000-01*. Washington, DC: National Center for Education Statistics.

in the late 1980s and early-to-mid 1990s was between 12.4 percent and 13.5 percent (Luekens et al., 2004).

As indicated above, in public schools migration accounts for at least half of annual turnover (Ingersoll, 2001; Luekens et al., 2004). Furthermore, Ingersoll (2001) reports that turnover rates for all U.S. employees in the 1990s hovered around 11 percent; therefore, teaching seems to be a profession characterized by relatively, but not extraordinarily, high turnover.

Finally, we must keep in mind that some leavers retire at the end of long careers, while others depart long before their pensions accrue. Today, many teachers are poised to retire within the next few years (Young, 2003). Retiring teachers comprise a small portion of leavers, however. In his analysis of 1991 data, Ingersoll found that only 12.3 percent of annual turnover from schools and 27 percent of all departures from the teaching profession were due to retirement (2001). It is the 87 percent of teachers who leave their schools for reasons other than retirement who are the focus of this review. These are the people whose departure creates high costs for American schools and communities today and whose decision to leave might be influenced by changes in policy and practice.

WHO LEAVES?

Broad trends exist regarding which teachers tend to leave their schools or the profession. Teachers' age is one of the most reliable predictors of departure from one's job, with a u-shaped distribution in which younger and older teachers are more likely to leave (Boe, Bobbitt, & Cook, 1997; Grissmer & Kirby, 1993; Grissmer & Kirby, 1997; Hanushek, Kain, & Rivkin, 2004; Ingersoll, 2001; Murnane, Singer, & Willett, 1988). Luekens et al. (2004) found evidence of this pattern in their recent analysis of NCES data. As indicated above in Table 1, Luekens and colleagues found that teachers under thirty years of age were least likely to remain in their schools from the 1999 to 2000. Similarly, there is a strong relationship between turnover and experience, with the least and most experienced teachers most likely to depart their schools (Hanushek et al., 2004; Murnane, Singer, Willett, Kemple, & Olsen, 1991).

Beyond age and experience, descriptive statistics reported by Luekens et al. (2004) suggest most clearly that stayers are more likely to be male than female and teach general education rather than special education (see Table 1). Considering race and ethnicity, the researchers do not find large differences in teachers' likelihood of staying. However, Luekens and colleagues did not run inferential tests to determine whether differences between groups were significant. In an earlier analysis that included inferential tests, Ingersoll (2001) found that males were slightly more likely than females to stay, general education teachers were more likely than special education teachers to stay, and minority teachers were slightly more likely than white teachers to stay. However, only the general education effect was significant¹ (Ingersoll, 2001).

Ingersoll's finding on gender is echoed in some studies (Stinebrickner, 2001) but contested or complicated by others (see, e.g. Guarino, Santibañez, Daley, & Brewer, 2004). For instance, Murnane et al. (1991), who conducted research in North Carolina and Michigan, found that female teachers over the age of thirty were more likely to stay than younger females or male teachers of any

¹Unless otherwise noted, all relationships reported in this document are statistically significant at the .05 level or below.

age. By contrast, younger females were less likely to stay than older females or their male counterparts, regardless of age.

Ingersoll's findings on race and ethnicity are generally supported by other research. Some studies corroborate his finding that minority teachers in general are less likely to leave teaching (Murnane et al., 1991). Others find that specific minority sub-groups, such as Latinos, as documented by Kirby, Berends, and Naftel (1999), are less likely than white teachers to depart their schools. Regarding mobility, Hanushek, Kain, and Rivkin (2004) identify a pattern in Texas in which white teachers move to schools serving lower proportions of children of color and African American teachers move to schools serving higher proportions of minority students.

Ingersoll's detection of a higher likelihood of turnover for special education teachers is substantiated by prior research (see Boe et al., 1997). Although Ingersoll did not find that math or science teachers are more likely to leave schools, this pattern has been identified in other studies (Murnane et al., 1991; Kirby, Berends, & Naftel, 1999).

WHAT KINDS OF SCHOOLS DO TEACHERS LEAVE BEHIND?

Broad patterns also exist regarding the schools that experience high turnover. Among public schools in 1990-91, high-poverty schools experienced higher turnover rates (15.2 percent) on average than did low-poverty schools (10.5 percent) (Ingersoll, 2001).

Similar patterns exist regarding schools' minority enrollment. As shown in Table 1 above, in 2000-2001, 16.8 percent of teachers left schools that enrolled more than 35 percent minority students; 14.7 percent of teachers left schools with minority enrollments between 10-34 percent; and 13.5 percent of teachers left schools with a less than 10 percent minority student body (Luekens et al., 2004). Hanushek, Kain, and Rivkin (2004) find that high-minority schools in Texas experienced higher levels of turnover than those serving lower proportions of minority students.

Hanushek, Kain, and Rivkin (2004) further find that schools with bottom-quartile average scores on the Texas Assessment of Academic Skills (TAAS) scores had annual attrition rates of almost 20 percent, while those with average scores in the top quartile had turnover rates of only 15 percent. Together, these studies suggest that students at lower-performing, lower-income, higher-minority schools are more likely to have inconsistent staffing from year to year and to be taught by a greater number of inexperienced teachers than their counterparts are at higher-achieving, more affluent, and predominantly white schools.

Although conventional wisdom often suggests that teacher turnover is higher in urban schools, analyses of large-scale datasets do not consistently support this conclusion. Ingersoll found that urban turnover rates were significantly higher than rural turnover rates, but that urban and suburban turnover rates did not differ by a significant margin (Ingersoll, 2001). Between 1999-2000 and 2000-2001, the differences between public school turnover rates in urban and non-urban schools appear even less pronounced. As shown in Table 1, in that year, turnover was slightly lower in urban ("central city") schools than in suburban ("urban fringe/large town") schools, with rates of 15.2 percent and 15.5 percent, respectively (Luekens et al., 2004). In the same year, rural schools had a turnover rate of 14 percent. However, these findings may depend on the definition of the terms "urban" and "suburban." In fact, NCES draws on Census data to define these terms and often includes mid-sized, central cities in its "suburban" category. These cities may register poverty and

minority rates similar to larger, central cities and may struggle with low student achievement. For this reason, such comparisons among urban, suburban, and rural turnover rates should be treated with caution.

A recent analysis also calls into question conventional wisdom regarding school size and teacher retention. Ingersoll (2001) finds almost no difference in turnover rates between large and small public schools (11.2 percent and 11.8 percent, respectively), except that more than half of the turnover at large schools was due to attrition, while more than half of the turnover at small schools was due to migration. This suggests that, on average, small schools are not more successful at retaining teachers, contrary to the belief that many people hold.

Why does retention matter?

We know that certain kinds of people are more likely to leave their teaching jobs and certain schools are more likely lose teachers. But do these distinctions matter and, if so, how? Increasingly, researchers, practitioners, and policy makers have focused their attention on retention (Guarino et al., 2004; Ingersoll, 2001; Johnson & Birkeland, 2003; National Commission on Teaching and America's Future, 2003). One major reason is that research has confirmed, with increased methodological rigor, that teacher quality makes a difference in student learning (Goldhaber & Anthony, 2004; Rivkin, Hanushek, & Kain, 2002; Rockoff, 2003; Rowan, Correnti, & Miller, 2002; Sanders & Horn, 1998; Sanders & Rivers, 1996; Wright, Horn, & Sanders, 1997). Currently, researchers generally concur with Sanders and Horn's (1998) suggestion that the teacher may be the "most important factor in the academic growth of students" (p. 3).

Although good teachers positively influence student learning, bad teachers may impede student progress. As such, many researchers (e.g., Ballou & Podgursky, 1997; Guarino et al., 2004; Hanushek et al., 2004) and practitioners make the point that 100 percent retention is not desirable because this implies poor-quality teachers should be retained. Indeed, beyond the necessity of firing weak teachers, from an organizational perspective, a small degree of annual turnover is necessary and healthy. This infuses the organization with fresh ideas and insights and allows teachers who realize the school does not provide what they seek in a workplace to leave amicably. Some school systems have embraced this perspective. For example, in Rochester and Toledo, mentor teachers supervise and evaluate new and experienced teachers, often counseling ineffective teachers out of the system (Hertling, 1999; Koppich, Asher, & Kerchner, 2002). Clearly, ineffective teachers should not be retained. Although we would have preferred to review only literature that addresses the retention of effective teachers, research on retention rarely addresses the issue of teacher quality, and instead surveys turnover in the aggregate. We review this research here, with the hope that future research on teacher turnover will incorporate teacher quality as a more explicit focus of its research design and implications.

Few studies have investigated the expenditures associated with teacher turnover, yet it levies at least three different types of costs. First, turnover carries direct instructional costs for the students who would have been taught by the departing teacher. Second, turnover exacts financial costs on the school and/or district exited. Third, a teacher's exit presents a potential organizational cost in that turnover may impede its ability to maintain consistent procedures and practices. Each will be discussed below.

INSTRUCTIONAL COSTS.

Several instructional costs accompany teacher turnover. Setting aside the issue of teacher quality for now, whenever teachers leave a school, they leave some educational disturbance in their wake.

Schools tend to lose inexperienced teachers, particularly those with fewer than five years of experience (Ingersoll & Smith, 2003). Thus, schools that lose new teachers and replace them with other novices ensure that instruction, on average, will be persistently weak, since there is general consensus that teaching effectiveness increases within at least the first few years of a teacher's career (Hanushek et al., 2004; Murnane & Phillips, 1981; Rockoff, 2003). If teachers repeatedly leave a school before becoming competent in their practice, students will be taught by a string of teachers who are, on average, less effective than more experienced teachers.

Additionally, there is some evidence that departing teachers, on average, may be more effective than those who remain. Murnane and Olsen's (1990) study of turnover and retention rates in North Carolina found that a high score on the National Teachers Exam was associated with a short initial stay in the teaching profession, and that teachers with the highest test scores were the least responsive to salary increases (Murnane & Olsen, 1990). In other words, the high scoring teachers required a much higher salary than lower scorers to remain in the profession. Similarly, Stinebrickner (2001) found that teachers with higher SAT math scores had shorter durations in teaching and Lankford, Loeb, and Wyckoff (2002) found that higher-achieving teachers (based on college selectivity and certification exam performance) were more likely than their lower-achieving colleagues to leave their schools or the profession. In another study, Podgursky, Monroe, and Watson (2004) tracked six cohorts of Missouri teachers (those entering between 1990-91 and 1995-96) through the 1999-2000 school year and found that high ACT scores and graduation from a more selective college were associated with significantly greater likelihood of teacher attrition during those years. Moreover, the authors found that high-achieving math and science teachers were significantly more likely to depart than their high-achieving colleagues in other subject areas. Despite this evidence that high-aptitude teachers are the most likely to leave the profession, some researchers dispute the toll of turnover on teacher quality. Hanushek, Rivkin, and Kain (1998) conclude that the average quality (measured by student achievement) of new teachers who left their schools did not differ markedly from the quality of those who remained.

FINANCIAL COSTS.

There are also financial costs that accompany teacher turnover, though approaches to calculating these costs vary widely. Some observe that high turnover lowers average teacher experience levels and thereby actually reduces school and district salary expenditures (Grissmer & Kirby, 1997). While this argument appears sound, it does not include the costs of recruiting, hiring, and training replacements for those who left, which various studies find to be considerable.

Assuming that a teacher will not return to the school or district from which he or she departs, the financial cost is comprised of the expenses required to recruit, hire, induct, and professionally develop the replacement teacher, as well as separation expenses, such as closing out payroll accounts and completing service records (Texas Center for Educational Research, 2000). The higher the rate of turnover, the lower will be the return on hiring, induction, and professional development expenditures. Furthermore, some estimates include vacancy costs such as paying substitute teachers until

adequate full-time replacements are found (Chicago Association of Community Organizations for Reform Now (ACORN), 2003).

In a 2000 study to estimate statewide teacher turnover costs, the Texas Center for Educational Research found that schools in Texas may be spending between \$329 million and \$2.1 billion dollars on teacher turnover every year, based on an annual, statewide 15.5 percent turnover rate and depending on which of five industry models is used in the calculations (Texas Center for Educational Research, 2000). The most conservative model took into account the number of leavers and their salaries, the number of applicants and interviews for the opening, and the organization's size. It then generated a per-teacher turnover cost estimate equal to 25 percent of the departing teacher's salary and benefits. Other models also included estimates of separation costs, training costs, vacancy costs, and learning curve or productivity costs, and ranged as high as 200 percent of a departing teacher's salary. When researchers laid aside industry models and conducted their own empirical research on turnover costs in three Texas districts, they found that the per-teacher turnover cost ranged from \$354.92 in a district with relatively low turnover and recruiting problems to \$5165.76 in a high-turnover district.

A second study, conducted for a group of sixty-four Chicago elementary schools serving large numbers of low-income and minority children, estimated even greater costs of turnover (Chicago Association of Community Organizations for Reform Now (ACORN), 2003). Following the 2377 teachers in these schools with under five years of experience, ACORN charted a turnover rate of 23.3 percent in the 2001-02 school year. Researchers projected that if turnover rates were to continue at the pace observed in 2001-02, the five-year turnover rate for new teachers in these schools would be 73.3 percent, a figure substantially higher than the 50 percent turnover identified nationally for teachers in their first five years on the job (Ingersoll & Smith, 2003). The Chicago ACORN report calculated the cost of turnover in three different ways. The first, which came to \$10,329.40 per teacher, was based on researchers' empirical explorations of the schools' costs, which averaged 20 percent of a leaving teacher's salary. The second method was based on an industry model also used in the aforementioned Texas study, which estimated turnover costs at 150 percent of the leaving teacher's salary, or \$77,470.50 per teacher in this study. The third method calculated a cost of \$63,689.00 per teacher, based on an estimate of 2.5 times the average pre-service teacher preparation costs statewide.

A third analysis, provided by the Alliance for Excellent Education (2004), estimates a total figure of \$2.6 billion annually lost on turnover. Researchers adopted the U.S. Department of Labor's practice of estimating turnover costs to employers at 30 percent of the departing employee's salary. According to this method, the per teacher cost of turnover, based on the average U.S. teacher's salary, is estimated at \$12,546.

In these estimates, the amount the district invests in training new teachers through induction and professional development plays a key role in calculating actual costs. Districts that invest less money in these supports may bear a lower per teacher cost of turnover than their counterparts who spend more money on training. However, if induction and professional development are associated with increased retention, the districts that invest in such supports may well retain more novices. Thus, the per teacher cost of turnover in the districts that invest in professional development and induction may be higher but the total cost may be lower since fewer teachers eventually leave.

Together, these studies of turnover appear to estimate the upper bound of expenses due to turnover. Nonetheless, they lay out initial calculations suggesting that teacher turnover costs are high for schools, districts, and states at a time when budgets are tight. Money spent as a result of turnover could better be spent to improve instruction and student learning.

ORGANIZATIONAL COSTS.

Neild, Useem, Travers, and Lesnick (2003) studied turnover patterns in Philadelphia public schools from 1999-2000 to 2002-2003 and found that the poorest of poor schools (i.e., schools with 90 percent poverty or more) had the most difficulty retaining teachers over the three-year period studied and the most difficulty filling vacancies that arose. The authors characterize the costs associated with teacher turnover more broadly than the Texas Center for Educational Research or the Alliance for Excellent Education. Neild et al. conclude that turnover generally “impede[d] development of a coherent educational program, institutional memory, and staff cohesion” (p. 14). Costs, then, are paid by the students whom the departing teacher would have taught and other students whose education the departing teacher might have influenced indirectly through staff cohesion and institutional memory. Teachers and administrators also pay a considerable cost when they are left to reinvest in establishing professional relationships and re-establish routines for shared work.

COMPOUNDED COST OF HIGH TURNOVER.

When a school experiences the frequent departure of a considerable portion of its faculty, turnover takes a heavy toll on the functioning of a school and, ultimately, on its ability to deliver high-quality instruction to students. School norms and systems may falter and already troubled schools become more chaotic. This chaos makes teaching and learning more difficult. Guin (2004) studied five schools within the same urban district to investigate what she terms “chronic teacher turnover” Guin found that the schools in her sample with high turnover “are less likely to have high levels of trust and collaboration among teachers. Additionally, high turnover requires a school to restart their instructional focus each year, resulting in a less comprehensive and unified instructional program. Finally, the schools that most frequently need to hire teachers have the smallest applicant pool on which to draw” (p. 19). It is just this absence of programmatic traction that frustrates teachers and perpetuates the cycle of turnover.

Also, insofar as the research described here has shown that poor and struggling schools have higher rates of turnover, lack of attention to this problem simply perpetuates the cycle in which poor children receive the least experienced teachers and the least continuity of adults in the school community from one year to the next. As Johnson and Birkeland’s (2003) work shows, these schools do not have higher turnover because teachers prefer to teach wealthier students, but because these schools are often least equipped to support new teachers in their efforts to become effective.

In sum, teacher turnover occurs on a wide scale in American schools and the costs to students and to schools are considerable. Although some migration and attrition are desirable, turnover at the level some schools now experience impedes their educational mission. It is clear that teachers are moving and leaving in large numbers, but why? Empirical research helps to illuminate why teachers leave their schools and the profession and to suggest what schools and districts can do to support and retain teachers.

Directions for future research

Although the material reviewed in this chapter suggests many fruitful lines of research, three examinations seem particularly promising. First, the relationship between turnover and shortage has not yet been thoroughly examined. Qualitative studies that examine closely how turnover plays out in a context of shortage compared to one of balanced supply and demand would advance the field. Quantitative studies that specify the relationship between turnover and shortage would also contribute considerably to our understanding. For example, an examination of whether turnover predicts shortage and under what conditions could add to our understanding of both phenomena.

Second, current estimates of the financial cost of turnover do not capture the complex relationship between district and school investment in new teacher training and turnover. Studies should calculate the cost per teacher of turnover as well as the aggregate cost per district and specify in greater detail the relationship between training, the incidence of turnover, and costs at the individual, school, and district level.

Lastly, the field would benefit from comparative case studies of schools and districts that experience different degrees of turnover. Such research would develop our understanding of the instructional and organizational costs of teacher turnover and may well reveal other costs or benefits of teacher migration and attrition.

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2

— PREPARATION —

Simple logic would suggest that a teacher's satisfaction with her work depends, in part, on her competence and confidence on the job. Indeed, those teachers who feel effective with their students tend to express more satisfaction with their work, and therefore might be more likely to stay in teaching. Johnson and Birkeland (2003) report that new teachers who find that they cannot achieve a "sense of success" with students are less likely to find teaching rewarding work and to remain in the classroom. While it may be commonsensical to expect that a teacher who is effective with students will feel confident and satisfied with her craft, it is less obvious how teachers achieve that competence, particularly those who are relatively new to the classroom. What role, if any, does pre-service preparation play in the process? There is as yet little consensus among researchers about the relationship between teachers' formal preparation or credentials and their effectiveness in the classroom. Yet if, as some research suggests, teachers who are effective in the classroom are more likely to remain in teaching than those who are not, it is important to understand whether such a relationship exists and what it is.

It is important to acknowledge that there is a difference between a teacher's sense of efficacy and her actual efficacy, as reflected in various formal or informal measures of student performance. Some teachers may believe they are effective when they are not; others may doubt their success with students, even though available measures of student performance suggest that they are effective. However, given that few teachers are dismissed before achieving tenure, it is a teacher's own sense of efficacy—presumably informed by evidence of students' performance—that figures into retention.

There are two groups of studies that are relevant to this subject. One focuses on the individual characteristics of the teacher, such as IQ or SAT verbal scores, as predictors of students' success. The second explores the link between teacher preparation and students' test scores. Although neither of these bodies of research addresses teacher retention directly, both illuminate factors that contribute to student performance, which, by inference, may contribute to teachers' sense of efficacy and job satisfaction. In some cases, researchers have attempted to consider both the effects of teachers' individual characteristics and their preparation within the same study. However, as a recent literature review by RAND reports, it is difficult methodologically to distinguish between selection effects and training effects, since individuals with similar characteristics often choose the same type of program (Kirby et al., 2004).

In this section, we focus on evidence that teachers' preparation influences their success in bolstering student performance or their confidence and satisfaction with teaching. Throughout, we explore the possibility that these factors may influence retention. The following discussion first considers whether differences in teachers' content knowledge and pedagogical preparation affect student performance. It moves on to review research about the impact of graduate level preparation on teacher retention. Next, it examines studies that investigate whether the choice of a traditional or alternative certification program is related to a teacher's content knowledge, teaching skill, or student outcomes. Finally, we discuss research exploring whether the choice of a traditional or alternative preparation program leads to differences in teachers' satisfaction and ultimate retention.

Does preparation in content knowledge affect student achievement?

A small number of studies explore the effects of teachers' coursework or degrees on students' test scores, usually in mathematics or science. Monk (1994) analyzed 2,829 high school students from the Longitudinal Study of American Youth who were tested in mathematics and science in 10th, 11th, and 12th grades, examining information about background characteristics provided through questionnaires as well as test scores. The math and science teachers of these same students were also surveyed. The study related teacher characteristics to test scores and accounted for earlier student test scores, background characteristics, and teacher inputs. Monk found a positive relationship between the number of college-level courses teachers had completed and students' scores on mathematics and science assessments. Similarly, Goldhaber and Brewer (1997) used data drawn from the National Educational Longitudinal Study (NELS) of 1988 on 5,149 10th graders, 2,245 math teachers, and 638 schools and found a positive relationship between a teacher's having majored in mathematics and student achievement. Goldhaber and Brewer found that a teacher with a master's degree in math "is clearly associated with higher student scores on the NELS mathematics test" (p. 520).

Wenglinsky (2002) used multi-level structural equation modeling (MSEM) to measure the effectiveness of three factors—a teacher's classroom practices, professional development received in support of those practices, and characteristics of the teacher that were external to the classroom (e.g., educational attainment). He found that the teacher's academic major was "modestly associated with student achievement" and that the teacher's level of education and years of experience were unrelated to student achievement. These findings suggest that teachers who have undergone more extensive preparation in their content areas are also more likely to have higher rates of student achievement. However, it should be noted that these effects are evident only in the areas of science and math and that the study only looked at data from one grade level (8th).

In their review of the literature on teacher characteristics and student achievement gains, Wayne and Youngs (2003) conclude that the effect of teachers' degrees and coursework on student achievement varies by subject area. They report a positive relationship between coursework in mathematics and student achievement; the more coursework a teacher had, the better students performed. They also reported positive effects of certification, but again, these were limited to mathematics.

Does pedagogical preparation affect student achievement?

Some studies explore whether coursework in teaching methods or clinical experiences as a student teacher or intern affect teacher effectiveness. Monk (1994) found that the number of content-based methods classes taken by teachers during their college years positively affected high school students' achievement in math and science. However, other analysts conclude that pedagogical training matters little, and recommend that prospective teachers only be required to demonstrate their knowledge of subject matter in order to teach (Ballou & Podgursky, 1998). In a recent review of the literature on labor markets, Loeb and Reinger (2004) do not dismiss the potential value of teacher training programs, but caution that currently there is "virtually no information on what aspects of teacher preparation make a difference in student performance" (p. 23).

Indeed, there are vast differences in the components and quality of the numerous preparation programs offered to prospective teachers. To date, researchers have not systematically taken such differences into account when they seek to find a relationship between pre-service preparation and student achievement. For the most part, they have treated all preparation programs as if they were the same. Thus, the conclusions drawn from such studies about the effects of preparation often are based on flawed comparisons.

There is some evidence that teachers who begin their careers with a year-long student teaching internship, such as that completed in a Professional Development School (PDS), have greater instructional success with their students. Again, this research may confound selection and treatment effects and the findings may reflect the individual teacher's abilities and intentions as much as it does the teacher's experience as an intern. Reynolds, Ross, and Rakow (2002) compared the effectiveness of teacher graduates of George Mason's regular and PDS preparation programs—the first including traditional student teaching and the second a full year internship. With relatively low response rates of 53 percent from the first group and 50 percent from the second, the researchers found that teachers who completed internships under the close supervision of an experienced teacher in a PDS were judged by their principals to be significantly better in terms of "being sensitive to ethnic and cultural differences among students and balancing the varied demands of teaching" than those who had completed the regular program. Otherwise, however, the two groups had similar ratings. No measures of student achievement were included. In the same study Reynolds, Ross, and Rakow compared the retention rates of the two groups and found little difference between them during their first three years of teaching. However, when asked whether they intended to remain in teaching, 95 percent of the PDS-prepared teachers said they did, while only 74 percent of teachers prepared in the regular program reported this. Similarly, a higher percentage of PDS-prepared graduates intended to stay at the same school (76 percent v. 64 percent). Again, it is impossible to know whether such intentions preceded the training or were somehow a consequence of it.

Shen (2003), who used data from *Baccalaureate and Beyond, 1993-97* to analyze the career paths of a national sample of college graduates who were first surveyed in 1992-1993 and were followed in 1994 and 1997. Shen examined attrition rates among 1,702 teachers who had graduated from college within five years, and found that 34 percent of the sample had left teaching. In comparing teachers with pedagogical training and those without it, he found that teachers with no training had a 335 percent higher hazard rate than those with preparation. That is, they were 3 1/3 times more likely to leave teaching during any given year. Those who completed student teaching,

acquired certification, and participated in induction were 111 percent more likely to stay in teaching than those who had no training. Shen concludes that these data “unequivocally demonstrate” that those teachers with pedagogical preparation are more likely to stay in teaching through the first five years than those without such training. He goes on to argue that more fully prepared teachers demonstrate a greater commitment to the profession and to students. Similarly, Boe et al. (1997) analyzed data from the Schools and Staffing Survey and found that teachers with a full certification in their main teaching assignment (which would include both preparation in both content and pedagogy) were less likely to leave teaching than those who were only partially certified. Again, it is impossible to know whether this finding reflects selection or treatment effects.

Does preparation in content affect teacher retention?

A small number of studies explore whether having a graduate degree (attained before or while teaching) influences teachers’ decisions to remain in teaching. In general, these researchers find that teachers with advanced degrees report being less committed to teaching or actually leave teaching at higher rates than those who have only a bachelor’s degree. Notably, these studies do not distinguish between teachers’ having advanced degrees in content or pedagogy. For example, Rees (1991) used logistic regression to study the career paths of New York State teachers between 1975 and 1978 and found that, holding other factors constant, attrition rates were higher among those with more education. Ingersoll and Alsalam (1997) used data from the Schools and Staffing Survey about teachers’ reported sense of commitment to teaching. They conducted multiple regressions using Hierarchical Linear Modeling and found that teachers with advanced degrees reported slightly less commitment to teaching than those without advanced degrees. Kirby, Berends, and Naftel (1999) used longitudinal data obtained from the Texas Education Agency to study cohorts of teachers in Texas who entered teaching from 1979 to 1996. They found that teachers with an advanced degree were more likely to leave teaching than those with only a bachelor’s degree. If a teacher’s sense of efficacy were the only factor influencing retention, one might deduce on the basis of these studies that an additional degree makes a teacher less effective. However, since we know that retention also is influenced by other factors, such as pay and working conditions, it seems more likely that having an advanced degree increases a teacher’s career options and, thus, may lead the teacher to another line of work.

In contrast to these studies, which suggest that having an advanced degree negatively affects retention, RAND authors (Guarino, Santibañez, Daley, & Brewer, 2004) report on two studies concluding that having an advanced degree positively affects retention. Adams (1996), who analyzed data on elementary teachers hired by a large district in Texas between 1985 and 1991, found that teachers who had no degree beyond the bachelor’s were 68 percent more likely to leave than those with advanced degrees. Similarly, Shen (1995) analyzed data from the National Longitudinal Study of the High School Class of 1972 and found that teachers with master’s degrees stayed longer in teaching (10.60 years) than those with bachelor’s (5.24 years), doctoral (2.98), or associate’s degrees (2.96).

It is unclear how to interpret this array of contradictory findings from studies that span almost two decades and now are dated. If today’s researchers were to agree about the effects of advanced degrees on retention, it will be important to better understand teachers’ decisions. If advanced degrees appear to propel teachers out of the classroom, does that mean that the content or experi-

ence of additional coursework provokes them to explore new professional challenges? Or does the master's credential open new job options? Alternatively, if advanced degrees prove to increase retention, do teachers with master's (but not doctoral) degrees find greater success in teaching as a result of their training and, therefore, remain in the classroom longer? Or do teachers who have invested time and money in attaining a master's degree remain in teaching in order to garner the financial benefits of advancing on the pay scale as a result of the additional training? Much more systematic inquiry is needed to illuminate the relationship between advanced degrees and retention.

What are the effects of preparing to teach in a traditional or alternative program?

Many researchers investigating the effect of pre-service preparation on teachers' effectiveness or retention compare data about teachers who have completed "traditional" and "alternative" preparation programs. Typically, programs labeled "traditional" are sponsored by colleges and universities and require a year or more of credit-bearing coursework and a student teaching experience of two to ten months. Those labeled "alternative" may be sponsored by non-university agents (private vendors or school districts), often require less coursework (frequently non-credit bearing classes) and may include little or no student teaching. Condensed alternative preparation programs, often called "fast-track" programs, usually include the same basic elements as traditional preparation programs. Researchers at SRI (Gallagher, Hough, & Luczak, 2004) and Johnson, Birkeland, and Peske (forthcoming) explain that there are unclear boundaries between the content of alternative and traditional programs and that, within each group, the range of program components is enormous. Thus, the categories "traditional" and "alternative" are imprecise and the studies that rely on these inexact categories are far less informative than they might be if they included details about specific program components. Nonetheless, researchers continue to compare traditional and alternative preparation programs and to draw broad implications for policy and practice from them.

Variations in who enters traditional and alternative programs. Despite the shortcomings of this line of research, there is evidence that alternative preparation programs attract a higher proportion of men, members of minority groups, mid-career entrants, and teachers of math and science than traditional preparation programs do. Notably, these sub-groups of prospective teachers are increasingly difficult to attract to the profession. According to Natriello and Zumwalt (1993), alternatively prepared elementary teachers are more likely to be persons of color, speak a second language, and live in an urban area. Furthermore, individuals entering the teaching force through alternative paths are more likely to teach in urban schools that serve high proportions of minority students. It is important to note these patterns when considering how best to recruit and retain particular sub-groups of teachers to serve high need populations of students. Yet, current research does not demonstrate whether these particular subgroups of prospective teachers who are attracted by the path to teaching provided by alternative certification programs actually are being retained by urban schools. Nor is it clear what factors most heavily influence their choice to remain or leave.

VARIATIONS IN EFFECTIVENESS.

Several studies compare the non-demographic characteristics of teachers who complete traditional and alternative preparation programs. Hawk and Schmidt (1989) studied 18 alternatively prepared

(fast-track) and 18 traditionally prepared North Carolina teachers and found no differences between the two groups in their scores on content knowledge, as measured by the National Teachers Examination. Further, they found no differences in scores between teachers who had majored in their discipline and those who had not. Hawk and Schmidt did find, however, that when rated by outside observers, teachers who completed traditional preparation programs consistently received higher ratings in teaching skills (e.g., management of time and students, instructional presentation and feedback) when they began their career than those from alternative preparation programs. They do note, however, that teachers prepared in alternative programs were at least adequately prepared. McDiarmid and Wilson (1991) studied the mathematical knowledge of 55 teachers from alternate preparation programs who had undergraduate degrees in mathematics, and found that they commonly knew mathematical algorithms, but not the underlying mathematical theory or concepts.

In one of the few recent studies designed to compare the effects of such programs, Wayman, Foster, Mantle-Bromley, and Wilson (2003) surveyed first-year Colorado teachers and found that respondents from both types of programs ranked their concerns about teaching in the same order. For example, both groups ranked “discipline” and “adapting instruction” as top concerns and “learning from peers” and “isolation from colleagues” as being low-level concerns. However, teachers from alternative preparation programs registered much higher levels of concern about the highly ranked issues. For example, they were more than four times as likely to indicate concern about lesson planning than were traditionally prepared teachers. The authors speculate that new teachers who experience such intense concerns (specifically around pedagogy) may leave teaching sooner than those who do not. Given that the teachers expressing such concerns were products of alternative certification programs, the authors infer that traditional certification programs will have a more positive effect on retention.

Jelmborg (1996) studied a random sample of 136 New Hampshire teachers (29 alternatively prepared and 107 traditionally prepared). The author surveyed the teachers’ principals and found that they rated the traditionally certified teachers significantly higher in instructional skills and instructional planning than the alternatively certified teachers. Notably, the majority of the alternatively prepared teachers in the study taught in secondary school while two-thirds of the traditionally prepared teachers taught in elementary schools. Traditionally prepared teachers rated their own training and coursework as being more valuable to them than did alternatively prepared teachers. In contrast, two other small studies suggest that there are no appreciable differences between the work of teachers entering teaching on these pathways. In Georgia, Guyton, Fox, and Sisk (1991) compared test scores, attitudes, and teaching performance of 23 participants in a fast-track program with those of 26 graduates from a traditional program and found them to be similar on almost all measures. However, traditionally prepared teachers did have more positive views of the teaching profession and suggested that they were more likely to continue teaching than alternatively prepared teachers. Similarly, Miller, McKenna and McKenna (1998) used qualitative methods to study 82 teachers over three years; half were traditionally prepared and half were alternatively prepared. They examined teaching practices, student achievement, and self-perceptions of efficacy and found no differences between the groups. It should be noted, however, that the alternative certification programs studied involved extensive training and supervision. Therefore, it cannot be concluded from this study that teaches without training will teach as effectively as trained ones.

Some researchers who have compared the test scores of students whose teachers participated in

alternative or traditional programs also have found mixed evidence, which is not surprising given the lack of clear distinctions between alternative and traditional programs and the vast range of student outcomes considered by different researchers. In 2001, Raymond, Fletcher, and Luque, who compared student outcomes of teachers in Teach for America (TFA), a fast-track alternative route program, with those of other teachers in Houston, found little difference in student achievement (Raymond, Fletcher, & Luque, 2001). Notably, the comparison group included fully certified as well as uncertified teachers who were working on emergency permits. Subsequently, Laczko-Kerr and Berliner (2002) compared the achievement of students of 109 Arizona primary school teachers certified through traditional programs with that of 109 “undercertified” teachers, all of whom taught in low-performing school districts. The undercertified teachers included those holding emergency and provisional certificates as well as teachers in TFA. The researchers found that students of certified teachers outperformed students of undercertified teachers in reading, math, and language arts by about 2 months on the grade-level equivalence scale. They found no difference in student achievement between the TFA teachers and others in the undercertified group.

Recently, Decker, Mayer, & Glazerman (2004) tracked the gains made over the course of a school year by students who had been randomly assigned to classes taught by TFA teachers or non-TFA teachers (both certified and non-certified). The study included 17 schools, 100 classrooms, and almost 1,000 students. Researchers compared the results for novice TFA teachers with other novice teachers as well as with the larger group of non-TFA novice and veteran teachers. They found that students of TFA teachers made greater gains in mathematics by one month than those of non-TFA teachers, but there was no difference in reading score gains between the groups. Thus, the authors concluded that TFA teachers were as effective as non-TFA teachers. Critics quickly disputed this interpretation, saying that the difference in mathematics performance, though statistically significant, was insignificant on a practical level and that neither group of teachers served the students well.

VARIATIONS IN RATES OF RETENTION.

Research about how alternative and traditional programs affect the recruitment and effectiveness of teachers ultimately has important implications for retention. However, for this review, the important question is whether different rates of retention exist for traditionally and alternatively prepared teachers and, more specifically, whether turnover rates among hard-to-attract recruits are disproportionately large. As yet, little is known about the retention rates for the sub-groups of candidates attracted to alternative preparation programs. There is some evidence that alternatively prepared teachers are more likely to leave teaching sooner than traditionally prepared teachers, although it is difficult to distinguish selection and treatment effects.

Fisk et al. (2001), who studied retention rates among new teachers in Connecticut in 1998-1999, found that those with “deficiencies in their certification” (working on emergency certificates) and those who had been certified through alternative programs left during the first three years at nearly double the rates of fully certified teachers. This was especially true of mathematics and science teachers, who left at twice the rate of other alternatively certified teachers. Fisk et al. also found that the attrition rate for minority teachers (from both traditional and alternative programs) during the first two years was about 2.5 times higher than for non-minorities.

Shen (1997) also reports a difference between the career plans of teachers who are traditionally and alternatively prepared. In his survey, a lower percentage of alternatively prepared teachers (19.7

percent) than traditionally prepared teachers (22.7 percent) responded that they planned to teach “until I am eligible for retirement.” A somewhat higher percentage of alternatively prepared teachers (26.0 percent) than traditionally certified teachers (22.3 percent) said that they were “undecided at this time.” Shen, therefore, concludes that teachers who are alternatively prepared are less likely to treat teaching as a life-long career, although it is important to note that there are small differences between the two groups’ responses. He further argues that alternative certification routes have the potential to exacerbate the already high rates of teacher attrition in urban schools rather than alleviate the teacher shortage.

In a study of Massachusetts’ alternative certification program, the Massachusetts Institute for New Teachers (MINT), Fowler (2003) found that the participants quit at rates well above the national average, despite the fact that they would receive substantial bonuses for entering and remaining for four years (\$8000 for the first year and \$4000 for the subsequent three years). After three years, the attrition rates of the first cohort (entering in 1999) were 46 percent for all teachers and 55 percent for urban teachers after three years. Fowler points out that these rates were more than double the national average for all teachers (20 percent) after three years in the field. Attrition rates for teachers in the subsequent two cohorts also were higher than the national average (nine percent) after one year.

If, as some recent research suggests, teachers who are effective in the classroom are more likely to remain in teaching than those who are not, then it is important to consider whether there are differences in the confidence and success of teachers who are alternatively and traditionally prepared. Evidence on this question thus far is conflicting. While it seems clear that those earning certification through alternative paths leave the classroom at higher rates, it also appears that alternative certification programs, which are typically shorter and less expensive, are more likely to attract the very candidates that are most underrepresented in traditional preparation programs (i.e., high-need subject teachers, minorities, mid-career entrants).

Directions for future research

Overall, the lack of conclusive findings about the effects of teacher preparation, either on student performance or teacher retention, is disappointing. Thus far, research has done little to inform either policy or practice in any meaningful way. The debate about whether teachers’ preparation should focus exclusively on subject matter content (advanced courses, majors, and graduate degrees) or should also include pedagogical preparation (generic, content-based methods courses, student teaching or internships) is uninformed by a systematic and cumulative body of research. If research linking preparation with teacher efficacy, satisfaction, and retention is to become more instructive, there must be a more consistent effort to design and conduct studies using comparable comparison groups and similar outcome measures. The most ambitious and sophisticated study of those reviewed here is the randomized assignment study of TFA teachers conducted by Decker, Mayer, and Glazerman (2004). However, rather than yielding comparisons between the student test scores of a group of alternatively prepared TFA teachers and a group of traditionally prepared teachers, the comparison group includes a mix of certified and uncertified teachers. Thus, little more can be drawn from this study than the authors’ cautious conclusion—that TFA teachers do slightly better in mathematics and no worse overall than other teachers in the school.

There is great need for more carefully designed studies that examine the relationship between teachers' preparation and their subsequent instructional success with students. Also we need to better understand the relationship between teachers' preparation, sense of efficacy, and subsequent decisions to continue teaching or to leave. Quantitative methods are most informative for identifying these relationships, but great care must be taken in choosing study samples and in gathering detailed information about these teachers (e.g., age, sex, race/ethnicity, school characteristics) and their preparation experience (courses taken, degrees earned, programs attended, program content). It would be informative, for example, to analyze a large, longitudinal data set reporting on a sample of teachers with a range of undergraduate and graduate preparation experiences e.g., academic majors, minors, or courses in the subjects they teach; pedagogical preparation as undergraduates or graduates or participation in alternative preparation programs; graduate degrees in either their content area, in teacher education, or in another field. Examining the outcome variable—these teachers' career decisions—in light of different experiences with preparation would yield important understandings about the relationship between preparation and retention.

It is also important to know much more about the content and process of teacher preparation programs, themselves, rather than relying on rough and imprecise categories, such as alternative and traditional. This could involve learning much more about a set of programs through preliminary case studies and then tracking graduates of these programs over time in order to identify relationships between program components and student performance or teacher retention. Such a study would focus on teachers within a set of programs, presumably selected for their variation on dimensions that prior research or pilot research suggest would be important, for example, whether the programs include methods classes for each subject, whether participants observe master teachers, or whether there is a student teaching experience prior to full-time teaching. Alternatively, a survey asking a large and diverse sample of teachers about their preparation experiences could include detailed questions about their coursework, degrees, and training experiences. In both approaches, it would be important to have detailed information about the respondents, since there are many personal characteristics that may interact with the preparation experience. For example, mid-career entrants to teaching may benefit from some types of pre-service training more than first-career entrants. Such relationships are important and should be explored.

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3

— HIRING —

Increasingly, reports from research and practice suggest that a teacher's hiring experience may influence her satisfaction and retention in teaching. Although it is often difficult to separate teacher hiring from other working conditions and thus isolate its effect on teacher outcomes, recent evidence attests to the impact of hiring on new teachers' job satisfaction (Liu, 2004; McCarthy & Guiney, 2004). This small body of empirical research on teacher hiring contributes to a field largely based on a few case studies oriented towards defining "best practices" rather than describing broader, empirical findings. It should be noted that the empirical work on teacher hiring is still very sparse.

Within this small and nascent body of research, scholars have found that hiring may affect teacher satisfaction in two ways. First, a hiring process that lacks a substantive, accurate exchange of information between candidate and school can lead to a poor match, which may make the teacher less satisfied in her job. Second, a late hiring process can prohibit adequate preparation for a teaching assignment and lead to poor performance, stress, and dissatisfaction. In contrast, a positive hiring experience that provides a realistic job preview for new teachers and ample time to prepare for the school year is correlated with teacher satisfaction. This chapter presents findings on how the hiring process and the hiring timeline influences teacher satisfaction and thereby may influence teacher retention.

Unlike other industries and lines of work, the hiring of teachers has long been highly centralized and bureaucratic. In large districts, this means that the personnel or human resource department screens and even hires applicants, placing them in schools that, in some cases, they have never even visited (see Useem & Farley, 2004). Centralized hiring is common even in small districts that could more easily manage a decentralized process. While recent work suggests that some districts have begun to decentralize the hiring process (see, e.g. Campbell, DeArmond, & Schumwinger, 2004) and others have conducted hiring this way for some time (Murnane, Singer, Willett, Kemple, & Olsen, 1991), teacher candidates frequently meet and exchange information with a superintendent, principal, or head of human resources instead of the teacher colleagues with whom they will work and on whom they will depend each day (Liu, 2004).

How does the hiring process influence teacher satisfaction and retention?

Against this backdrop of increasingly decentralized hiring, research indicates that the hiring process affects a new teacher's likelihood of being satisfied with his or her position and remaining in teach-

ing (Liu, 2004; McCarthy & Guiney, 2004; Wise, Darling-Hammond, & Berry, 1987). Specifically, when a hiring experience gives the candidate an accurate job preview—a rich and detailed picture of what the work and the workplace is like—he or she is in a better position to choose a workplace that matches his or her needs and be satisfied subsequently (Liu, 2004).

Pounder and Young (1996), in their examination of the recruitment and selection of educational administrators, offer the following explanation for how job preview may influence job satisfaction:

Organizations may provide specific work climates that can fulfill employees' psycho-social needs such as school or district climates based more on democratic leadership than bureaucratic leadership. The choice of one school district over another or administering over teaching rests with the fit between a person's psycho-social needs and the organizational climate of a school or district. (p. 289)

If candidates make their decision without an accurate job preview that allows them to understand fully the work culture and job demands and to assess the fit between their expectations and those of their prospective employer, they may feel profoundly unsatisfied by their jobs.

Thus, when the hiring process includes only a short interview with the principal or the superintendent, a new teacher may not receive enough information about the prospective position and school to make a proper assessment of his or her fit with the job or workplace. Moreover, the school or district representative may not be able to judge whether the candidate is suited to the position (Murnane et al., 1991). This "information poor" hiring process (Liu, 2004), leaves the teacher, once hired, ill-equipped to identify sources of aid in the school and the administrator hard pressed to tailor specific support or guidance to the novice. By contrast, an "information rich" process allows the administrator to better support the teacher and enables the teacher to be more prepared for workplace demands. Thus, through a longer and more detailed process that allows both parties to gain a deeper understanding of one other, a better match may be made. Schools may be more satisfied with their new hires, and new teachers may be more satisfied with their jobs and the schools in which they choose to teach. From the new teacher's end, this information-rich process may provide him or her what the management literature calls a "realistic job preview" (see, e.g. Wanous et al., 1992, as cited in Liu, 2004). Teachers who decide to accept positions after such an accurate and thorough preview are expected to be more satisfied.

DO BETTER JOB PREVIEWS LEAD TO INCREASED SATISFACTION?

In a recent, random sample survey of nearly 500 new teachers in California, Michigan, Florida, and Massachusetts, Liu (2004) found that new teachers who experience information-rich hiring are more satisfied than new teachers who do not. More specifically, Liu found that "better job previews are associated with higher levels of job satisfaction" (p. 164), and "that many new teachers experience a hiring process that does not give them an accurate picture of what their school and teaching position will be like" (Liu, 2004, p. 146). However, "new teachers who report experiencing a hiring process that gave them a comprehensive and accurate preview of their job are more satisfied in their jobs than those who report experiencing a hiring process that did not give them an accurate preview of their job" (p. 146). Liu found that a realistic job preview was a statistically significant predictor of job satisfaction in all models fit (Liu, 2004, p. 165).

McCarthy and Guiney (2004) found similar results and drew similar conclusions from their study based on a survey of 470 new teachers hired by the Boston Public Schools (BPS) in 2002 and tracked through the spring of 2004. Their data suggest that the new teachers gathered information about prospective jobs and workplaces during the hiring process. They conclude that “teachers with a more accurate perception of the school’s professional culture, students’ academic and behavioral needs, and formal and informal supports available to them were more likely to view aspects of their position more favorably and to plan to remain in their positions in future years. (McCarthy & Guiney, 2004, p. 4)

The teachers surveyed by McCarthy and Guiney rated the accuracy of their job perceptions based solely on their interviews. Telling patterns emerged that connect job preview and decision to remain in schools: “On a scale of one to five, five being very accurate, the 178 teachers who felt certain they would return to BPS on average rated their perception of their job a 3.6...By contrast, the 27 teachers who do not plan to return to teach in BPS had a 3.1 average rating” (McCarthy & Guiney, 2004, p. 21). Methodologically, the interpretation of this finding is complicated since less satisfied teachers may be more inclined to say, retrospectively, that their perceptions of their job and workplace were imprecise. Regardless of the direction of the relationship, however, it is important to note that lower satisfaction was associated with less accurate perceptions.

There is evidence that districts differ in the depth of information exchanged during the hiring process and this may influence their ability to attract teachers into their classrooms. Reporting on comparative case studies of two district hiring practices, Murnane et al. (1991) found that “because of local control, some districts are more successful than others in finding, hiring, and retaining skilled teachers” (p. 48). One featured district, “Grandview,” hired through a decentralized process in which high school department chairpersons interviewed and extended to candidates job offers that specified the school, subject, and grade level the candidate would teach. By contrast, in “Harteville,” panels of school and central office personnel conducted interviews using a strict, district-mandated list of questions. The superintendent made final hiring decisions and often supplied no more information to the newly hired teacher than her starting salary. Murnane et al. conclude that Grandview’s hiring practices were more effective than those of Hartville in placing skilled teachers in the district’s classrooms. They argue that Grandview’s decentralized process enabled the district to hire candidates better suited to specific positions and that the hiring process itself probably drove candidates away from Harteville. They contrast the level of specificity of the job offers at the two sites and emphasize that Harteville failed even to tell newly hired teachers when they would be notified of the school, subject, and grade that they would teach.

Beyond the basics of where and what he will teach, the more information the teacher candidate can gather, the more he understands the challenges the job will present and the supports that the workplace will offer. For example, McCarthy and Guiney (2004) found significant differences in the satisfaction among BPS new teachers based on whether they interacted with students. Forty-three percent of those who interacted with students prior to starting work had a “very accurate” view of students’ academic, social, and emotional needs-- 16-17 percentage points more than those who had not interacted with students. Interacting with students is just one of the ways in which hiring can be “information rich.” However, Liu (2004) finds that, according to the new teachers in his sample, few hiring processes involve students.

In addition to the new teacher, the school gathers information through the hiring process. Asking candidates to converse with teachers and to teach mock lessons are ways in which the school can gather rich data about the candidate and decide whether he is a good fit for the job and school. Again, however, Liu's (2004) data suggest that only a small minority of new teachers demonstrate sample lessons. Thus, it appears that many hiring processes fall short in using available means to create a rich information exchange.

DOES THE EFFECT OF JOB PREVIEWS VARY BY SCHOOL TYPE?

A realistic job preview may be especially important for teachers in specific kinds of schools. Liu (2004) found a much steeper, positive relationship between job preview and job satisfaction among charter school teachers than among new teachers in traditional schools. When new teachers in charter schools received an inaccurate or insubstantial preview of their job, they were much less satisfied than their counterparts in traditional schools. When they received a robust preview, they were considerably more satisfied than new teachers at traditional schools with equivalent previews of their jobs (Liu, 2004, p. 165). Liu postulates that this may be due to the intense, frenetic pace and expanded teacher responsibilities of many charter schools. Candidates with an accurate preview embrace the expansive work and hectic workplace they enter; conversely, absent a thorough information exchange, new teachers at charter schools may feel surprised and overwhelmed by their new position and new school.

Liu finds a similar interaction between the socio-economic status (SES) of students in a school and job satisfaction. Satisfaction for new teachers in low-SES schools does not vary much depending on preview; a teacher with a low level of preview registers nearly as high job satisfaction, on average, as a teacher with a high level of preview (Liu, 2004). In high-SES schools, the relationship is much steeper. A new teacher with an inaccurate or spotty preview registers a much lower level of satisfaction than a new teacher with a robust preview (Liu, 2004). Liu comments that the relatively unchanging relationship of job satisfaction for teachers in low-SES schools may be a result of poor working conditions. He does not comment on the large, positive relationship in high-SES schools. His explanation for the similar relationship shown by charters may apply here too. In other words, the job intensity of teaching in high-income schools—with especially demanding parents and high pressure over student grades—may mediate satisfaction. A sufficient preview may apprise the new teacher of this job intensity.

HOW DOES AN INSIDER PREVIEW INFLUENCE SATISFACTION?

Many researchers have documented a tendency among districts to hire student teachers or school graduates who, by definition, have experienced a long and in-depth preview experience (see Wise et al., 1987). Liu finds no significant relationship between having worked as an aide or student teacher in one's school and satisfaction in one's first or second year of teaching. In fact, having worked as an aide or student teacher actually had a negative, though not significant, relationship with satisfaction; those who were student teachers or aides in the school where they became teachers were less satisfied than those without these specific opportunities to learn about the school.

This finding may stand in conflict with McCarthy and Guiney's (2004) finding that teachers who worked as student teachers in BPS were less likely to feel unprepared for the job of teaching in the district and, thus, more likely to feel satisfied with their current job. In contrast, new teachers

who felt unprepared in some way for their teaching job were ten percent less likely to want to continue teaching in BPS the following year (McCarthy & Guiney, 2004). Moreover, when asked if they planned to stay at their current job for the long-term, new teachers who felt unprepared for some aspect of the job were 20 percent less likely to say yes. Thus, to the extent that student teaching helps new teachers feel prepared, attrition and mobility may be reduced.

The contrast between the findings of Liu (2004) and McCarthy and Guiney (2004) regarding student teaching, preparation, and satisfaction may be due to their differing samples. McCarthy and Guiney conducted their research in a large, urban district whereas Liu's was based on a representative sample across four states. In the aggregate, Liu's data may not show the differences that surface in McCarthy and Guiney's more targeted dataset. For instance, many of the new teachers in their Boston sample are white and most Boston public school students are members of minority groups. Student teaching for these teachers may help them develop strategies to bridge a cultural divide with their students, thus making them feel more prepared and confident upon entering their own classroom. Thus, while an insider preview may not predict greater satisfaction among new teachers in the aggregate, it may well foster satisfaction among particular teachers working in particular schools. This area warrants further examination.

How does the hiring timeline influence teacher satisfaction and retention?

In addition to the hiring process itself, the timing of hiring may affect new teachers' initial success and ensuing satisfaction. Specifically, relative to the school calendar, the date on which a teacher is hired may profoundly affect his or her chance of achieving positive results in the classroom. The stressors induced by late hiring, on top of the predictable struggles inherent in learning to teach, may seriously threaten new teachers' satisfaction with their jobs and their intention to remain in the profession. Moreover, late hiring pressures teachers to take any position rather than searching deliberately for a workplace and job that match their strengths and needs. Research indicates that, despite the clear costs of late hiring, urban districts tend to continue their practice of extending job offers in August, leaving new teachers little time to prepare curriculum or learn the lay-out and systems of their new workplace (Levin & Quinn, 2003; Liu, 2004; Useem & Farley, 2004)

HOW COMMON IS LATE HIRING?

Late hiring occurs on a wide scale. Based on a random sample, Liu (2004) found that approximately one-third of new teachers were hired after the school year had started and slightly less than two-thirds were hired less than a month before they started teaching. This means that the great majority of new teachers had fewer than five weeks to learn the curricula they would teach, set up their classrooms, acclimate themselves to school lay-out, rules, and norms, and meet their future colleagues and supervisors. One-third of new teachers surveyed undertook all of these considerable tasks while delivering daily instruction. One would expect new teachers to struggle under these circumstances.

In their study of the 2002-2003 cohort of new teachers entering the Boston Public Schools (BPS), McCarthy and Guiney find similar evidence of late hiring. Indeed, in 2002 McCarthy and Guiney recorded that 50 percent of all new BPS teachers were hired less than two weeks before the first day of school. They observe that new "teachers were hired an average of 16.6 days before the

start of the school year” (McCarthy & Guiney, 2004, p. 14). This represents little improvement within BPS hiring practices: an earlier study found that “In June, 1999, the district (BPS) was trying to fill 285 positions; in mid-August, it was still advertising 105 vacancies” (DiPaolo, 2000). Although, as McCarthy and Guiney acknowledge, the 2002-2003 school year was marked by budgetary uncertainties that delayed hiring, the fact that only one-third of all new teachers were hired more than a month before school started suggests that students may have paid a price. They remark that hiring late in the summer “gives new teachers little time to prepare for the demands of the upcoming year” (p. 15).

Even if they sign contracts in the spring or early summer, some new teachers learn the specifics of their placement quite late. Based on an October 2002 survey of hiring practices in the Philadelphia Public Schools, Neild, Useem, Travers, and Lesnick (2003) discovered that “more than half (56 percent) [of new teachers] said they did not know where they would be teaching until one week or less before the beginning of school. Nearly two-fifths (38 percent) reported that they did not know what subject they would be teaching until after school began” (p. 28).

As suggested by the Neild et al. (2003) study, late hiring appears to be particularly widespread within urban districts. Useem and Farley (2004) compared Philadelphia’s teacher hiring and placement practices with those of twelve other large, urban districts and those of the nine suburban New Jersey and Pennsylvania districts that target the same teacher labor market as Philadelphia. Among the urban districts, Useem and Farley’s sample included five of the seven districts larger than Philadelphia and, among the suburban districts, the researchers selected a relatively diverse sample. The authors analyzed collective bargaining agreements and district recruitment and hiring materials, and interviewed districts human resource representatives and union officials. They concluded that all of the urban districts they examined experience “delayed hiring of new teachers well into the summer due to a) budget uncertainties; b) late notification of retirements and resignations; and c) last-minute initiatives of central offices, such as reconstituting or consolidating schools or reducing class size” (p. 3).

While large, urban districts tend to hire well into the summer and even the fall, suburban districts conduct this process much earlier. Useem and Farley (2004) found that eight of the nine suburban districts in their sample allowed teachers to request transfer in the spring, an arrangement that, they opined, “does not appear to slow down the overall hiring timeline for new teachers” (p. 7). The one district that allowed summer transfers, by contrast, “has to delay hiring of new teachers until August of each year” (p. 7).

WHAT IS THE IMPACT OF LATE HIRING ON TEACHER SATISFACTION AND RETENTION?

Late hiring appears to have a negative effect on teacher candidates at several points in the process of applying for and beginning their new jobs. First, late hiring appears to dissuade interested candidates from persisting in the applicant pool. Specifically, the relatively late hiring practices of urban districts may put them at a disadvantage when recruiting and retaining teachers. Building on earlier case studies, which suggested that late hiring discouraged prospective teachers (see Wise et al., 1987), a recent study by The New Teacher Project demonstrated empirically that a delayed teacher selection process pushed applicants out of the candidate pool (Levin & Quinn, 2003). Levin and Quinn found that the late-summer hiring conventions of the four urban districts they studied “starkly contrasted with those of their surrounding districts, which made offers earlier in the spring

and completed the bulk of their hiring by early summer” (Levin & Quinn, 2003, p. 13). In 50-70 percent of the cases, the lateness of hiring was one of the major reasons candidates gave for withdrawing their applications for jobs in the urban districts. Although the response rate per district for these surveys was low—27 percent in one case—these findings are consistent with other studies. Levin and Quinn further report that, in one of the four districts that did not begin hiring until August 12, 58 percent of teacher candidates withdrew their applications before the summer’s end. Although this appears to be the highest percentage registered among the four districts, it demonstrates how extreme the loss to districts may be.

Levin and Quinn (2003) further found that people who withdrew their applications were “more qualified” than those who remained in the pool. Those who withdrew had significantly higher college grade point averages, more education coursework, and were more likely to have a major or minor in the field they would have taught. Thus, Levin and Quinn’s work reinforces the theory that hiring practices affect the sorting of teachers into different districts and related concerns regarding equity. Some teachers with higher grade point averages may gravitate to suburban districts initially; later, due to frustration with the late hiring of urban districts, an additional wave of high scorers who intended to teach in urban schools may follow their counterparts to the suburbs. When the late hiring practices of urban districts are put in the context of labor markets and competition for applicants, it becomes clearer how urban districts suffer and suburban districts prosper at present.

A second, negative consequence of late hiring is that new hires experience a more difficult start to their job. A qualitative study of fifty Massachusetts new teachers (Johnson et al. 2004) demonstrates how late hiring can have a negative impact on new teachers. Researchers found that some new teachers in their sample became discouraged by late hiring; felt pressure to take the first job they were offered, rather than waiting for a good match; and felt rushed to prepare when hired late.

Johnson et al. (2004) found that late hiring reduced teacher satisfaction in two ways. First, new teachers hired late were less likely to have chosen a job and school that resembled their desired placement. The researchers observe: “As spring turns into summer (and as summer becomes autumn) candidates become increasingly anxious. Often they jump at the first offer, even if the school and position do not closely align with their interests, expertise, or teaching philosophy” (p. 172). Thus, late hiring may increase the likelihood of a poor match and resultant job dissatisfaction. Second, Johnson et al. find that “a...consequence [of late hiring] is that even when candidates do find jobs, they often have little time to prepare their curriculum or classroom and begin school in a rush” (p. 173). This statement probably also applies to those teachers, identified by Neild et al. (2003) and Murnane et al. (1991), who are hired earlier but find out where and what they will teach at a late date. Overall, then, late hiring and late notification of assignment details may predispose new teachers to lower levels of satisfaction than their counterparts who are hired earlier.

Directions for future research

While it is clear that the hiring of new teachers influences their later satisfaction and potentially their retention, little research has investigated this link. Although hiring has become a topic of great interest to superintendents and principals, most research on hiring consists of case studies that provide a basic idea of how hiring works but do not advance our understanding of what aspects of

hiring matter and how. Larger scale, comparative quantitative and qualitative studies are needed. Rather than examining hiring solely from the institutional perspective, these studies should explore teacher candidates' view of the hiring process. As we are concerned about teacher retention at later points in new teachers' careers, such studies must be longitudinal.

Many districts are also changing the way they conduct hiring. A substantial number of urban districts recognize late hiring as a problem and are working to decrease the number of new teachers hired near or after Labor Day (Useem & Farley, 2004). Moreover, many districts are moving hiring from the central office to the school site. These changes warrant study. Are principals prepared to spend the time and money needed to make hiring information-rich? How will experienced teachers, who may be involved on hiring committees, respond to new hiring practices? Finally, will these changes in hiring lead to greater teacher satisfaction and retention, both in the applicant pool and once in the classroom?

Lastly, on the issue of teacher distribution and equity, more research is needed to understand better how the teacher hiring process sorts teachers, thus affecting the quality of candidates in a district's classrooms and their fit with that district and their school. Districts that hire late and through processes that fail to provide candidates an information-rich preview of the prospective job and workplace put themselves at a disadvantage in hiring good teachers and retaining them. At the same time, however, this argument highlights the need to look at hiring in conjunction with school-based working conditions. If a school is leaky, lacks sufficient materials, or suffers low morale and overcrowded classrooms, an "information rich" hiring process might reasonably repel a candidate in search of a stable beginning to a teaching career. More fine-grained and nuanced hiring research is suggested as well as targeted policy and practice to improve hiring and bolster working conditions simultaneously.

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4

— COMPENSATION —

Teachers' compensation is widely believed to be critical in attracting recruits to the profession and retaining them in the classroom. Given the central role that pay plays as an incentive and reward in U.S. society, reformers often propose increasing teachers' pay as a move to reduce turnover and improve the quality of the teaching pool and teaching force. They argue that, if teachers could earn higher pay both on entry and over time, stronger candidates would be drawn to teaching and more effective teachers might be retained.

In fact, economists have demonstrated clearly that pay is an important factor in teachers' initial career choices. In a recent review of the literature, economists Loeb and Reiningger (2004) cite a number of studies to support their conclusion that "teachers respond to wages and are more likely to choose to teach when starting teacher wages are high relative to wages in other occupations" (p. 39). However, for two reasons, the role that compensation plays in teachers' career decisions is complicated. First, there are many ways in which a district might distribute additional pay, and arguably, some are more effective than others in attracting and retaining skilled and committed teachers. Second, the effects of pay on teacher satisfaction and retention are not independent of working conditions; high pay coupled with poor working conditions may do little to promote retention.

The following discussion begins by considering how teachers' salaries compare with those of comparably educated individuals in other fields and then examines whether pay levels for teachers have changed over time. After briefly explaining how pay scales are currently structured, the discussion moves to consider research about the various purposes for which pay is used—to attract, retain, or motivate teachers. The section then examines extant research about the effects of pay on teacher retention. It closes with recommendations for future research.

How do teachers' salaries compare with those of other professionals?

There is substantial evidence that teachers are paid less than comparably educated workers and that this discrepancy is growing. An analysis conducted by Education Week showed that in 1994 the difference between the salaries of teachers with bachelor's degrees and non-teachers with bachelor's degrees was \$11,035 (in 1998 dollars). Four years later, in 1998, this gap had expanded 61 percent to \$18,000. For master's degree recipients, the comparison was even starker. The salary gap between teachers and non-teachers had almost doubled between 1994 and 1998, from \$12,918 to \$24,648

(Olson, 2000). Similarly, Henke et al. (2000) analyzed NCES data and reported that, among bachelor's degree recipients who graduated in 1993 and were working full-time five years later, teachers' salaries, as compared to the salaries of other professionals in the cohort, were the lowest of the cohort. Loeb and Reininger (2004), reviewed research based on the Schools and Staffing Survey 1999-2000, and concluded that "teachers' salaries are close to those of social workers, ministers and clerical staff. Lawyers, doctors, scientists, and engineers earn substantially more, as do managers and sales and financial workers" (p. 40). These findings are echoed in the recent report from Allegretto, Corcoran, and Mishel (2004) of the Economic Policy Institute, in which the authors find a large difference between teachers' weekly salaries and those of employees in comparable fields (e.g. accountants, physical therapists, editors, registered nurses, and architects). The authors utilized a measure that defines the level of skill needed for a job along ten different dimensions, including knowledge, complexity, and scope and effect of one's job. This, along with a measure of the market value of a job, was used to determine the occupations that are comparable to teaching. They conclude that, on average, teachers earn 12 percent less per week than the composite salary for the comparable professions.

By contrast, economist Vedder (2003) reached a different conclusion based on data from the National Compensation Survey (NCS) of the Bureau of Labor Statistics. In comparing the hourly wages of teachers and non-teachers, he counted time that teachers are contractually required to be present in schools and excluded additional preparation time. By this calculation, Vedder concluded that teachers earn more than many other comparably educated workers, including architects, civil engineers, mechanical engineers, statisticians, biological and life scientists, atmospheric and space scientists, registered nurses, physical therapists, university-level foreign language teachers, librarians, technical writers, musicians, artists, editors, and reporters. However, Vedder's data are drawn from the National Compensation Survey – a source that Allegretto, Corcoran, and Mishel criticize, contending that the NCS and Vedder do not account for the actual hours worked by teachers, but rather only the minimal hours stipulated by union contracts. However, most researchers take into account the additional time that teachers spend on preparation and, thus, concur with Allegretto, Corcoran, and Mishel in concluding that teachers remain poorly paid relative to their comparably educated peers.

Although such analyses address an important public policy issue, teachers' judgments about whether they are being paid fairly for their work are personally driven. A teacher who spends the time she thinks it takes to do a good job may well conclude that she is underpaid when she compares the demands of her work with those her peers encounter in other fields. Such conclusions can fuel dissatisfaction and attrition, particularly when these individuals encounter public beliefs that teachers are overpaid.

Have teacher salaries changed over time?

There is also evidence that relative pay for teachers has declined since the 1970s. This decline has particular effects for women and minorities, who now have access to many alternative careers that were not open to them in the 1970s. Loeb and Page (2000) found that the salaries of women teachers, which were higher than those of their non-teaching counterparts in the early 1970s, were considerably lower by 1991. Thus, for women who have access to many career options, choosing to teach today often means foregoing higher pay in another line of work.

Comparisons of the weekly wages of male and female teachers, relative to other college graduates, suggest that the career is becoming less and less financially attractive for both men and women. As reported by the Economic Policy Institute researchers, salaries for female teachers from 1983-1993 show an almost equal ratio to salaries of non-teaching female college graduates. Male teachers earned approximately 75-80 percent of the typical weekly salary earned by non-teaching, male college graduates. For both men and women, there was a marked downward trend in earnings ratios beginning in the late 1990's such that, overall, by 2003, teachers earned weekly wages that were 13.6 percent lower than those of comparable workers. For men this figure was 23.1 percent less, while for women it was 8.9 percent less. A recent study released through a partnership between Education Week and Educational Research Service (Gewertz, 2004) presents findings similar to those reported by the Economic Policy Institute. Their analyses of teacher pay reveal that, adjusting for the cost of living over the last ten years, the mean salary of classroom teachers dropped by 1.87 percent, or \$871.

How is pay structured?

Many who contend that higher pay will improve the quality of the teaching force fail to recognize that relying on compensation as a policy instrument is not nearly as simple or straightforward as it might seem. There are many options about how additional pay might be used to attract new entrants to teaching, retain teachers with different levels of experience or kinds of credentials, reward teachers for success with their students, or motivate current teachers to work more effectively or undertake challenging assignments. All of these approaches require an understanding of how teachers' pay is currently structured.

The standardized salary scale, which was introduced in 1921 to eliminate discrimination in pay by gender and race, continues to be used today in virtually all unionized and non-unionized school districts. On a standardized salary scale, a teacher advances one step for each year of teaching experience until reaching the top of the scale. Implicit in this structure, which rewards longevity rather than any direct evidence of merit, is the belief that teachers improve with experience, although the evidence on this is mixed. (See Section Two of this report.)

Districts differ substantially in how much they pay teachers, both at the bottom and top of the salary scale. Pay scales also differ in the number of steps it takes for a teacher to reach the maximum salary. In addition to this vertical ladder of steps, standardized salary scales include horizontal lanes, which reward teachers for completing additional degrees or coursework. A teacher on step 5 of the vertical ladder with a master's degree would earn more than a peer who also was in her fifth year of teaching, but hold only a B.A. Citing research by Gruber et al., who analyzed data from the Schools and Staffing Survey, Loeb and Reininger (2004) report that, in 1999-2000, a beginning teacher with a bachelor's degree earned on average \$25,888, while one entering with a master's degree earned \$28,285. A teacher with 20 years experience and a master's degree plus 30 additional credits earned, on average, \$44,006. The highest paid position on the salary scale was on average \$48,728. The rationale for salary distinctions based on additional academic study is that it increases teachers' effectiveness. Again, however, available research does not support this fully. (See Section Two of this report.)

From district to district, there are not only differences in the entering and maximum salaries, but also important and often overlooked differences in the ways that pay is distributed across the

salary scale. One district may invest a large proportion of its overall payroll in less experienced teachers, while another offers proportionately higher pay for veteran teachers. Advanced coursework is rewarded more by some districts than others. Beyond evidence that new teachers are attracted by high initial salaries, little is known about how such differences in the structure of the salary scale affect the career choices of new or experienced teachers.

A very small number of school districts currently are experimenting with forms of performance-based pay, often called merit pay. Such financial awards are usually granted as one-time bonuses either for teachers who assume challenging assignments in hard-to-staff schools or whose students perform well on standardized tests. Some reformers have proposed incorporating merit pay into the standardized salary scale, thus increasing the base pay of effective teachers, although this practice is extremely rare. More common, however, is the practice of awarding extra pay for extra work, in which teachers can earn additional money for taking on assignments such as being the grade level team leader or serving as the school's liaison with parents.

WHAT ARE THE EFFECTS OF PAY?

Thus, pay can be used to achieve a variety of purposes, and researchers have explored how increasing pay in different ways might serve to attract, retain, or motivate teachers. It would be valuable to specify clearly the effects of different approaches to pay on different groups of teachers, such as beginning and experienced teachers, those with high and low test scores, or those with generic or specialized preparation. However, because studies about pay have been largely non-experimental, the findings rarely make such distinctions, and pay policies tend to be driven more by beliefs than research.

EFFECTS OF PAY ON ATTRACTING TEACHERS.

One of the large, unanswered questions about pay in public education is how many prospective teachers never consider a career in education because of its low pay potential. Would substantial increases in the maximum pay for teachers throughout the country affect the size and quality of the pool of prospective teachers? Evidence presented above about the influence that pay plays in individuals' career decisions suggests that such a change would make a substantial difference. However, when Berry (1986) conducted interviews with college and university seniors who had high or average SAT scores, he found that economic incentives were not the most important determinant in their decisions about whether to teach. This was particularly true for high-achieving students. Rather, it was their own experiences as students and their dissatisfaction with the organization of schools that dissuaded them from entering teaching. Thus, substantial increases in maximum pay might not, in themselves, attract large numbers of teachers who otherwise would choose another line of work. This fundamental question warrants close attention: Who might choose to teach, were it not for the low salaries and attendant opportunity costs of declining other work that pays more? Without studies that provide at least initial answers to this question, calls for higher pay for all teachers remain unconvincing.

Economists have analyzed the effects of pay on teachers' decisions to accept a job offer or to transfer from one district to another. Ballou and Podgursky (1995) analyzed data from teachers in the National Longitudinal Study of the High School Class of 1972 and concluded that a 20 percent salary raise for all teachers would be associated with an increased ability of the district to attract

new and practicing teachers with higher test scores. Figlio (2002) analyzed data from the Schools and Staffing Survey and concluded that districts raising their salaries higher than those of nearby districts increased the likelihood that they would hire new teachers who came from more selective colleges and had majors in their field of teaching. In their descriptive analysis of data from teachers' personnel files in New York, Lankford, Loeb, and Wycoff (2002) found that New York State teachers who transferred across district lines between 1993 and 1998 earned substantial salary increases (between four and 15 percent), suggesting that they were attracted by higher pay. It is important to remember that higher-paying districts often offer better working conditions as well, which may be as important an attractor as pay. These studies do not take such ancillary incentives into account.

Hanushek, Kain, and Rivkin (2004) analyzed data on all Texas elementary school teachers between 1993 and 1996 and did take into account factors including the academic profile and racial and socioeconomic composition of the study body in receiving schools, finding them more important than pay in teachers' decisions to transfer. Nonetheless, salary increases were positively related to transfers, especially for male teachers. Teachers in the early stage of their career did tend to earn more in the receiving districts than in those they left. Thus, the opportunity for higher pay may have factored into these teachers' decisions to change districts rather than leave teaching altogether. The researchers also concluded that white teachers preferred working with higher-income, non-minority students with higher achievement, while African-American teachers appeared to favor schools with higher proportions of black students than the ones they left. The researchers assert that schools serving low-income, high-minority students might have to pay 20 or 30 percent salary increases in order to attract and retain white teachers. However, additional features of the workplace, such as soundness of the facility or support services for students or teachers, were not considered. Given the exclusion of workplace conditions such as these in their analysis, it is difficult to predict whether any increase in pay would really attract or retain teachers in these high-need schools.

In recent years, some states and districts have introduced signing bonuses in an effort to recruit high-quality teachers. In 1998, the Massachusetts legislature created the Signing Bonus Program, geared to attract "the best and the brightest teaching prospects" into the profession. A bonus of \$20,000 was paid in increments to all selected candidates who continued to teach for four years in the state. During its first year, the program generated hundreds of applications. Of the 59 teachers selected in the first bonus cohort, most were mid-career entrants. Subsequent research by Fowler (2001; 2003) revealed that, after two years, the attrition rate among this cohort of bonus recipients was 32 percent. This rate rose to 46 percent after three years—twice as high as the national 3-year attrition rate of 20 percent. The failure of such a large bonus to retain teachers once they had been recruited may suggest that pay, in itself, is insufficient to improve the quality of the teaching force. Interviews with 13 bonus recipients revealed that they were attracted to the program less by the money than by the opportunity to quickly become certified and enter the classroom. Only five of the 13 teachers studied remained in public school teaching into their fourth year, when the final installment of the bonus was awarded. Those who left reported that they were dissatisfied with teaching and their working conditions (Liu, Johnson, & Peske, 2003).

EFFECTS OF PAY ON RETAINING TEACHERS.

In many ways, the effects of pay as an attractor and as a retainer are similar. That is, both prospective and current teachers are assumed to weigh their pay options when they consider whether to

enter teaching or to leave and whether to change districts or remain where they are. However, pay may work in one way for prospective teachers and current teachers considering transfers and another for teachers who have made a commitment to teaching or a district or school.

There is considerable evidence that individuals' career decisions are very sensitive to wage differences, especially during their early years of teaching. Dolton and von der Klaauw (1995) examined a sample of 923 individuals in the UK, all of whom taught as a first job. Using a proportional hazard model, these researchers analyzed the teachers' career decisions and the factors that influenced them during the first six and one-half years after graduation. They considered the potential effects of both a 10 percent increase in monthly earnings, relative to the income the individual could earn in another profession, as well as the effects of a 25 percent increase in teacher pay. They found that, with an across-the-board increase of 10 percent in teacher salaries, there was an associated nine percent reduction in the probability that teachers would exit the profession after five years.

Murnane et al. (1991) analyzed teacher data from North Carolina and Michigan and used survival analysis to model career profiles of teachers over time. They found that teachers working in school districts that paid comparatively high salaries stayed longer than teachers working in districts offering low salaries. Teachers receiving low salaries were, on average, one and a half times as likely to leave teaching after the first year on the job as teachers receiving high salaries. Additionally, they concluded that the average median employment duration associated with a \$2,000 difference in salary was one year longer in Michigan and almost two years longer in North Carolina. Thus, on average, a teacher earning a high salary (\$2,000 higher than average) would be expected to have a median employment duration that was two years longer than a teacher making a low salary (\$2,000 lower than average) in Michigan, and four years longer than a teacher making a low salary in North Carolina. Murnane et al. also found that salary levels had the largest effect on the duration of a teacher's first spell in teaching for elementary teachers, as compared to secondary teachers. Notably, this effect diminished over time until there was no appreciable effect of salary by year eight. Apparently, those who were sufficiently dissatisfied with pay to make them leave teaching had done so by that time, or other factors become more important than pay.

Also examining the effects of pay on teachers' retention in the profession, Stinebrickner (2001) analyzed the decisions of teachers during the first nine years of their career. Drawing on data from the National Longitudinal Study of the High School Class of 1972, Stinebrickner focused his analysis on the 551 individuals in that data set who were certified to teach between 1975 and 1985. Using a dynamic, discrete choice framework, he modeled teacher decision-making with respect to three career choices—whether to stay in teaching, work in another career, or stay home. Stinebrickner found that, although the salaries of men and women teachers were similar, the wage premium for men in non-teaching jobs was approximately seven percent, possibly explaining why men are less likely than women to teach. He then constructed models to examine the effects of a 20 percent across-the-board wage increase and concluded that, with the higher income, the total number of years spent in teaching by those in his sample would increase from .50 (of the total years possible for work in one's life) to .80. He, too, concluded that higher salaries are, on average, associated with a longer stay in teaching during the first nine years. Taken together, these three studies confirm that, within the early span of career being studied, higher salaries are, on average, associated with higher rates of retention among teachers.

Kirby, Berends, and Naftel (1999), drew upon a longitudinal data set for all public school teachers in Texas from 1979-1996 and used survival analysis to study Texas teachers' career decisions between 1987 and 1995. They concluded that a \$1,000 salary increase was associated with an average reduced attrition rate of 2.9 percent for all teachers and five to six percent for Hispanic and black teachers. Additional research by Boe et al. (1997) analyzed data about special education and general education teachers at all levels of experience from the Schools and Staffing Survey of 1987-89. They examined teachers' career decisions one year after the initial survey was administered and found that salary positively and significantly predicted retention both in teaching and in schools. Among teachers who earned \$20,000 or less, 6.5 percent left teaching and 11.3 percent changed schools, while among those earning over \$30,000, 4.5 percent left teaching and an additional 4.5 percent changed schools.

Although these studies reveal important information about the role that pay plays in attrition and retention, qualitative research provides more detailed explanations about how teachers think about pay. Johnson (1990) and Johnson et al. (2004) conducted extensive interviews with new and experienced teachers to, among other things, understand how they conceive of pay and what role it plays in their career decisions. Repeatedly, these teachers interviewed for these studies said that they expected to earn enough as teachers to afford a middle-class life style. Many reported experiencing considerable stress when they were not able to pay their bills or enjoy modest purchases or recreation. Often these teachers predicted that they would have to leave teaching if they wanted to buy a house or pay college tuition for a child. Importantly, such respondents suggested that they would be driven out of teaching by low pay rather than attracted by the prospect of making more money in another line of work. Such responses may explain why relatively modest pay increases, such as those considered by Murnane et al. (1991) and Stinebrickner (2001), might successfully retain teachers who liked their work and were satisfied by finding a way to afford continuing to do it.

Most of the studies about the effects of pay focus broadly on pay levels for all teachers. Importantly, Ballou and Podgursky (1997) point to a potential flaw in this across-the-board pay raise model, noting that it does not appropriately target high-achieving individuals whom districts might seek to attract or retain in their early years of teaching. Rather, such pay increases, these authors contend, simply provide an incentive for older (and, they imply, less reform-oriented) teachers to remain on the job. Others have noted that retention, in and of itself, is not necessarily a positive outcome, and that increasing the quality of the teaching force may require more deliberate and discriminating use of pay as an incentive. However, without good comparative measures of who the high achieving teachers are, there are limits on what both policymakers and researchers can do.

EFFECTS OF PAY IN MOTIVATING TEACHERS.

Many who would make teaching a more attractive career point to merit pay or pay for performance as a promising policy approach. This strategy would reward entrants for exemplary qualifications or career teachers for exemplary practice or improvements in student achievement. Thus, it would seem to address the problem with across-the-board pay increases identified by Ballou and Podgursky (1997). Despite enthusiasm for this policy, however, the history of merit pay does not provide encouragement for its proponents.

Of the many merit pay plans introduced by states and districts over the past century, very few have endured or showed positive effects (Odden & Kelley, 1997). Often merit pay plans fail to make

meaningful or defensible distinctions among teachers' performance and, thus, provide no answer for the teacher who asks what he might do to achieve merit pay (Murnane & Cohen, 1986). Sometimes merit pay decisions are criticized by teachers for being driven by administrative favoritism rather than objective data. Individualized merit pay awards, once made public, often generate demoralizing mistrust and ridicule, rather than energizing effort and commitment. Frequently, merit pay plans are abandoned because of their high organizational and financial costs. Programs that include payoffs for individuals are said to undermine collegiality, while those that offer group awards by school are criticized for not eliminating the "free rider" problem: an ineffective teacher may be rewarded along with others. Merit pay plans that include quotas on the number of teachers who can benefit often are faulted for promoting divisive competition within a school, yet those without quotas prove to be prohibitively expensive. For the most part, experience with merit pay is reported in individual case studies. There is a need for more systematic analyses of such plans which would include detailed information about teachers' responses to them and analyze what role they play in attracting and retaining teachers.

Despite the limitations of merit pay plans that have been instituted, there is evidence that the cohort of individuals entering teaching today express interest in performance-based pay (Johnson et al., 2004), and, in response, policymakers continue to propose and introduce different approaches to using pay as a motivator. (The Consortium for Policy Research and Evaluation at Wisconsin University maintains a web site that monitors new initiatives: <http://www.wcer.wisc.edu/cpre/tcomp/>.) Some programs provide rewards for individuals; others offer group-based bonuses. Some are based on special skills or demonstrated expertise, such as being certified as an accomplished teacher" by the National Board for Professional Teaching Standards; others require evidence of superior results by students on standardized tests. Although these proposals are widely reported in the news, systematic research about them is scarce.

One current program that has been studied is in Denver, CO. With support from the teachers' union, Denver officials piloted and adopted a merit pay plan that rewards teachers for increases in knowledge and skills that improve student achievement. In its initial stages, teachers could choose their own performance objectives and demonstrate their competence in a variety of ways. An early evaluation of the program (Community Training and Assistance Center, 2004) concludes that it is effective, although program participation is statistically linked to student achievement only in some subject areas and at some grade levels. It is far too early to know whether the program has broad-reaching effects and can be sustained over time.

One of the few quantitative studies studying a particular pay plan is reported in a recent article by Dee and Keys, who analyzed data from Tennessee's Career Ladder Evaluation System (Dee & Keys, 2004). The Career Ladder Evaluation System was well-financed and relied on multiple sources of data in assessing teachers' work, although evaluation of teaching practice by peers and administrators was the primary means used to assess merit. The authors were able to utilize an experimental design in their study because this merit pay plan coincided with the Project STAR class-size experiment, for which students were assigned randomly to teachers' classrooms. Dee and Keys sought to understand whether the students randomly assigned to teachers who had achieved advanced status (with higher pay) on the career ladder achieved greater academic success than those students assigned to teachers who had not. Although they found that students of career-ladder teachers had higher mathematics scores by approximately 3 percentile points, differences in reading achievement

were found to be smaller and statistically insignificant. Notably, the gains in mathematics scores were concentrated among teachers at the lower rungs of the career ladder, who for the most part had less experience. In contrast, only assignment to a teacher who had reached the top of the career ladder led to statistically significant gains in reading achievement. Such findings further fuel questions about whether giving raises to teachers selected for advancement on such a career ladder is a wise use of funds and an effective strategy either for improving instruction or retaining the most effective teachers.

Thus, as yet, there is no research that documents the success of merit pay in retaining effective teachers or motivating them to work harder or to use more successful teaching strategies. Recently, so-called value-added approaches to assessing teachers' work (McCaffrey, Lockwood, Koretz, & Hamilton, 2003) which link student achievement to particular teachers' contributions, have become attractive to policymakers and school officials seeking a new approach to merit pay. Awards based on this method of selection could provide greater objectivity than traditional programs, which usually rely on administrative evaluations. Still, this approach continues to be challenged methodologically. Also, such a plan might undermine collaboration among teachers and do little to control personnel costs. There is, as yet, no research about the implementation or effects of such a value-added performance-based pay plan, either on student achievement or teacher retention.

How does pay interact with other factors known to affect retention?

For the most part, quantitative studies about the effect of pay on teachers' career decisions do not take into account other factors that influence teachers' priorities. A small number of interview and survey studies have explored how teachers weigh pay in relation to other factors as they make career decisions. Together, they suggest that pay is not the sole, or even the primary, factor responsible for teachers' choices. John Goodlad (Goodlad, 1984) reported that pay is not the foremost reason for teachers' entering the career, but that it ranks second as their reason for leaving. Johnson (1990) interviewed 115 teachers and heard similar sentiments. Although respondents said that they entered teaching in search of non-financial rewards, low pay became a source of irritation for some when working conditions made it hard to succeed in the classroom. Johnson and Birkeland (2003) also report such conclusions. Although many of the 50 new teachers studied over four years expressed dissatisfaction with pay and the low status it signaled, only one of the 17 respondents who left teaching by year four stated that he did so primarily because of pay. Others' decisions were influenced far more by poor working conditions. No teachers who transferred did so in pursuit of higher pay; rather, they explained that they were in search of better working conditions, such as more orderly schools, better facilities and supplies, better professional development, or smaller classes. Notably, however, the districts that offered better working conditions also often paid more and, thus, without good information about other working conditions, it would be easy to conclude that the teachers moved in pursuit of better pay.

Such findings from qualitative interview studies are reinforced by recent survey data from the Teacher Follow-up Survey of the School and Staffing Survey (Luekens, Lyter, Fox, & Chandler, 2004). Teachers who had left teaching or transferred to new schools were asked to rate the importance of various factors in their decisions. Among reasons rated "very important" or "extremely

important” were higher salary or benefits (19.1 percent of movers; 19 percent of leavers); better teaching assignment (39.8 percent of movers); dissatisfied with workplace conditions (32.1 percent of movers); dissatisfied with administrators’ support (38.2 percent of movers); dissatisfied with changes in job description or responsibilities (18.7 percent of movers). Pay was reported to be very or extremely important to many respondents, but more cited various workplace conditions as playing a large role.

Therefore, considerable evidence exists that teachers are largely drawn to teaching by the intrinsic, or psychic, rewards they hope to attain. However, there is also clear evidence that pay plays an important role in teachers’ career decisions. Research shows, however, that pay does not make all the difference, as some analysts suggest. Pay matters, but largely because it makes teaching possible. In itself, higher pay is unlikely to retain teachers—particularly the most able among them—if they find that they cannot attain the intrinsic rewards for which they initially entered teaching.

Directions for future research

Although the topic of teacher pay has generated more research attention than most others considered in this literature review, there remain many important issues to be explored and clarified. For example, there is little research about what effects substantial pay increases for all teachers or increases in the maximum potential salary might have on the size and quality of the pool of prospective teachers. If teachers were paid as well as lawyers, sales managers, or engineers, students with higher test scores from more elite colleges and universities might choose teaching as a career. However, it is not clear whether such pay increases would also have to be accompanied by substantial improvements in working conditions in order to be effective. Surveys and interviews with people who might consider teaching, either as a first career or after work in another field, could provide much more detailed information about how a broad pool of potential teachers weighs the relative importance of various factors, including pay.

Although there are important differences from district to district in the structure of standardized pay scales (years to maximum, awards for coursework and degrees), there is no research examining the different effects of these plans on teachers’ career decisions. Likewise, there is little research about the effects of different approaches to distributing pay on standardized salary scales (front-loaded scales that favor new teachers vs. back-loaded scales that set a higher maximum salary and favor experienced teachers). Recent evidence suggests that a significant number of new teachers today are not committed to a long-term career in teaching and, therefore, might be far more concerned with pay on the initial steps than with long-term pay potential (Peske, Liu, Johnson, Kauffman, & Kardos, 2001). On the other hand, one reason that novice teachers do not expect to teach long-term may be because they find the salary ceiling unacceptable. Front-loading salary scales, which could be attractive to new teachers in the short term, might actually promote attrition by creating an even lower ceiling on long-term earning prospects. Those who see an advantage to having a less-experienced teaching force might welcome such a plan, while those concerned with the costs of continuous turnover would not. Currently, however, there is no research to support either approach and well designed surveys could provide policymakers and school officials with a far better understanding of the effects different arrangements to pay might have on retention.

Although it is well established that prospective and current teachers respond to salary differences between teaching and non-teaching jobs, there is only modest understanding of how pay interacts with other factors—particularly working conditions—when teachers decide whether to remain in the classroom, change schools, or leave teaching. The best available quantitative studies infer teachers' preferences from evidence about their actual decisions, but the analysis is inevitably limited by the information that is available about the particular schools that teachers choose to enter or leave. How are they organized? How much collaboration occurs among teachers? What does the principal do? Is the school orderly? Are parents engaged in school activities? Any one of these factors may be as important as pay, and yet it cannot enter into the analysis unless better data are available. Quantitative studies that incorporate detailed information about such factors would provide far more understanding of when and where changes in pay can make a difference in teacher retention.

There is also virtually no research available about the role of health and retirement benefits in teachers' career decisions. Increasingly, districts offer a range of benefit packages, designed to serve a variety of individual interests. Districts that offer the same starting salary may provide quite different benefits packages, yet virtually nothing is known about whether prospective and current teachers weigh such differences in deciding whether and where to teach. Given increasing concern within U.S. society about the availability of health and retirement benefits, policymakers would welcome research about the effects on recruitment and retention of different approaches to benefits.

The teaching force is not uniform and it seems likely that different sub-groups of teachers (women and men, young and old, high-achieving and average-achieving, early-career and late-career, minority and non-minority, parents and non-parents, specialists in various fields or in hard-to-staff subjects) respond differently to a range of pay options. Districts seeking to attract and retain particular groups of teachers would benefit from having access to far more detailed information about the preferences and responses of these subgroups to different pay arrangements and benefits packages. Sometimes, in preparing for collective bargaining, local unions gather some of this information from members, but it is rarely made public. Conducting surveys that would allow analysis of sub-groups from a range of districts could inform not only local practices, but broader policy decisions as well.

Many low-performing schools in low-income, high-minority neighborhoods experience continuous teacher turnover. In response, districts have begun to introduce bonuses to attract and retain teachers in these schools. It is important to study these initiatives carefully through both case studies and surveys in order to determine what level of additional pay actually is needed to stabilize staffing and whether such an approach is an effective and efficient one for improving low-performing schools.

Finally, there is little understanding of the way in which various employment constraints change the role of pay as a potential incentive in teacher transfers. Teachers who have achieved tenure in one district may be reluctant to relinquish job security and pursue a higher paying job in another district. Teachers who have taught ten years in one district may discover that they will not be granted credit for those years in a higher paying district nearby and, thus, will not transfer. Teachers who are vested in a state's retirement system may be unable to pursue an interest in teaching elsewhere because they would forfeit their retirement. Again, a carefully designed survey could elicit valuable information from a broad sample of teachers working in different settings about the ways in which current policies constrain the role that pay plays in their career decisions.

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5

— WORKING CONDITIONS —

Research has shown that the conditions of teachers' work affect their ability to teach well and the satisfaction they derive from their work. When the physical elements of their school—the facility, equipment, and supplies—are decrepit or deficient, teachers report that their instructional options are limited and that they feel discouraged and insulted as professionals. Teachers also report feeling beleaguered and overwhelmed when they are assigned to courses or grades for which they are unprepared, when they have too many courses to juggle at one time, or when they must contend with unusually large numbers of students. Under such conditions, their students also pay a price, suffering the effects of uninformed instruction, poor lesson planning, and crowded classes. Teachers also often lack curriculum for their teaching assignment or have a curriculum that is not aligned with the standards they are required to teach or the tests their students must take.

Problems such as these, which result from inadequate working conditions, affect teacher satisfaction and retention directly by making the work far more trying than it need be. But there are also indirect effects of such problems since teachers working in inadequate conditions may be less likely to succeed with students and realize the intrinsic rewards for which they entered teaching. The following sections consider what is known from research about the effects on teacher satisfaction and retention of these three aspects of working conditions—the physical elements of the school; teaching assignments; and curriculum, assessments, and accountability.

Facilities, Equipment, and Supplies

The physical elements of schooling—the facilities, equipment, and supplies—are easy to identify, inventory, and assess. It is not easy, however, to track the effects of these resources and conditions on student learning and teacher retention, since those effects are largely indirect and often interact with other parts of the teachers' and students' experiences. At the most basic level, the adequacy and maintenance of school buildings affect the health and safety of the adults and children who work there. A school in serious disrepair presents an array of hazards for everyone in it. The physical elements of schooling also influence instruction—both what can be taught and how it can be taught. A school's lack of textbooks, a library, science equipment, or reliable photocopier machines inevitably limits the kind of teaching and learning that can occur.

Teachers may do their best to cope with such deficits, but ultimately their students' opportunity to learn in poorly maintained and ill-equipped schools falls short of what it might be in schools that are sound, well equipped, and generously supplied. In the process of contending with disrepair

and shortage, teachers may become demoralized because they cannot do their best work, must use their own money to buy supplies, and feel disrespected as professionals. Although these factors rarely are reported to be the sole, or even primary, reason for teachers' decisions to change schools or leave teaching, there is evidence that they may fuel teachers' general dissatisfaction with their job or career.

Often surveys administered to teachers include questions about facilities, equipment, and supplies in a long list of other conditions known to be of importance to them, but there is little research that directly addresses the physical elements of the teacher's workplace. This discussion first considers studies that address the adequacy of school facilities, equipment and resources, presenting evidence about differences that exist between schools serving low-income and high-income communities. It next examines teachers' responses to the shortcomings of their schools, both how they cope with sub-standard facilities and inadequate supplies, and what effect such conditions have on teachers' satisfaction and career plans. The section concludes with suggestions for future research about this topic.

HOW ADEQUATE ARE SCHOOL FACILITIES, EQUIPMENT, AND SUPPLIES?

There is general agreement among researchers, policymakers, and practitioners, that school facilities are rarely ideal and often seriously deficient. Documented deficiencies often are most severe in low-income urban and rural communities, although they sometimes present serious problems in suburban schools as well. In 1995, the U.S. General Accounting Office (GAO) studied the adequacy of school facilities and documented widespread problems (1995). Based on survey results from a nationally representative stratified random sample of approximately 10,000 elementary and secondary public schools and site visits to 10 selected school districts that varied in location, size, and minority composition, researchers concluded that U.S. schools were unprepared for the 21st century. Among other findings, these researchers reported that 54 percent of all public schools had unsatisfactory instructional space to implement effective teaching strategies; one-third of schools that had sufficient computers were not networked; and 40 percent of schools could not adequately meet the functional requirements for laboratory science or large-group instruction.

Johnson (1990) reports on qualitative interviews with 115 public and private teachers identified as "very good" by their principals. Teachers reported the importance of working in safe buildings and well-equipped schools. Respondents—especially those working in low-income settings—frequently said that they lacked sufficient resources for their teaching—paper, crayons, pencils, chalk, and textbooks for each student. Although some teachers in low-income schools said that, as a result of categorical grants, they had abundant resources for particular subjects or students, they often lacked other physical supports, such as a clean, well maintained, and adequately ventilated classroom, which would enable them to teach effectively. The respondents told of out-of-date textbooks, stringent quotas on paper, and deficient libraries with torn books and antiquated audio-visual materials. Johnson observes that poorly maintained schools send signals about the status of public education: "Well-designed, well-maintained, well-supplied schools express the public's commitment to schooling. Decrepit, crowded schools and inadequate supplies convey a different message—that public education is low on the list of a community's priorities" (p. 78).

WHAT DIFFERENCES EXIST BETWEEN HIGH-INCOME AND LOW-INCOME SCHOOLS?

The GAO study also reported that problems with facilities and equipment were most serious in schools serving low-income communities. The authors found that “schools in central cities and schools with a 50-percent or more minority population were more likely to have more insufficient technology elements and a greater number of unsatisfactory environment conditions [than schools serving other communities]” (p. 4). Other studies assess the reported deficiencies of schools in low-income neighborhoods. Recently, on behalf of the National Commission for Teaching and America's Future (Carroll, Fulton, Abercrombie, & Yoon, 2004), the Peter Harris Research Group surveyed a random sample of 3,336 teachers in California, Wisconsin, and New York about their working conditions. The researchers were particularly interested in learning how working conditions differed in low-income and affluent communities and, therefore, they over-sampled teachers from low-income schools. They found that schools serving large numbers of low-income students and children of color were reported to have a much higher incidence of inadequate physical facilities than other schools; evidence of vermin (cockroaches, mice, and rats) in the school buildings; dirty, closed, or inoperative student bathrooms; inadequate textbooks and materials for students to use in class or to take home; inadequate computers and limited internet access; inadequate science equipment and materials; and higher personal expenditures (by teachers) to compensate for insufficient classroom materials and supplies. The report concludes that such deprivation makes it unrealistic to expect students in low-income schools to achieve high standards, as recent accountability policies require.

In another study designed to solicit the current views of teachers in low-income schools, researchers for Public Education Network (2004) collected data in Chattanooga, TN; New York, NY; Seattle, WA; Washington, D.C. and the state of West Virginia. Researchers surveyed 211 novice teachers in middle and high schools serving low-income communities, 84 of whom also participated in interviews or focus group discussions. Overall, respondents expressed a high degree of satisfaction with teaching. However, approximately “20 percent said that they were considering leaving and cited salary, insufficient resources and materials, and the difficult and draining nature of the work as factors influencing this decision” (p. 18); the report does not specify what percent of respondents cited insufficient resources and materials as a problem. Two of the top seven workplace problems teachers cited were “insufficient classroom space or no assigned classroom” and “lack of basic resources and materials such as books, textbooks, and supplies, or not knowing what resources were available” (p. 20).

HOW DO TEACHERS RESPOND TO POOR FACILITIES AND A LACK OF SUPPLIES?

Most teachers—particularly new ones—buy supplies that would be routinely provided in other workplaces. Fifty new Massachusetts teachers studied for four years by Johnson et al. (Johnson et al., 2004) reported spending their money on such things as paperback books, stickers to reward careful homework, groceries for cooking projects, chemicals for science experiments, and materials for art projects. Several survey studies have sought to ascertain how much money teachers spend on equipment and supplies for their classrooms. Tapper (1995) (as reported in Buckley, Schneider, & Shang, 2004) interviewed teachers in New York City and found that 26 percent of them reported spending \$300 to \$1000 of personal funds on classroom supplies over the year; 14 percent spent \$100-\$200; and 12 percent spent \$50-\$75. The National Education Association (2003) surveyed new and experienced teachers in 2001 and reported that they spent an average of \$443 each on instructional

resources (p. 51). Researchers at Quality Education Data (2002) surveyed new teachers and concluded that, on average, first-year elementary teachers spend \$701 out of pocket, for classroom materials. Qualitative studies suggest that, although teachers find such purchases galling given their low salaries, they spend their own money on supplies so that they can manage to carry on with teaching day to day in their classrooms.

Carroll et al. further explore how inadequate resources limit teachers' effectiveness, suggesting that inadequate conditions affect teachers' willingness to remain in these schools: "The problem is not that we have too few teachers entering high-risk schools; it is that too many good teachers are leaving. They leave because conditions in their schools do not meet even the most basic requirements for successful teaching and learning" (Carroll et al., 2004, p. 8). These researchers report that in New York over 75 percent of teachers planning to leave high-risk schools cite non-retirement reasons, with salary, lack of school leadership, class size/pupil load, lack of supplies and materials, or bad school facilities reported as reasons for leaving. Similar patterns of response were found in California and Wisconsin, although the gaps between high-income and low-income schools in Wisconsin were less extreme than in the other two states. In commenting on the impact these factors have on teachers' decisions to leave their schools, the authors observe that working conditions are cited far less often as reasons for teachers planning to leave low-risk (high-income) schools than high-risk (low-income) schools. In their view, such conditions increase the likelihood that teachers in low-income schools will leave their schools or teaching prematurely because they fail to succeed with their students: "Teachers in low-risk schools are able to make a career commitment to teaching, because teaching conditions in their schools provide a quality opportunity for success" (p. 23).

Two recent studies use quantitative methods to examine the effects of these factors—facilities, equipment, and supplies—on teachers' satisfaction, sense of efficacy, and career plans. Schneider (2003) surveyed teachers in Chicago (where respondents were randomly selected) and Washington, D.C. (where all teachers were asked to complete surveys and 25 percent did) about the quality of their working conditions and the effect of those working conditions on teachers' sense of job performance and effectiveness. "Teachers were asked to evaluate their surroundings, including the degree of overcrowding, the availability and adequacy of such specialized facilities as science labs and lunch rooms, and physiological factors, including indoor air quality, thermal comfort, classroom lighting, and noise levels" (p. 1). Respondents in both cities were asked to grade their facilities on an A-through-F scale and scored them "just above a C, or 2.17" (p. 1). Washington, D.C. teachers scored their schools 1.98 and Chicago teachers graded theirs 2.50. Overall, about one-third of the teachers in Chicago and more than one-half in Washington, D.C. were dissatisfied with their facilities. Nearly 60 percent of respondents reported that science labs were somewhat or very inadequate, or nonexistent. More than 40 percent said that their "classrooms were the wrong size for the type of education they were trying to deliver, and more than 25 percent reported having taught in non-classroom spaces such as hallways and even closets" (p. 2). Approximately one-third said that they had little or no teacher workspace. Air quality was reported to be only fair or poor in the classrooms of over two-thirds of the Washington and over one-half of the Chicago respondents. Notably, "more than one-quarter of the Chicago teachers and about one-third of the Washington teachers reported suffering health problems rooted in poor environmental conditions in their schools" (p.2). Schneider reports that more than 40 percent of the teachers who graded their facilities with a C or below said that poor conditions had led them to consider changing schools. Those percentages were somewhat

higher among teachers who reported having health effects related to poor facilities. The study did not examine the actual job decisions of these teachers.

Subsequently, Buckley, Schneider, and Shang (2004) used data from a 2003 survey of K-12 teachers in Washington, D.C. to test the extent to which the quality of facilities affects teachers' retention within their current school. The outcome variable in this study was the teacher's response to a dichotomous question: "Do you plan to remain another year in your current school?" The researchers found a statistically significant relationship between the effect of the grade that teachers gave their facilities [A through F] and their plans to stay or leave. "As the perceived quality of the school facilities improves, *ceteris paribus*, the probability of retention increases" (p. 7). Although the effect of facilities' quality proved to be small in comparison with other factors—the effect of the teacher's age, dissatisfaction with the involvement of parents and the community, and length of service at the present school—it was "nevertheless larger than the effect of dissatisfaction with pay ($p < .05$)" (p. 9). Thus, the authors suggest that spending money to improve facilities, which they identify as a "one-time expense," would have as much or greater effect on teacher retention as pay increases.

DIRECTIONS FOR FUTURE RESEARCH

Thus, the available research establishes that the physical conditions of teachers' work influence their satisfaction and sense of efficacy, and that working conditions in low-income schools are likely to be more deficient than in high-income schools. It is less clear specifically what teachers want and need, given inevitable budget restrictions, and what their priorities are for facilities, equipment, and supplies. In general, researchers bundle these (and other) working conditions together. Only Schneider (2003) and Buckley, Schneider, and Shang (2004) distinguish among teachers' responses to specific factors. Still, more fine-grained inquiry is needed about what teachers want and need, and whether certain conditions (for example, having computers that are connected to the Internet) are more important than others (for example, having adequate supplies of paper). Thus, it would be worthwhile to know more precisely to what extent individual factors, such as the quality of lighting or the availability of technology, affect teachers' satisfaction and sense of efficacy. Because the physical conditions of schools are entwined with many other factors—parental involvement, time to meet with colleagues, amount of paperwork—to influence teachers' views of their school or career, it would be informative to conduct in-depth case studies of teachers' experiences in schools with low and high rates of turnover. Researchers could study the coincidence and possible interaction in these settings of various factors known to affect teachers' satisfaction and possible retention.

There is also little analysis of the reasons behind the well-documented inequities between low-income and high-income schools. At the simplest level, these differences reflect uneven funding for schools serving wealthy and poor students. However, some studies suggest that these differences also result from bureaucratic inefficiencies or political patronage. There are imbalances reported within as well as between districts, suggesting that this is not simply a matter of funding levels. It would be worthwhile to conduct a set of comparative case studies in order to learn more about what drives allocation. Better understanding of how these shortcomings occur within and between schools and districts might provide more guidance for policymakers seeking to equalize resources and, thus, better serve students and retain teachers. In-depth case studies would make it possible to explore the influence of different factors—budgeting priorities, bureaucratic practices, political influence, and

administrative leadership—on the perceived adequacy of facilities, equipment, and resources.

Although Schneider (2003) and Buckley, Schneider, and Shang (2004) examine the relationship between the physical characteristics of schools and teachers' career plans, their research did not include data about teachers' actual job decisions. This line of research would be more persuasive and useful if it tracked teachers' movement over time, linking their actual job changes with their prior assessments of facilities, equipment and supplies.

Teaching Assignments

For many teachers, the condition of work that matters most to them is their teaching assignment. Satisfaction with their job and career is inevitably influenced by whether they are assigned to teach a subject and grade level for which they think they are prepared and whether they find their assigned load to be fair and manageable. A recent National Center for Education Statistics (NCES) analysis of survey data on teacher attrition and mobility (Luekens, Lyter, Fox, & Chandler, 2004) reports that 40 percent of teachers who move to another school seek an opportunity for a better teaching assignment (subject area or grade level). Of those in the sample who left teaching, 13.1 percent said that a "very important" or "extremely important" reason for their decision was dissatisfaction with their job description or responsibilities. Qualitative interview studies (Johnson & Birkeland, 2003; Johnson et al., 2004) reveal that new teachers resent assignments requiring them to teach subjects they do not know, require many class preparations, are split between two subjects or schools, or include very large classes. There is no evidence that any one of these factors, in and of itself, leads to turnover. However, it is apparent that each of them can cause stress and dissatisfaction; in combination, they may precipitate teachers' resignation or transfer.

This section examines research about teaching assignments and explores how the problems that teachers encounter can affect retention. It begins with research on teachers' out-of-field assignment, a topic that has been studied and analyzed in some detail. In particular, it notes the impact of this practice on teachers and their students in low-income schools. It then considers teachers' responses to having assignments that require multiple preparations or are split between subjects or schools. Next it examines what is known about how teachers respond to teaching large classes. The section concludes with recommendations for further research investigating the relationship between teachers' assignment and retention.

WHAT IS THE EXTENT OF OUT-OF-FIELD ASSIGNMENT?

Licensed teachers are credentialed by state officials in a particular field (grade level and/or a subject area) by completing approved preparation programs or passing tests demonstrating their competence. Research suggests that when teachers feel well prepared and have a sense of confidence about their work, they are more effective and derive a greater sense of satisfaction from teaching (Rosenholtz, 1989). Although teachers might feel well prepared to teach a subject even though they lack a license to do so, researchers generally assume that teachers who are unlicensed in a field are unprepared to teach in it. Some then infer that teachers assigned to classes for which they are unlicensed are consequently dissatisfied.

There is substantial evidence that teachers are frequently assigned to teach outside their field of licensure. The National Education Association (2003) reports that in 2000–2001, 19 percent of

U.S. teachers spent teaching time outside their area of preparation. Although this percentage is high, it marks a substantial decline from 31 percent in 1961 (p. 27). In the most extensive research on this topic, Richard Ingersoll (2002) analyzed data from the 1990 School and Staffing Survey and reported high levels of out-of-field teaching. He found that about 12 percent of those who teach self-contained classes in grades K-6 do not have a major or minor degree in pre-elementary, early childhood, or elementary education. This may mean that these teachers were unprepared for elementary school teaching, although it may also mean that they had completed a major in an academic field with additional coursework in education, a very prevalent approach to preparation recommended by influential researchers (Darling-Hammond, Wise, & Klein, 1999).

At the secondary level, Ingersoll found that out-of-field teaching was much more common. For example, approximately one-third of all mathematics teachers lacked a major or minor in math or a related discipline. Similarly, one-fourth of English teachers had no major or minor in English or related subjects, while one-fifth of science and social science teachers lacked credentials in their field. Ingersoll concludes: "In the fields of history, English, and math, more than four million secondary students are taught by teachers with neither a major nor a minor in the field" (Ingersoll, 2002, p. 19).

Predictably, the problem of out-of-field placement is more prevalent in schools serving low-income communities than high-income communities. Ingersoll reports that "although teachers in disadvantaged schools are slightly more likely to have fewer qualifications, they are far more likely to be misassigned than are those in advantaged schools" (Ingersoll, 2002, p. 17, italics in the original). Moreover, out-of-field placement is inequitably experienced by new teachers, who often are expected to teach grades or courses that are left over, once experienced teachers have chosen their schedules. Again, Ingersoll finds this problem intensified in high-poverty schools: "[N]ot only are there more beginners in disadvantaged schools, but beginners in those schools are less likely to be fully qualified [licensed]" (p. 16).

Research about teachers' assignments has focused primarily on whether teachers are formally licensed to do the work they have been assigned, although there are many factors about such assignments that can increase uncertainty and dissatisfaction for teachers. It is important to note that even when teachers are assigned to classes that fall within their certification area, there is no guarantee that they will actually be prepared to teach these subjects. Elementary certification in most states entitles individuals to teach students from age 5 to age 13 in all subjects. Yet, clearly, a career kindergarten teacher who is suddenly assigned to teach sixth grade may not know how to effectively teach these older students math or social studies. Similarly, a teacher who is licensed to teach secondary English may be asked in the same year to teach courses in American literature, sports writing, poetry, and non-fiction. Ingersoll (2002) observes that "highly qualified teachers may become highly unqualified if they are assigned to teach subjects for which they have little training or education" (p.5).

Ingersoll (2002) also found that there was widespread school-to-school variation in the frequency of out-of-field placements. He concluded that, although sometimes such mis-assignment results from a shortage of appropriately qualified teachers, the practice is largely the result of administrative mismanagement. "[O]ne of the stronger predictors of the amount of out-of-field teaching in schools," Ingersoll reported, "is the leadership performance of principals" (p. 25). Many people believe that principals' hands are tied by bureaucratic and union restrictions when they

assign teachers. However, Ingersoll concludes: “[S]chools with unions do not have more out-of-field teaching” (p. 25). His analysis shows that, even with the many constraints on their discretion—teacher union work rules, seniority-based assignments, school district regulations, class-size guidelines, and contractual regulations—principals still have “an unusual degree of discretion in staffing decisions” (p. 6).

HOW DOES ASSIGNMENT AFFECT TEACHERS’ SATISFACTION AND RETENTION?

Out-of-field placement unnecessarily increases many teachers’ dissatisfaction with their jobs by making the work difficult day to day and diminishing the likelihood that they can feel pride in their accomplishments. Case studies of new teachers in Massachusetts (Johnson et al., 2004) document the stress that teachers experience when they are unprepared for the subjects they are assigned to teach. They struggle to keep one day ahead of their students, scramble to prepare lessons, and dread the prospect of being put on the spot during class. Ultimately, they worry that their students are being shortchanged.

Some new teachers also are given assignments that span different subject areas. For example, one novice was assigned to teach two English and two history courses in a large urban middle school. Being licensed only to teach English, half of her courses were outside her field. She observed, “I’m completely unqualified to teach history, so it was a bit difficult.” Ultimately, her assignment, which she considered not only inappropriate but unfair, weighed heavily in her decision to leave teaching during her second year (Johnson & Birkeland, 2003).

New secondary school teachers also may find themselves assigned to teach in multiple classrooms or even multiple schools. As they move from room to room, typically wheeling carts loaded with materials, their teaching is made difficult by not having access to reference texts, supplies, records, and blackboards where they can post daily or long-term assignments. It is not unusual for a new teacher simultaneously to experience the stress of teaching out of field, having a split assignment, and moving from classroom to classroom or school to school. The cumulative effect of such conditions often is stress and dissatisfaction.

The number of different courses that a teacher must juggle—even when they all fall within her field of expertise—can greatly affect her capacity to do a good job and, ultimately, her satisfaction with teaching. Luekens et al. (2004) report that 24.2 percent of teachers who left public school teaching and 20.3 percent of teachers who changed schools strongly agreed with the statement “I often felt that my teaching workload was too heavy” (p. 21). As case studies illustrate, a teacher’s response to her workload involves more than a count of the courses she must teach. For example, Johnson et al. (2004) interviewed a first-year Spanish teacher in an urban middle school who was assigned to teach ten different classes each week—210 students in three grades at two ability levels. As a native Spanish speaker, she had sufficient expertise in the subject. However, her job was made extremely difficult by the number of different preparations that her assignment required. After her first year, her principal promised to change her assignment, but ultimately did not. In October of her second year, she resigned and took a full-time position in another district where she taught at two schools. She also found that position unmanageable and left teaching to return to her work in public health.

Class size is another element of teaching assignments with implications for student learning and, thus, teacher satisfaction and sense of efficacy. The Public Education Network (2004) found

that, among new teachers they surveyed, “Large class size was continually raised as a source of dissatisfaction” (p. 19). Luekens et al. (2004) found in analyzing survey data from 2000-2001, that 26.1 percent of those who had left public school teaching and 27.6 percent of those who transferred to different schools strongly agreed with the statement that: “Some of the classes or sections I taught were too large” (p. 21). The National Education Association (2003), which has long sought class-size reductions, reports that class-size ratios have improved recently. In 2001, the average size of an elementary-level class was 21, while the average number of students taught daily by a secondary or departmentalized elementary teacher was 87. Both marked reductions from prior years. Teachers who are inspired to teach for the intrinsic rewards of individualized work with students may find that large classes limit the meaningful interactions—and therefore the psychic rewards—that they can derive from teaching. The Public Education Network (2004) reports that of their respondents, “Teachers with smaller classes felt they could focus more on individual students and have more contact with parents, which was not the case for teachers responsible for large numbers (30 or more) of students” (p. 19).

Because of union contracts and the ways that decisions routinely are made in schools, experienced teachers sometimes can choose the least demanding assignments. Therefore, although many teachers are given inappropriate or unmanageable assignments—an out-of-field class, many course preparations, an excessive student load, or large classes—there is some evidence in the literature that it is the newest teachers who most often experience these challenges in combination (Johnson et al., 2004). Such patterns warrant further verification and analysis, for they may contribute substantially to teacher turnover. Those novices who might have been effective and satisfied with a reasonable assignment may become overwhelmed and discouraged by an unrealistic one and, thus, decide to change schools or leave teaching.

DIRECTIONS FOR FUTURE RESEARCH

Researchers are only beginning to explore the circumstances and consequences of inappropriate, unfair, or unmanageable teaching assignments. Although there is clear evidence from surveys and case studies that these factors influence teachers’ sense of efficacy and satisfaction, it is not clear just how this occurs and what policymakers and school officials might do in response. Do teachers in all kinds of settings find out-of-field placements and heavy teaching loads unacceptable? Or are there particular kinds of school settings, approaches to leadership or collegial interaction, or professional development that enable teachers to be successful in such conditions and, therefore, moderate their dissatisfaction? It would be valuable to know through more detailed surveys and comparative case studies whether particular assignments are thought to be more troublesome than others.

It would be valuable to repeat Ingersoll’s 2002 analysis of out-of-field placement using data from the (2000-2001) School and Staffing Survey. There was considerable change both in policy and staffing during the decade since the early data were collected, and it is important to know whether the problem of out-of-field assignment has increased as schools have experienced greater rates of turnover.

Because teacher assignment lies within the control of school administrators, it is important to better understand how these decisions are made and whether the No Child Left Behind (NCLB) requirements for highly qualified teachers affect the rate of out-of-field placement. Also, it is important to better understand the effects of assignment and load on teacher retention. Longitudinal sur-

veys and case studies of beginning teachers, which could investigate in some detail their stated preferences about assignment and load, the details of their work assignment, and their eventual career decisions, could guide policymakers and school administrators in their work. In addition, detailed surveys of teachers with varying levels of experience would reveal whether teachers' preferences differ at various points in their career.

Although it is clear that teachers prefer smaller classes, there is no systematic research investigating the logic of such preferences. What do they think both they and their students gain when class size is smaller? Is it simply that small classes are easier to teach, requiring less time and energy, or do teachers believe that they are more effective with students in small classes? Or is it both? Would teachers prefer to have more variation in class size in response to the demands of the students—smaller classes for more challenging students and larger classes for less challenging students? The answers to such questions might inform local contract negotiations and school policy.

Curriculum, Standards, and Accountability

U.S. teachers have long exercised considerable discretion in what and how they teach. However, with the introduction of standards-based frameworks and assessments, that discretion has been substantially circumscribed. Mandated accountability for public schools, with its increasing reliance on standardized tests and public ratings of school quality, has drawn new attention to the role of curriculum and assessment in teachers' work. Do they have what they need to be effective in this new policy context? Are they satisfied with the autonomy they retain? Do they believe that their effectiveness in the classroom is enhanced or reduced by being required to follow detailed curricula? Are they encouraged or troubled by the prospect of high-stakes assessments for students and public accountability for schools? Such questions, which concern the very core of teachers' work, have important implications for retention.

Researchers are at the early stages of investigating the effects of standards-based frameworks, curricula, and assessments on the satisfaction, commitment, and retention of teachers. The following discussion first examines whether teachers have access to curriculum for all the subjects they teach and whether what they have is aligned with state standards. It then examines how teachers respond to scripted curricula and being closely supervised in its use. Next it reviews what is known about teachers' responses to standardized tests, required by policy to ensure that standards are met. The section concludes by identifying questions that warrant further inquiry and suggesting specific approaches to research.

WHAT CURRICULA DO TEACHERS HAVE?

Curriculum is central to teachers' work with students. Cohen and Ball (1999) explain that, together, teachers, students, and curriculum provide the "instructional capacity. . .to produce worthwhile and substantial learning" (p. 644). Broadly defined, curriculum may include the scope and sequence of topics to be taught for each subject, the standards-based competencies that students are expected to achieve, and the materials (textbooks, teachers' guides, and assessments) that support and guide teachers' instructional practices.

Scholars differ about the extent to which curriculum should be defined and prescribed for teachers. Some contend that granting teachers autonomy and responsibility for curriculum develop-

ment ensures that they remain engaged in teaching and that their lessons, activities, and assignments are challenging and remain responsive to the needs and interests of their students (Apple & Junck, 1990; McNeil, 2000). Others hold that a well-developed curriculum can be educative for teachers who lack sufficient knowledge about the subjects they teach, and that it can support teachers who may not be able to translate what they know into instructional units and daily lessons (Cohen & Ball, 2000).

Several studies address teachers' responses to curriculum. Kauffman et al. (2002) report on interviews conducted during 1999-2000 with 50 first- and second-year Massachusetts teachers. Despite the state's introduction of standards and assessments, few of these novices reported that they received sufficient guidance about what to teach and how to teach it. Instead, researchers concluded that the new teachers encountered a "curriculum void" (p. 283). Many found the curricula that were provided seldom covered all subjects they were supposed to teach. Often elementary school teachers had textbooks and teacher's guides for mathematics and language arts, but not for science or social studies. The problem was prevalent at the secondary level as well. A secondary school English teacher might have a textbook for American literature, but no materials for a course in writing. Nor was the curriculum that teachers did have well aligned with the state frameworks and tests. Thus, in their first years of teaching, respondents reported being overwhelmed by the responsibility of preparing the curriculum and lessons for several subjects simultaneously. They reported spending countless hours in a "mad scramble" for relevant and useful materials, a situation that was compounded when they had multiple preparations. Many of these teachers said that they would welcome greater direction, even to the extent of having detailed lesson plans, as long as they could use their judgment about when and how to use them. Follow-up interviews with this sample of teachers (Johnson et al., 2004) revealed that some changed schools or left teaching, in part, because of the inadequacy of the curriculum and the pressures this caused.

In their four-year study of three new secondary English teachers, Grossman and Thompson (2004) found that their respondents were "avid consumers of curriculum materials" (p. 18). Like Kauffman et al., these researchers found a lack of alignment between the curriculum materials and the relevant state and district frameworks. The authors described the frameworks as being "quite global" (p. 18) and, therefore, difficult to translate into teaching units and daily lessons. Neild et al. (2003) surveyed teachers in Philadelphia and also found evidence that new teachers lacked curricular guidance. By the end of their first week of school, two-thirds of those attending an induction meeting (which included 266 of 598 new teachers in the district) reported that they had not received the district's Curriculum Scope and Sequence for the courses they were teaching. Such delays undermine new teachers' confidence and sense of efficacy, potentially diminishing the prospect that they will remain in the classroom through their first year.

In 2003, Kauffman (2004) surveyed a random sample of 295 second-year elementary school teachers in three states (Massachusetts, North Carolina, and Washington). Nearly three quarters (75.4 percent) of their respondents reported that they had not received sufficient direction "regarding what to teach and how to teach it" in at least one core subject. The problem was less widespread for mathematics (20.5 percent) and language arts (31.7 percent) than it was for science (56.2 percent) and social studies (69.2 percent). Although science and social studies were required subjects, they were not yet subject to statewide assessments and did not carry high stakes. Teachers were

required to teach the subjects—often with the number of minutes per week mandated by the district—yet they lacked the curricular support to do so.

Although most of the current research about teachers' access to aligned curriculum focuses on novices, some survey data capture veterans' responses. In a national survey of public school teachers, Education Week researcher Hoff (2001) found that "fewer than half said they had 'plenty' of access to curriculum guides or textbooks and other materials that match state standards" (p. 20). Moreover, seventy percent of those surveyed said "they did not have enough time to cover the material needed to meet standards" (p. 28).

ARE THE TEACHERS SATISFIED WITH THE SCRIPTED CURRICULA?

At the same time that many teachers report a lack of curriculum guidance and insufficient materials, some say that they experience too much detailed direction. Often these teachers' schools mandate the use of so-called "scripted" curricula, which specify what teachers should say and do day to day. Some critics argue that scripted curricula "deskill" teachers by diluting the quality of instruction and making teaching unattractive work (Apple, 1990; McNeil, 2000; Troen & Boles, 2003). Notably, however, new teachers studied by Kauffman et al. (2002) and Grossman and Thompson (2004) generally responded that they would welcome this detailed resource as long as they could decide how to use the materials. Some teachers report that, not only do they have access to highly detailed curriculum, but they are required to use it faithfully and are closely supervised to ensure that they do.

In his survey of elementary teachers in three states, Kauffman (2004) found that 22.2 percent of his respondents said that they received "too much direction in one or more subjects" (p. 29). This was much more often the case in mathematics (13.2 percent) and language arts (14.7 percent) than in science (2.0 percent) and social studies (1.6 percent). Notably, teachers in low-income schools were more likely to report that they received "too much direction" than those in medium-income or high-income schools. Kauffman found that roughly half of his respondents reported that someone oversees the content that they teach in math (51.9 percent) and language arts (48.3 percent), while only about a quarter reported that what they teach is checked in science (27.1 percent) and social studies (22.7 percent). However, many fewer reported that their pedagogy—how they teach the content—is monitored—20.1 percent in math, 20.6 percent in language arts, 8.8 percent in science, and 8.1 percent in social studies. Overall, teachers reported that they were more concerned about being monitored for how they teach than what they teach. Kauffman suggests that such findings have implications for the retention of new teachers and, if they remain in the profession, the types of schools where they will choose to work. Those seeking more autonomy may move to less regulated schools, which tend to be in the suburbs. To the extent that the teachers who move from low-income to high-income schools are more knowledgeable, students in low-income communities may be left with less qualified teachers.

Contrasting evidence comes from an earlier study by Archbald and Porter (1994) of high school mathematics and social studies teachers' responses to policies that are intended to control their use of curriculum. These researchers found that "teachers in all conditions studied reported relatively high degrees of personal control over both content and pedagogy" and that there was "little evidence that teachers felt less efficacious or satisfied about their jobs because of curriculum policy constraints" (p. 21). Importantly, however, this research was conducted prior to the introduction of

policies calling for high-stakes accountability. Given recent increases in the use of scripted curricula by school districts, it is important to continue to study the effect of curriculum regulation on teachers' satisfaction and sense of efficacy.

HOW DO TEACHERS RESPOND TO HIGHER CURRICULAR STANDARDS AND INCREASED ACCOUNTABILITY?

There is good evidence that teachers support the introduction of higher standards for student performance. In a poll conducted in 2001 for Quality Counts, 87 percent of teachers agreed that raising standards was "a move in the right direction" and 74 percent said the level of standards in their states was "about right," (Doherty, 2001). Public Agenda (2003) reports "repeated findings" showing that "teachers do not oppose the central tenets of the [standards-based] movement, nor are they sitting around longing for the good old days" (p.12). In a mail survey, "eight in ten teachers (80 percent) say having guidelines for what students should learn helps improve academic performance.... In fact, most teachers (53 percent) say they want local standards initiatives to proceed as planned" (p. 12). Despite the unusually low response rate of this study (27 percent), the findings are consistent with those of other reports.

It is important to recognize that introducing standards is a different matter than mandating standardized tests. Survey research suggests that state-mandated testing plays an increasing role in teachers' work lives, a trend that has accelerated with the rapid implementation of the No Child Left Behind Act. Doherty (2001) reports that a Quality Counts survey revealed that "teachers are feeling pressure from state testing and accountability systems and believe there is too much focus on state tests." Of those polled, 67 percent said that their teaching "had become 'somewhat' or 'far too much' focused on state tests." Notably, nearly two-thirds (66 percent) said they were "concentrating on tested information to the detriment of other important areas of learning" (p. 20).

There is evidence that teachers' practice is affected by the mandated assessments in that they decide what to teach based on what is tested. Olson (2001) summarizing research for Quality Counts 2001, reports: "Teachers may increase their attention to specific topics, shift instructional time to concentrate more on the subjects that are tested, devise exercises that mirror test formats and expectations, and work with their students on such test-taking skills as filling in the bubbles on multiple-choice questions" (p. 15). Wong et al. (1999) who studied teachers' practices in four Chicago high schools found that those teaching in schools that were on probation allocated from 16 percent to 60 percent of instructional time to developing test-taking skills and in schools that had been taken over and reconstituted, "test-related activities [had] begun to displace the standard curriculum" (p.16). These researchers did not focus on whether such practices troubled or dissatisfied teachers, a question that is important to answer if we are to understand the impact of required test-prep activities on teacher retention. Recently, the Civil Rights Project at Harvard University (Sunderman, Tracey, Kim, & Orfield, 2004) reported on surveys with teachers in two urban districts, Fresno, CA and Richmond, VA. The authors concluded that "in response to NCLB accountability, [teachers] ignored important aspects of the curriculum, de-emphasized or neglected untested topics, and focused instruction on the tested subjects, probably excessively" (p.4).

There is evidence that these practices are more prevalent in low-income than high-income schools. Diamond and Spillane (2004) conducted intensive case studies in a sample of schools and found that test-taking strategies are emphasized at the expense of deeper instruction in low-income,

low-performing schools, while high-performing schools are more likely to rely on assessment as a source of information about students' learning and strategies for instructional improvement. Similarly, Kauffman (2004) found that larger proportions of new teachers in low-income schools than high-income schools were required to spend instructional time on test preparation: 45.2 percent (low-income) vs. 20.0 percent (high-income) in math and 43.1 percent (low-income) vs. 28 percent (high-income) in language arts.

Such findings raise important questions about the retention of teachers in the curricular context of high-stakes accountability, especially those working in low-income schools. Teachers have a dual interest retaining discretion to use curriculum materials flexibly and in achieving success with students. If mandated curricula and test preparation activities “deskill” teachers and serve students poorly, it seems likely that many enterprising and effective teachers will seek other schools where they can do their best work and be of greater benefit to students. Often suburban schools are said to offer flexibility for teachers within broad curricular expectations. Initial research suggests that teachers who feel oppressed by curricular prescription and monitoring may well move to school serving higher-income students, which are better organized to support student learning. However, if teachers in low-income schools find that such curricular requirements lead to greater success with students, they may be satisfied with their current assignment and find ways to be creative, despite the constraints.

In one of the few published studies that explores the relationship between increased accountability and teacher retention, Tye and O'Brien (2002) tracked the graduates of a large teacher education program. On the basis of 115 responses and a 12.6 percent response rate, they reported that “[t]hose respondents who had already left teaching ranked the pressures of increased accountability (high-stakes testing, test preparation, and standards) as their number one reason for leaving,” while “respondents who are still teaching [but reported they would consider leaving] ranked paperwork and accountability pressures high—second and third, respectively” (p. 27). Although the limitations of this sample require considerable caution in interpreting the findings, the study does suggest the value of comparing the views of current and former teachers as well as the importance of examining the impact of the new policy context.

Therefore, despite the limited research on this topic, there is evidence that teachers' satisfaction with their work is influenced by the quality of the curriculum they have and the extent to which they are required to follow it. New teachers are especially attentive to whether their schools are clear about what they should teach and they are dissatisfied when they lack adequate curriculum materials to teach their students well. Both new and experienced teachers express concern about whether the curriculum they have is aligned with state frameworks and assessments; whether they can use the materials flexibly in response to their interests and students' needs; and whether they are expected to use class time for test preparation. It appears that, although teachers generally welcome higher instructional standards, they are less accepting of closely monitored teaching practice and mandated lessons in test-preparation. Thus far, only a small number of studies link teachers' dissatisfaction about curriculum and testing to teacher turnover. However, given how important curriculum and assessment are to teachers as they seek to achieve success with their students, it is essential that researchers better understand whether and how inadequate or excessively prescriptive curricula figure into their decisions to change schools or leave teaching.

DIRECTIONS FOR FUTURE RESEARCH

Research about teachers' responses to curriculum suggests that they are dissatisfied both when they have insufficient curriculum materials and when the curriculum materials they do have are not aligned with state standards and assessments. This is particularly true for new teachers, who may leave teaching before they gain sufficient competence to design their own curriculum and decide how to align it with standards. There is also evidence that a well-designed curriculum can serve as scaffolding for increasing teachers' knowledge and skill, while a very general or poorly designed curriculum can limit the development of teachers' instructional competence. Comparative case studies or in-depth of new and experienced teachers' responses to different types of curricula could help us understand the relationship between curriculum materials, teachers' satisfaction with the support they receive, and teachers' instructional effectiveness with students.

As schools and districts respond to federal and state accountability policies, it is important that research track teachers' responses to the new demands. The curricular constraints that teachers found acceptable, even useful, in the mid-1990s may differ substantially from the requirements some teachers face today. There is crucial research to be done about the relationships between curriculum requirements, teachers' interests, and student achievement, particularly in low-income, low-performing schools. It is important to closely track teachers' career decisions (whether they remain in their schools, change schools, or leave teaching) as those decisions relate to mandated curriculum and instructional techniques. Is there evidence that new teachers abandon teaching because it is intellectually stultifying or personally overwhelming within certain curricular and community contexts? Is there evidence that more knowledgeable and skilled teachers, perhaps those certified by the National Board for Professional Teaching Standards, abandon positions in schools where their work is highly prescribed? Inquiry about such questions can begin to fill out the currently meager understanding of the relationship between teacher retention and curriculum, standards, and accountability.

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6

— SCHOOL COMMUNITY —

Teachers' work engages them continuously in the social aspects of schooling. Despite the frequency of interactions with colleagues, principals, students, and parents, there is no assurance that teachers will find them supportive. The fact that two teachers work next door to each other provides no assurance that they will collaborate as colleagues. Some principals are known to increase the rewards teachers experience in their work, while others erode such benefits. The very act of teaching requires prolonged interaction with students; yet, there is no certainty those students will be eager or even cooperative learners. Parents, too, may contribute to teachers' sense of success; but they also may provoke profound misgivings and dissatisfaction. Researchers have explored some of the social aspects of schooling thought to affect teacher retention. The following discussion explores research about teachers' responses to their work with colleagues, principal, students and parents.

Colleagues and School Leaders

When teachers decide whether to stay in their current school, transfer to another, or leave teaching for a different career, they are influenced by the quality of their work with fellow teachers and administrators. Research suggests that the prospects for teacher retention increase when schools are organized for productive collegial work under a principal's effective leadership. Such schools make it possible for teachers to succeed with their students and, thus, to realize the psychic rewards of teaching that initially attracted them to the career. Achieving such satisfaction makes it more likely that they will remain invested in the work. However, with few exceptions, researchers have yet to demonstrate such relationships empirically.

Good studies exist that examine how teachers view their work with colleagues, how collaboration is vital to school improvement, and how principals are essential for the success of school reform. Yet, very few of these studies examine teacher retention as an outcome. Therefore, in reviewing this work, we suggest how these factors combine to influence teachers' sense of efficacy and satisfaction. The following discussion considers what can be learned from key studies about teachers' work with colleagues, the role of teacher collaboration in school improvement, and what principals do to support teachers' contributions to reform. These studies provide a foundation that can inform subsequent research about retention.

DO TEACHERS WANT TO WORK ALONE OR WITH OTHERS?

Although there is evidence that teachers today value collegial work (Kardos, 2004; National

Education Association, 2003), that has not always been the case. The growing importance that teachers attach to their interaction with colleagues appears to reflect both a change in the context of teachers' work and the priorities of the teaching force.

In 1975, Lortie reported that teachers prized the privacy of their classroom and routinely worked in isolation. Based on interviews conducted in 1963 with 94 teachers, randomly selected from a diverse sample of six school districts in the Boston metropolitan area, and surveys administered in 1964 to all teachers in Dade County, Florida, Lortie reported that, from the teachers' perspective, school walls "are perceived as beneficial; they protect and enhance the course of instruction. . . ." Teachers' preference for working alone, he explained, was supported by the belief that "other adults have potential for hindrance but not for help" (Lortie, 1975, p. 169).

For at least a decade, the isolation of teachers was widely believed to be not just pervasive, but inevitable. However, in the mid-1980s, when influential panels of school reformers such as the Holmes Group (Holmes Group, 1986, 1990) and the Carnegie Forum on Education and the Economy (Carnegie Forum on Education and the Economy, 1986), recommended more collaboration among teachers, researchers started to investigate whether teachers still preferred to work in isolation and whether collaboration could be expanded in schools. Johnson (1990), who interviewed 115 public and private school teachers judged to be "very good" by their principals, found evidence that these teachers wanted more interaction. They believed that interdependent work with colleagues contributed to their effectiveness in the classroom. Nonetheless, sustained collaboration was seldom reported to be the norm in their schools.

Teachers' increasing reliance on colleagues is also apparent in survey data collected from a random sample of teachers every five years by the National Education Association (National Education Association, 2003). From the first administration of the survey in 1956, teachers identified "cooperative/competent teacher colleagues/mentors" among the top six factors that "help [them] teach well." Since 1996, however, teachers have ranked this factor as number one.

Teachers' growing interest in collaboration appears to result from two relatively recent developments. The first is the school reform movement, which began in the mid-1980s and continues today. The second is the more recent phenomenon of turnover in the teaching force, with half of U.S. teachers being projected to retire and be replaced between 2000 and 2010. Each development is considered below.

WHAT ROLE HAS SCHOOL REFORM PLAYED IN PROMOTING COLLABORATION AND SATISFACTION AMONG TEACHERS?

Since the mid-1980s, when school reformers set out to revitalize public schools, researchers have tracked reform initiatives in an effort to understand which ones have an impact on student learning. A substantial part of their inquiry focuses on the roles of teachers in reform. Overall, these scholars have concluded that students are best served when schools are organized to promote interdependence and collaboration among teachers. Given teachers' interest in contributing to students' learning and success, this finding has important implications for teachers' satisfaction and retention.

Little (1982) first documented that teachers' collaborative work positively affects student performance in her interview study of 105 teachers and 14 administrators from six urban elementary and secondary schools. The schools were categorized as "relatively successful" and "relatively unsuc-

cessful,” on the basis of students’ standardized test scores. Little found a positive relationship between student achievement and the presence of “patterned norms of [collegial] interaction among staff” (p. 325). She reported that collegiality is especially important when schools take on large-scale change, and she identified four types of collegial practices that typify more adaptable and successful schools. These include teachers’ readiness to discuss classroom practice, their mutual observation and critique of teaching, their shared efforts to design and prepare curriculum, and their joint participation in the business of instructional improvement.

By the mid-1980s, key school reformers turned away from failed efforts to closely monitor teachers’ classroom practice (the early response to *A Nation at Risk*) and proposed instead to make teachers the agents of school-wide reform. Little’s findings about the importance of collegial work provided an important foundation for their efforts. Increasingly, teachers’ contributions to student learning were seen as interdependent, in that a single student’s education was the product of experiences with many teachers. It gradually became clear that teachers could make a far-reaching contribution to students’ learning through regular, sustained collaboration that focused on improving instruction both within and beyond their classroom.

With this new attention to teachers and their work, researchers began to examine the roles and experiences of teachers in diverse samples of schools. In a particularly ambitious and informative study, Rosenholtz (1989) investigated a group of 79 elementary schools in five rural and three urban/suburban Tennessee districts. She surveyed teachers, interviewed a random sample of teachers in schools that had distinctly different organizations, and examined both test score data and demographic data about students and teachers. She found that the teachers’ approach to their work depended largely on what they experienced within their workplace. In schools that Rosenholtz identified as “high consensus,” teachers worked together regularly and shared similar values and views about what was important. These schools “seemed attentive to instructional goals, to evaluative criteria that gauged their success, and to standards for student conduct that enabled teachers to teach and students to learn” (p. 206). In high consensus schools, teachers had roles in decision-making and ongoing opportunities for learning. By contrast, teachers’ opinions and practices were much more disparate in “low consensus” schools, where “few teachers seemed attached to anything or anybody, and seemed more concerned with their own identify than a sense of shared community”. Rosenholtz concluded that the social organization of the school “induced teachers to remain in the workplace and contribute productively to schools” (p. 163).

Subsequently, Louis, Marks, and Kruse (1996) also examined how distinctive patterns of collegial interaction define the course of school improvement. Their findings also suggest how successful collaboration influences teachers’ satisfaction. Between 1991 and 1994, these researchers studied eight elementary, eight middle, and eight high schools, all of which were judged to have made substantial progress in restructuring their academic program. They observed schools and classes, interviewed teachers and administrators, and surveyed teachers. Based on statistical analyses of their interview data, Louis, Marks and Kruse found a higher level of professional community in schools where teachers were “empowered—with influence over school, teacher, and student policy” (p. 774). Such professional communities were distinguished by five elements of practice: shared values, focus on student learning, collaboration, deprivatized practice, and reflective dialogue. On average, they reported, “more satisfied teachers assumed greater responsibility for student learning” (p. 779). Certain school structures, such as scheduled time for collaborative planning or simplified staffing

arrangements, were important supports for building professional community. This research was never conceived as a study of teacher retention, but because strong professional communities are thought to increase teachers' success with students and satisfaction with their work, the findings are relevant to the goal of retention.

Recognizing the importance of teachers' collegial work in school improvement, Bryk, Camburn, and Louis (1999) sought to understand what organizational conditions might promote the emergence of professional communities in a sample of 248 Chicago elementary schools. These researchers conceptualized professional communities as settings in which "interaction among teachers is frequent and teachers' actions are governed by shared norms focused on the practice and improvement of teaching and learning" (p. 753). They found that social trust among faculty members was "[b]y far the strongest facilitator of professional community" (p. 768). Small school size and "facilitative principal leadership and principal supervision" were also important variables supporting the development of professional communities where teachers could do their best work and reap its intrinsic rewards.

In their effort to advance understanding of teachers' work with colleagues, McLaughlin and Talbert (2001) conducted cases studies over four years in 16 California and Michigan high schools, paying special attention to the department as a context for teachers' work. They found meaningful collaboration in only a few settings and concluded that teachers' views about collegial work differed, depending on the specific school or departmental context in which they worked. For example, in Oak Valley High School, norms and practices in the English and social studies departments differed starkly:

Oak Valley English teachers of all pedagogical persuasions expressed pride in their department and pleasure in their workplace: "Not a day goes by that someone doesn't say how wonderful it is to work here," said one. In contrast, social studies teachers, weary of grappling alone with classroom tensions, reveal their bitterness and professional disinvestment. Several plan to leave the school or the profession (p. 76).

McLaughlin and Talbert found that weak professional communities, in which "teachers keep their thoughts and practices private," (p. 41) contrasted markedly with strong professional communities, in which "teachers can more readily experience the intrinsic rewards of teaching—satisfying relationships with colleagues and growth in one's subject area, as well as success in promoting students' learning" (p. 68). They concluded that teachers who worked in isolation pay a stiff price: "Whatever pride in professional autonomy teachers may take from this condition [working alone], most feel isolated in their work and frustrated by the lack of support they get from their colleagues" (p. 69). Having access to such opportunities, these authors contend, augments satisfaction with teaching as a career.

In another comprehensive study of teachers' experiences in school reform, Bryk and Schneider (2002) analyzed the cases of three Chicago elementary schools, selected from a larger sample of 12 schools all of which had been engaged in a major school reform since 1988. In their analysis, the authors found a strong statistical link between improvements in "relational trust" among teachers, administrators, students, and parents in the school and the outcome variable, academic gains for students in reading and mathematics. Reported increases in relational trust during the course of the study (1994-1997) also were accompanied by evidence of greater commitment by teachers to their

schools. Bryk and Schneider consider the importance of socially supportive workplaces in retaining teachers, particularly in urban settings:

In urban contexts such as Chicago, dedicated, energetic young teachers often encounter anomic school norms where teachers are alienated by basic work conditions. Many veteran teachers have come to view their students' needs as so overwhelming. . . that resignation becomes the only survival strategy. Such contexts create a revolving door for young teachers. Unable to establish supportive work relations that make sense to them, these individuals quickly spin out of urban public schools; unfortunately, they often exit the profession as well (p. 136).

Together, these studies demonstrate the importance of teachers' collegial work in deepening teachers' commitment and advancing school improvement. Test scores in reading and mathematics provide evidence that students benefit when teachers collaborate. The studies suggest, but do not demonstrate, a positive relationship between these social aspects of schooling and teacher retention.

WHAT ROLE DO PRINCIPALS PLAY IN PROMOTING COLLABORATION AND SATISFACTION AMONG TEACHERS?

There is much more to understand about how schools promote stronger professional communities that sustain teachers in their efforts to improve teaching and learning. However, it is clear that progress often depends on the quality of school leadership. Repeatedly, these studies point to the importance of the principal in providing both social and structural supports for productive and rewarding collaboration among teachers.

Researchers have found that principals' leadership—or lack of leadership—often determines whether teachers are satisfied with their work and workplace. In a recent NCES report of data drawn from the Teacher Follow-up Survey, 2000-01 (Luekens, Lyter, Fox, & Chandler, 2004), over one-third (38.2 percent) of teachers who transferred to new schools reported that their dissatisfaction “with support from administrators” was either a “very” or “extremely important” reason for leaving. Although research repeatedly confirms the central role that principals play in developing schools where teachers feel supported and work productively with colleagues, there is as yet little in-depth research explaining specifically what a principal does to positively or negatively influence teachers' commitment to the school and the profession.

Research on school improvement consistently finds that principals play a crucial role in implementing successful initiatives. One aspect of such studies often considers whether and how principals include teachers in developing a collective mission or making ongoing decisions about curriculum and instruction. These studies document how principals use their formal authority and the structures of the school, such as the schedule and staffing assignments, to encourage collaboration focused on student learning. And they examine how effective principals promote positive social interactions among teachers as these leaders advance the reform agenda. Given that teachers value working in concert with their colleagues, these findings suggest that principals might increase teacher retention by supporting collaboration and engaging teachers in school improvement.

For example, Louis, Marks, and Kruse (1996) reported that principals who delegate authority and support collective decision-making, in turn, foster a “collective responsibility for student learning and instructional collaboration among teachers” (p. 774). They found that collaborative planning among teachers depends upon principals making the right organizational arrangements to sup-

port this work, such as scheduling time for teachers to meet. Rosenholtz (1989) found that when principals interacted with teachers “to define instructional goals, to select and socialize new recruits, to determine policies of student behavior, and to develop evaluative criteria,” goals about the “importance of students’ basic skills mastery came to be commonly shared” (p. 39). Bryk, Camburn, and Louis (1999) found that professional communities were sustained by support from a strong principal, especially one who had a facilitative leadership style.

Although these studies consider the roles and relationships of principals and teachers, they do not directly address how those roles and relationships might affect teachers’ career decisions. However, Weiss (1999), who used ordinal logistic regression to analyze responses of first-year teachers in the Schools and Staffing Surveys database for 1987-88 and 1993-94, concluded that novices’ views of their workplace conditions were related to their morale, career choice commitment, and planned retention. The new teachers were particularly attentive to whether their principal included them in making decision about such things as curriculum, discipline policy, and the school budget. In her conclusions, Weiss explains how these factors might affect teacher retention: “[S]chool leadership that incorporates teacher participation influences whether new teachers feel it is worthwhile to do their best work, whether they would choose teaching again as a career, and whether they plan to remain in teaching” (p. 866).

In an effort to understand the practices of successful principals, Blase and Blase (2004) analyzed open-ended questionnaires completed by 800 teachers studying in three major universities. Principals perceived to be effective by respondents were commended for being visible in the school, generous with praise, and extending autonomy to teachers, all approaches to leadership that the researchers interpreted as leading to high motivation and morale, an increased sense of security, and willingness among teachers to comply with the school’s agenda for improvement. Conversely, the authors found that principals who interrupt, abandon, criticize, and maintain control over teachers were likely to generate among teachers low motivation, feelings of being unsupported, fear and confusion, avoidance [of work], and feelings of being manipulated or abused.

Similarly, Useem (2003) studied 60 new middle school teachers in seven high-poverty Philadelphia schools and found that turnover rates varied substantially from school to school. At one school, where the new teachers were “unhappy with the school’s climate and administrative practices,” all twelve new teachers transferred or left teaching. Other schools achieved much more stability, leading Useem to conclude that such differences “demonstrate that strong administrators and a collegial staff climate can lead to higher rates of teacher retention” (p. 18). Johnson and Birkeland (2003) also report that, among 50 novice Massachusetts teachers studied over four years, those who decided to leave their schools or the profession often “described principals who were arbitrary, abusive, or neglectful. . . .” (p. 594).

Therefore, in the past two decades, a great deal has been learned about the benefits of teachers’ work with colleagues, and researchers, school officials, or policymakers no longer assume that teachers should be left to work in isolation. Taken together, the evidence suggests strongly that students learn more and teachers experience greater satisfaction and commitment when they are engaged with their colleagues, improving instruction and strengthening the school. Principals shown to support such productive interdependence take the needs and potential contributions of teachers seriously. The current policy context of standards-based reform and accountability contributes further to

this trend, for a school today is unlikely to meet its required “adequate yearly progress” on student learning without the coordinated efforts and investment of teachers school-wide. Changes in teachers’ behavior may alter their beliefs and preferences as well. To the extent that collaboration helps to increase teachers’ sense of efficacy in their classrooms, it is likely also to promote satisfaction, and by inference, increase retention. However, no studies yet have examined whether veteran teachers’ attitudes toward collegiality have changed over time.

HOW DO TODAY’S ENTRANTS TO TEACHING REGARD COLLEGIALITY?

As the prior discussion explains, teachers’ views of collaboration have changed as a result of school reform and the policy context in which it takes place. There is also evidence that new teachers today regard positive interactions with colleagues as an essential part of their work and that they are wary of being isolated in their classrooms. In that regard, their views are very different than those of teachers studied by Lortie 40 years ago. Johnson et al., (2004) write of a new generation of teachers who worry about isolation and criticize colleagues who remain aloof as the novices struggle to survive during their first years in the classroom. The Public Education Network (2004) reports that support from colleagues is one of the top five influences that new teachers in their study felt would affect their teaching efficacy.

On this point, Kardos (2004) surveyed a random sample of 486 first- and second-year teachers in four states (CA, FL, MA, and MI) and used regression analysis to find a strong, positive correlation between new teachers’ ongoing professional interaction with experienced colleagues and job satisfaction (a composite measure that captures the “do-ability of the job” and “strong feelings of contentment”). Kardos concludes that new teachers’ preference for such collegial work has implications for novices’ career decisions. Dissatisfaction with isolated work may drive them from their current schools or from teaching altogether. (See Sections 7 for further discussion of this study.)

Thus, recent studies of new teachers reveal these novices’ interest in collaboration, a preference that seems to be at odds with that of the teachers Lortie studied in 1963-64, who put a premium on privacy and autonomy. The difference in views between these two cohorts suggests that a generational phenomenon may be at work. However, no research yet has demonstrated such a difference between the cohorts.

DIRECTIONS FOR FUTURE RESEARCH

The extant research provides a solid foundation for future inquiry about these topics, and many studies raise important questions or provide promising hypotheses about how teachers’ involvement with their colleagues and principals might affect their job decisions. Extending this line of analysis with both surveys and case studies can enrich our understanding of the relationships among these factors. In particular, issues related to isolation and collaboration require additional research in order to clarify under what circumstances teachers support collegial work. Many school reformers report that they encounter resistance from teachers who prefer to work alone (Evans, 1996). More research is needed to clarify to what extent such resistance is an entirely personal preference, and to what extent it is fueled by contextual factors such as an authoritarian principal, an excessive teaching load, or over-zealous colleagues.

Conducting in-depth surveys about working conditions thought to facilitate teachers’ collegial interactions would be valuable as well. For example, there is considerable agreement that time is a

crucial, scarce resource for all teachers. It would be valuable to know much more about how time is used to promote collaboration in schools that successfully retain teachers. Identifying patterns of social interaction in schools that succeed or fail to retain teachers would be informative. For example, one might study how teachers are grouped for instructional improvement or whether new and experienced teachers respond differently to structures that encourage collaboration. Ultimately, linking teachers' detailed reports about their work to their subsequent career decisions through longitudinal studies will contribute most to understanding how these factors affect retention.

In addition to needing more detailed survey data about teachers' collegial relationships, there is a need for carefully designed comparative case studies of schools that serve similar student populations, but experience different rates of teacher turnover. Given the complexity of the teacher's workplace and the interaction of many factors that influence teachers' satisfaction, it is important to closely examine routine school interactions. However, to be useful to policymakers and practitioners, such qualitative studies must be deliberately designed to build on the findings of prior research. Promising concepts, such as "professional communities" and "relational trust" warrant sustained attention in studies of a range of settings, thus establishing a more complete and coherent understanding of the concepts than currently exists. Also, such qualitative research must be carefully designed so that the findings can be cumulative. For example, examining similar phenomena in schools that serve comparable student populations will provide much more insight about these issues than isolated case studies. Also, longitudinal studies enable researchers to observe over time the development of complex social and professional relationships and practices within schools and, thus, to track the factors that contribute to teachers' satisfaction, commitment, and retention.

Students

Teachers' work can be organized and carried out in many ways, but all teachers teach students. This section explores the complex interaction of factors that can influence the role students and their parents play in teachers' satisfaction and retention.

In 1975, Lortie presented compelling data that highlighted the importance of psychic rewards for teachers. He concluded, "It is of great importance to teachers to feel they have 'reached' their students—their core rewards are tied to that perception. Other sources of satisfaction pale in comparison with teachers' exchanges with students and the feeling that students have learned" (Lortie, 1975, p.106). At the same time, there is evidence that students present one of the greatest sources of uncertainty for teachers in their work—Will they behave? Will they learn? Will I succeed in reaching them? Therefore, in addition to being a potential source of psychic reward, students also represent a strong potential threat to teachers' sense of success.

We begin this section by reviewing recent literature, which confirms that the psychic rewards of working with students are still critical to teachers' sense of efficacy and satisfaction today. The next section explores how experiences with students affect teacher efficacy and satisfaction and identifies the student characteristics that are found to be associated with high teacher turnover. Next, we present some explanations of these transfer patterns. This section then presents some strategies for fostering teachers' sense of success with students, which emerge from the literature. It concludes with suggestions for future directions of research in this area.

WHY DO TODAY'S TEACHERS TEACH?

In the time since Lortie identified the importance of psychic rewards over 30 years ago, research has continued to confirm that the sense of achieving success with students is critical to keeping teachers teaching. In 1971, the NEA added a new question to its Status of the American Teacher survey, which is administered to a national sample of teachers every five years (National Education Association, 2003). It asked why respondents chose to become teachers and why they remain in teaching. With each administration of the survey, teachers have indicated that one of the most important reasons they teach is a "desire to work with young people." In the most recent survey, 73 percent of their survey respondents gave this response while 68 percent indicated that this is the reason they currently remain teaching.

Many teachers seek their sense of success with students in urban and high-poverty areas. Useem (2003) used three years of district data from seven high-poverty middle schools in Philadelphia and interviews with 60 new teachers at those schools to learn about teacher turnover in a climate of reform. She found that in the first year, 52 percent of these new teachers mentioned that what they liked best about their jobs was the students. Similarly, Shann (2001) administered questionnaires and conducted follow-up interviews with 92 teachers in four urban middle schools and determined that "teacher-pupil relationships" was the most important of 14 factors influencing teachers' job satisfaction and professional commitment.

New teachers today also are seeking to succeed with their students. Johnson and Birkeland (2003) report on interviews with 50 first- and second-year teachers from Massachusetts about their work experiences. They concluded, "In deciding whether to stay in their schools, transfer to new schools, or leave public school teaching, the teachers weighed, more than anything else, whether they could be effective with their students" (p. 3). These findings are corroborated by a recent Public Education Network study of new teachers. Among the 82 percent of new teachers who told interviewers that they plan to continue teaching, their primary source of satisfaction was their confidence that they were making a difference in the lives of their students (Public Agenda, 2000).

HOW DO STUDENTS AFFECT TEACHERS' SENSE OF EFFICACY AND SATISFACTION?

Given teachers' desire to be effective in the classroom, students are in the powerful position of enabling or limiting accomplishment of that goal. Through their positive feedback and compliance they enable teachers to reap the psychic rewards they seek; through misbehavior, disrespect, and disengagement they leave teachers wondering whether their effort is worth the paltry extrinsic rewards they receive. While teachers may receive feedback from their principals or from parents on the effectiveness of their work, research suggests that the most powerful and convincing evidence teachers want and receive is the feedback they obtain directly from their students.

Sikes et al. (1985) used multiple interviews to analyze the life histories of 48 art and science teachers in England. They used these data to characterize the kinds of student-teacher relationships that enable teachers to feel they are contributing to students' learning. They found that teachers' relationships with pupils are, indeed, of primary importance to their sense of job satisfaction, but that they matter differently for different teachers. They concluded, "What constitutes the nature of a satisfactory relationship varies, both between individual teachers, and for the same teacher at different times. It can be to do with successfully passing on and sharing subject knowledge, with get-

ting pupils through exams, with preparing them for adult life, with mutual enjoyment and fun in each others' company, and especially for older teachers with hearing about how they have got on since they left school" (Sikes, Measor, & Woods, 1985, p. 156). Clearly, students' relationships with teachers can be multi-faceted and bring rewards to teachers in many different ways.

Metz (1993) sought to understand the dynamics of teachers' dependence on students for professional validation. Her year-long study of eight public and Catholic high schools in Midwestern metropolitan areas involved nearly 150 principal and teacher interviews, a review of school documents and extensive classroom observations. This study demonstrates the weight of the responsibility teachers feel for the effects of their work, as well as the importance to them of explicit feedback in response to their efforts with students. To many, teaching is not a job but a moral activity carrying the weighty responsibility of being in charge of what another person will know. Teachers holding this orientation, then, are "extremely vulnerable to their students" for it is the students themselves whose behavior and responses will provide the teacher with feedback that will inform her understanding of what she has accomplished. Metz also found gender differences in the ways teachers respond when they do not receive positive confirmation for their efforts: male teachers are more likely to respond with feelings of cynicism and anger, while women are more likely to respond with self-doubt. In either case, this frustration and dissatisfaction may send these teachers in search of another school or another line of work that can give them the fulfillment they seek.

Some schools threaten not only teachers' chances of accomplishing their personal goals, but also threaten their sense of well-being. No one wants to remain in a place where they fear for their own safety. An analysis of data in *Quality Counts* (2004) indicates that, on average 12.5 percent of high school students engaged in a physical fight on school property and 8.9 percent were threatened or injured with a weapon at school. These incidents are not restricted to just a few schools; a recent analysis of 1999-2000 data from NCES's *School Survey on Crime and Safety* shows that 71 percent of U.S. elementary and secondary schools experienced at least one violent incident in that year (Chandler, 2004). When these student conflicts occur, teachers are divided about what to do. According to a recent *Public Agenda* survey (2004) for which 725 middle and high school teachers were interviewed, over half of teachers would take the risk of physical intervention, while the rest would be reluctant to do so for fear of getting hurt or risking having legal action taken against them. Either choice presents risks, anxiety and fear; clearly this kind of environment can lead to unhealthy levels of stress, which would diminish satisfaction and might lead a teacher to leave.

Less extreme incidents may also wear on teachers' commitment to remain engaged in their work in schools. Over half of the teacher respondents to the *Public Agenda* survey indicated that the following problems were somewhat or very serious in their schools: bullying and harassment, cheating, disrupting class by talking out and horseplay, rowdiness in the common areas, students showing up late to class, and students treating teachers with a lack of respect. The teachers' responses, while disturbing, are unsurprising: 34 percent of teachers reported they have "seriously considered quitting the teaching profession because student discipline and behavior was such a problem" and an equal proportion of teachers claimed that they knew someone who has actually left for these reasons (*Public Agenda*, 2004, p. 43-44).

Student behavior does not have to be violent or physically threatening to drive teachers out of the classroom. Metz collected the following illustrative vignettes of student disengagement and apa-

thy in the two schools she studied: “students’ heads going down on their desks during a carefully prepared presentation, a whole class failing a test on material that had been faithfully taught, students who passed a test giving no sign of remembering the material if it was referred to six weeks later, students turning their back on the teacher’s lecture to gossip with friends...” (Metz, 1993, p. 131). The teachers in these two schools responded to this student “feedback” with cynicism, anger and self-doubt.

Findings from Steinberg’s 1996 study of student engagement suggest that the observations Metz made in two schools are not atypical. Steinberg’s research involved over 20,000 high school students in nine communities. Nearly 40 percent of these students told Steinberg that “when they are in class, they are neither trying very hard nor paying attention” (Steinberg, 1996, p. 67). An additional 10 percent said they regularly choose to skip class. Such student apathy is an obvious hindrance to success for teachers who desire to achieve high goals with their students. In a study of new teachers in Philadelphia, Useem (2003) found that 52 percent of the third-year teachers who were planning to leave cited dissatisfaction with student behavior as the primary factor contributing to their desire to leave. For these teachers, it seems student behavior inhibited them from deriving the psychic rewards they sought; therefore there was not enough incentive to stay.

ARE STUDENT CHARACTERISTICS ASSOCIATED WITH TEACHER TURNOVER?

Recent studies have shown a clear trend in teacher turnover: schools with lower student achievement levels, higher poverty, higher rates of behavior problems, and more students of color have higher overall teacher mobility rates. In addition, teachers who stay in teaching but change schools tend to move to schools with more wealth and/or fewer minority students.

In the first major study to call attention to teacher turnover patterns, Ingersoll (2001) examined data from the 1990-1991 Schools and Staffing Survey and the 1991-1992 Teacher Follow-up Survey in order to learn more about “movers,” “stayers,” and “leavers.” His regression analyses of school characteristics showed that high poverty schools experience higher turnover, on average, than schools with lower poverty levels. Hanushek, Kain, and Rivkin (2004) recently found similar patterns in their investigation of factors that affect teachers’ mobility. This study investigated four student characteristics—percent low income, percent Black, percent Hispanic, and average student achievement score—all of which were found to be associated with teacher turnover. According to their analyses, these student characteristics are more strongly associated with teachers’ decisions to switch or leave schools than is salary.

A closer look at teacher mobility reveals interesting patterns of teachers who transfer to different schools. Loeb and Reininger (2004) report on studies of teacher mobility that were conducted in California after class size reduction initiatives. The increase in demand for teachers created the space for many teachers to transfer, and many teachers took this opportunity to move from low performing schools to high performing schools. The Philadelphia Public Schools conducted an analysis of its own voluntary and involuntary transfer data over four years and identified this same trend within its district (Watson, 2001). The researchers found that, “when teachers move, they typically leave schools that are achieving less well, that serve students from poorer backgrounds, and that serve greater proportions of African American and Latino students, to move to schools that have higher achievement levels, less poverty, and greater proportions of White and Asian students” (p. 39).

WHAT EXPLAINS THESE TURNOVER PATTERNS?

Teachers want to know that they are making a difference with students, and they have to believe that making this difference is within their power. Clearly, students' socioeconomic status, race, and culture are not characteristics that teachers can control, but teachers can choose how to respond to them. The previous section identified the student characteristics that are associated with teacher turnover, and this section reports on studies which help to explain those associations.

In her 1995 case study of failed reform in an inner-city school, Jean Anyon ties student characteristics to low teacher efficacy. She admits, "The desperate lives most of the children lead make many of them become restless and confrontational; many are difficult to teach and to love" (Anyon, 1995, p. 80). Most teachers will never make such an admission. To do so would require that they either blame the students for their birth and background, or admit that they themselves do not have the skills to reach those students. They don't need to confront this reality if they can move to a new school, district or occupation. The "movers" in Johnson and Birkeland's report of 50 Massachusetts teachers followed the typical transfer pattern from low-income schools to those serving wealthier populations, but the qualitative interview data from this study allowed these researchers to explain why. "They were not simply transferring in search of wealthier students" (Johnson & Birkeland, 2003, p. 599); they were looking for a setting where they would have better prospects of helping their students do well.

One reason student characteristics of race and poverty might be associated with low teacher efficacy for some teachers is their lack of preparedness to work with these students. McLaughlin and Talbert (2001) noticed this pattern among the veteran high school teachers they interviewed as part of a four-year study of 16 high schools in two states. Teachers reported that they felt they were trained to teach very different students than the ones they teach today, yet they were expected to educate all of them. McLaughlin and Talbert noticed that the challenge of teaching a changed and changing student population was especially salient for teachers working in urban California districts where immigration and desegregation policies have caused radical changes in the schools and the students they serve. Today there are teacher preparation programs that prepare teachers specifically for working with high-poverty, urban, and/or diverse populations. However to date there are few good empirical studies which evaluate their effectiveness for teacher retention.

Teachers' self-efficacy is also inevitably influenced by their own personal characteristics, yet research is scant on the interaction between teacher and student characteristics and the relationship of that interaction to teacher retention. Hanushek, Kain and Rivkin (2004) found that teachers' transfer patterns are affected by teachers' and students' racial characteristics. In an analysis of data from Texas, the researchers found that non-Black and non-Hispanic teachers are more likely to exit schools with higher Black and Hispanic enrollment, and conversely Black and Hispanic teachers are more likely to stay in schools with higher Black and Hispanic enrollment. This pattern corroborates studies which have shown that teachers seek certainty in their work and that their certainty is increased when teachers have a prior understanding of their students' backgrounds and cultures.

The potential link between teachers' sense of efficacy with students and teacher retention can be influenced by training, preparation or cultural understanding, but it can also be affected by teachers' beliefs. Ashton and Webb (1986) sought to understand the various environmental influences contributing to teachers' sense of efficacy. Through an ethnographic study that involved inter-

views, observations and surveys in two middle schools and four high schools over a period of two years, they identified several variables that were correlated with teachers' efficacy and student achievement. They found that teachers' cultural expectations and beliefs about intelligence and about the influence of family background on ability are important to teachers' sense of efficacy and to student achievement, a finding which has inconsistent implications for retention. If, for example, despite her belief that all children can learn, a teacher's students are failing, she is likely to experience a sense of helplessness, stress, guilt and low professional self-esteem. On the other hand, a teacher whose students are meeting her low expectations will not experience the same need to leave teaching. This research on teachers' beliefs deserves a place in discussions about teacher retention because it makes it clear how easy—and how detrimental—it would be to improve retention by lowering teachers' expectations of their students.

Teachers with low expectations do not always enter teaching with these beliefs. Instead of admitting their inability to reach certain students or seeking the professional development that might help them to be more successful, research has documented that many teachers guard their egos by redefining their work. Teachers traditionally have had a large degree of freedom to define their work by deciding what to teach, how to teach it, and how much to expect from students for a passing score; when teachers' self-efficacy is threatened, they may teach and expect less. Page (1987) has documented this trend in which teachers of wealthier students provide engaging curriculum experiences while those who work with blue-collar kids offer only curriculum coverage. Similarly, Hemmings and Metz (1990) conducted an investigation of teachers' conceptions of teaching in eight high schools and discovered that teachers create their own ideas about what they are expected to do and achieve based upon perceptions of students' characteristics and abilities. Some teachers in search of greater job satisfaction find the easiest way to achieve that sense of satisfaction is not to change schools or leave teaching, but to lower standards until they feel effective. They find, in fact, that students willingly return the favor with good behavior. (Powell, Farrar, & Cohen, 1985; Sikes et al., 1985) This common scenario serves as an illustration as well as a caution about the complex relationship between retention and teacher quality.

WHAT CAN BE DONE TO INCREASE TEACHERS' SENSE OF SUCCESS WITH STUDENTS?

There is some evidence that teachers and schools can increase the chances that teachers will succeed with their students. According to the studies that follow, teachers' certainty and self-efficacy in their work can be positively influenced by productive approaches to parent involvement, teacher education, and school organization and culture.

Parental involvement.

Parents can be involved in their children's education in many ways, from providing bake sales and homework help to participating in parent conferences and school decision-making. Not all of these ways necessarily contribute to teacher satisfaction. There is almost no research on the types of parent involvement that adversely affect teacher satisfaction, self-efficacy and retention, however Rosenholtz's (1989) research helps us to understand how and why some kinds of parent involvement might increase teacher satisfaction, self-efficacy and retention. Her data show that parent involvement can decrease teachers' uncertainty in four ways. First, parents can help teachers to understand the student and enable the teacher to better individualize the student-teacher relation-

ship. Second, teacher-parent partnerships build trust and common understanding that enable teachers and parents to work together in ways that are beneficial. Third, parent involvement motivates students to be more engaged and to see the importance of schooling. Fourth, the respect and positive communication that teachers receive from parents helps to increase teachers' sense of efficacy and satisfaction. Rosenholtz says, "The greater the recognition flowing to the teacher, the more certain they will feel about a technical culture and their own instructional practice" (p. 110). When teachers are feeling more certain about their work, they are more likely to have the confidence to take the risk of challenging students to meet high standards. It seems a simple compliment or nod of approval from students (and their parents) can not only help teachers find their work to be more rewarding and less stressful, but can improve the effectiveness of those teachers. Rosenholtz found, "Controlling for prior student learning and other teacher background characteristics, teacher certainty contributes significantly to student learning gains in reading and math over a two-year period" (p. 138).

There are clearly many benefits to the types of constructive parent involvement described above, yet research suggests that they rarely happen unsolicited. Researchers have identified the types of teachers who most often initiate parent involvement strategies: teachers of self-contained classrooms, teachers of English and reading, and teachers who share common characteristics with the families they serve (Epstein & Dauber, 1991). If parent involvement can be solicited in all areas, teachers' certainty and effectiveness may well increase. In fact, Epstein and Dauber hypothesize that parent involvement may initiate a cycle in which the teachers' engagement of parents leads to more positive feedback from parents and administrators, which in turn leads teachers to pursue greater levels of parent involvement, and so on in a way that would increase teachers' satisfaction, efficacy and commitment. To improve teacher retention, school leaders might make efforts to initiate this cycle of feedback and involvement.

Of course, parent involvement can also lead to teachers' dissatisfaction, such as when the parent-teacher interactions are fraught with tension and miscommunication. Lawrence-Lightfoot (1978) reminds us of the discord that naturally occurs when the two parties are divided by race, class, status and power. She noticed that the tensions are especially problematic and the potential for misunderstanding even greater when the families are poor. In her more recent work on the topic (2004), she reinforces this idea and traces the source of those tensions back to cultural factors and events from teachers' and parents' own life stories. She suggests that teachers should acknowledge these sources of tension as a first step toward building stronger relationships with parents that will help teachers be more effective and feel committed to remaining in teaching.

Bryk and Schneider (2002) also found that misunderstanding and tension are barriers to parent involvement and relational trust is a key to better parent-teacher relationships. They further suggest that parent involvement is essential to school improvement, but discovered from their work in Chicago that most teachers do not know how to effectively foster parent engagement. Clearly this is an important direction for professional development. According to a teacher survey by the National Education Association (2003), in the 2000-2001 school year 44 percent of teachers participated in professional development activities focused on parent involvement in the schools. We do not know (but it would be important to know) the extent to which such activities succeed in helping teachers feel a greater sense of efficacy in their work with parents and satisfaction in teaching.

Teacher education.

Another way to increase teachers' sense of efficacy is by building their capacity and will to succeed with the diverse learners in their classrooms through pre-service or in-service professional development. There are many resources in the professional literature on this topic (Gay, 2000; King, Hollins, & Hollins, 1997; Ladson-Billings, 1995; Villegas & Lucas, 2002), yet we found few empirical studies that evaluate the impact of these efforts on student achievement, on teachers' self-efficacy, or on retention.

One promising new source of research is UCLA's Urban Teacher Education Collaborative, which has recently begun publishing a report series aimed to document and evaluate the efforts at UCLA's Center X Teacher Education Program, which is designed to prepare teachers for a lifetime career in urban education. One paper, for example, presents a single case study of an innovative urban teacher preparation, induction and support program and draws conclusions about how urban teacher preparation programs might more effectively reduce teacher turnover (Quartz & Teacher Education Program Research Group, 2003). Another employs survey data from over 300 pre-service teachers enrolled in a specialized urban education program in order to characterize those who self-select urban teaching; the survey is intended to inform specialized recruitment and training (Lyons, 2004). The available studies do not identify and evaluate specific strategies for helping urban teachers to feel more effective with their students in ways that will improve teacher retention in high turnover schools. They do, however, raise an important new point about teacher efficacy and urban teacher retention: a need for self-efficacy and commitment may in fact drive urban teachers out of their classrooms as they seek positions of greater influence within education. (Olsen & Anderson, 2004). The work of this collaborative offers promising insight about the difficult problem of turnover in urban schools.

School organization and culture.

School organization and culture, that is, the way a school is organized and the shared beliefs, attitudes and practices of teachers within that organization, can influence how teachers experience their students. There is, for example, some research that indicates that teachers' beliefs about intelligence are influenced and perpetuated within the culture of a school. Work by Metz (1990) emphasized the importance of teachers and students respecting each others' beliefs, and documented a pattern in which the acceptance or disrespect of one another's beliefs becomes "embedded in the school culture and passed on to new teachers through the socialization process." Clearly schools with a culture of student-teacher disrespect are less likely to be satisfactory workplaces.

Schools can be structurally organized to increase teachers' ability to know their students and come to understand their perspectives, enabling them to be more effective and feel more satisfied with their work. Schools can be organized in small learning communities to allow teachers to build stronger social relationships with students (Bryk & Driscoll, 1988). Departments or teams can be organized to enable professional interaction which will support teachers to "make innovations that support student and teacher learning and success" (McLaughlin & Talbert, 2001, p.39). And classrooms can be organized with class sizes which allow teachers to feel they have the opportunity to teach and students the opportunity to learn (Public Education Network, 2004).

Such findings reinforce prior work that highlighted the importance of a culture of commitment. Rosenholtz (1989) examined schools that have different kinds of professional cultures. She

found that in schools where teachers were part of a culture of commitment, teachers focused their efforts more strategically and effectively to support one another in effective practices, such as parent involvement. In schools with a culture of low commitment, teachers noted the gap between home and schools, but did little about it. The culture of expectation about parent involvement may affect how parent involvement influences retention. Low parent involvement may feel acceptable to teachers who have low expectations for parent involvement, but it may leave other teachers feeling resentful and dissatisfied with their work such that they feel a need for change.

Research also suggests that parent engagement is easier to achieve at the classroom level when it is part of the school-wide culture supported by school-wide resources. Case studies (such as Mapp, 1999) document the success of these school-wide parent involvement efforts, which require support from the principal and norms of collegiality among staff. The research suggests that organizing schools to support greater parent involvement can help teachers to feel greater self-efficacy and commitment to their students.

Today as much as ever before, teachers want to be able to make a difference in the lives of their students. Positive student relationships, feedback and compliance may enable teachers to reap the psychic rewards they seek, while misbehavior, disrespect, and disengagement may keep these rewards distant. When teachers do not feel effective in their work with students, dissatisfaction, anger and self-doubt result, and attrition, transfer, or disengagement may follow. While studies show that teacher mobility is highest in high poverty, low achievement, and high minority schools, these transfer patterns may be due to these teachers' lack of preparedness, lack of cultural understanding or beliefs about intelligence and family background. Studies show that parent involvement, teacher education and school organization and culture are three promising levers for decreasing teacher turnover in high mobility schools and districts.

DIRECTIONS FOR FUTURE RESEARCH

Given the salient role students have in teachers' motivation to choose to teach or stay in teaching, the paucity of research linking students to teacher retention is quite remarkable. Many teachers report that they teach because they want to make a difference with students; in order to enjoy the psychic rewards they seek, they need to know how they are doing and they need to be supported to do their work well. To effectively retain these teachers, then, we would need to know more about how teachers decide whether or not they are doing a good job. Case study research about teachers' self-efficacy might identify the ways in which teachers interpret student verbal and non-verbal feedback, parent communication, and formal and informal interactions with colleagues including administrators as evidence of their effectiveness.

One challenge for this research to address is presented by the fact that teachers teach to different ends. Their conceptions of success vary from students' achievement, to good behavior, to "no one got hurt." In the era of No Child Left Behind, for example, teachers are presented with more student achievement data than ever before. Under what conditions, in what contexts and to what extent do teachers accept student achievement data as an indicator of their own performance? Are there other kinds of evidence available that can provide teachers with different, and perhaps more convincing feedback about their efficacy?

Another worthwhile line of research would be to evaluate in-service and pre-service efforts to improve teachers' capacity to meet students' needs. For example, it was noted earlier that 44 percent

of teachers have participated in professional development activities focused on parent involvement in the schools, and that many teachers have been introduced to new ideas about culturally-responsive pedagogy. How do these professional development experiences influence teachers' sense of self-efficacy and actual efficacy with students? There are significant methodological challenges to attributing a teacher's effectiveness with students to a single professional development experience, but instruments exist that could provide much more information than is now available. This type of research could have a considerable impact, for example, on urban teacher turnover. If urban teachers could be given the knowledge and skills to be—and feel—successful teaching the children in front of them, they might be more likely to commit to remaining in these schools.

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7

— CAREER —

The teaching career, and the challenges and supports it offers, may influence teachers' decisions about whether to remain in their schools and the profession. Over time, research has found that teachers measure their success and develop their careers through their work in the classroom (Huberman, 1993; McLaughlin & Yee, 1988). Throughout the career, the stresses and satisfaction encountered within those four walls and the support provided by their school influence their decisions to stay or leave.

Although studies have consistently shown that new teachers focus their development within the classroom, recent research indicates that, with time, some novices expect to take on new roles and expand their influence within schools (Henke, Chen, & Geis, 2000; Johnson et al., 2004). Retaining teachers over a career may require schools to respond to teachers' need for growth inside and outside the classroom. Mentoring and induction, professional development, and new roles and responsibilities may provide the support and opportunities that help to retain novices and veterans.

This chapter considers what is known about teachers' experience in schools over time and examines how teachers' professional needs during specific periods of their career may prompt them to leave their schools. It explores several ways in which schools, in response to teacher needs, have provided support and assesses the influence of these efforts on retention. Specifically, this chapter examines the extent to which mentoring and induction, professional development, and differentiated roles and career ladders help retain new and experienced teachers. The chapter concludes with suggestions for further research.

Turnover and challenges at certain points of the career

Teachers' first years in the profession are particularly difficult, a finding widely reported in the literature (S. Feiman-Nemser, 1983; Johnson et al., 2004; Veenman, 1984). This period is associated to some degree with heavy teacher mobility and attrition among new teachers (R. M. Ingersoll, 2001; Luekens, Lyter, Fox, & Chandler, 2004; Veenman, 1984). In a study based on the job movement of all Texas public school teachers from 1993-1996, Hanushek, Kain, and Rivkin (2004) find that "mobility is much higher among probationary teachers (0-2 years of experience), who are almost twice as likely as prime age teachers (11-30 years of experience) to exit Texas public schools and almost four times as likely to switch districts" (pp. 334-335).

Although the fact is obscured in the aggregate-level numbers representing turnover, experienced teachers also encounter periods of stress, burnout, boredom and dissatisfaction within the

teaching career. While nearly all scholars agree that turnover levels are highest in the early and late years of the teaching career, interest is growing regarding the turnover of experienced teachers well before they have reached retirement age. The work of teachers can be difficult, draining, and repetitive and ample evidence suggests that teachers are asked to do more today than ever before (Hargreaves, 2003).

Research that documents stages within the teaching career provides (particular) insight into turnover. Drawing on extensive interviews with 160 Swiss respondents in the late 1970s, Huberman (1993) outlined phases in the “professional life cycle” of teachers and identified several potentially difficult periods. Each of these phases is characterized by different challenges, which suggest variations in the possible response by schools and implications for turnover.

What supports do new teachers need to stay in their schools and the profession?

Among the most challenging phases of the teaching career, Huberman describes the first few years of teaching, marked by “exhaustion, over-investment, tensions and the uncertainties of trial and error in the classroom, difficult pupils and...feelings of isolation from colleagues” (1993, p. 35). There is further indication that some new teachers intend to remain in the classroom only a short time (Peske, Liu, Johnson, Kauffman, & Kardos, 2001). But do these “short-termers” enter the classroom with a truncated commitment in mind or do the stresses and strains of the job persuade them ultimately to see teaching as temporary work? Given teaching’s short preparation phase, especially with today’s proliferation of fast-track, alternative routes into the classroom, many people can afford try teaching for a few years and then decide whether a career in the classroom suits them.

Regardless of the length of their commitment, novice teachers’ decisions to remain in the profession are tied to their sense of classroom efficacy. Based on a longitudinal, qualitative study of fifty new teachers in Massachusetts, Johnson and Birkeland (2003) report that new teachers’ sense of efficacy—the feeling that they were teaching students well—strongly affected their decisions to change schools or to exit the profession altogether. Induction has been posited as one way in which schools may help novices develop efficacy and thereby retain them in the classroom.

THE EVIDENCE ON MENTORING AND INDUCTION.

Induction programs have multiplied in recent years in response to concerns about new teachers’ struggles and evidence of increasing turnover rates. In the early 1990s, 40 percent of new teachers participated in a formal induction program; by 1999-2000, 80 percent took part (Smith & Ingersoll, forthcoming). Moreover, by the late 1990s, about 70 percent of new teachers in public schools reported that they worked closely with a mentor (Smith & Ingersoll, forthcoming). Although the terms induction and mentoring are often used interchangeably, they are conceptually distinct. Induction programs often include one-to-one mentoring of new teachers alongside other supports, such as classroom management seminars and peer observation sessions.

Mentoring and induction, when well-conceived, carefully implemented, and soundly supported by the schools in which new teacher work, have been shown to positively affect the retention of these teachers (R. Ingersoll & Kralik, 2004). As with many other topics in this review, much of the

research on teacher induction and mentoring is limited by selection bias. Specifically, because the schools that have induction programs also are likely to support teachers in other ways, they may be more likely to retain teachers regardless of whether or not they offer this support. Moreover, the literature is limited by a preponderance of case studies that permit only the most circumscribed conclusions, and many studies fail to consider teacher retention as an outcome. Nonetheless, several sound studies illuminate how mentoring and induction may affect new teacher retention.

Mentoring and new teacher retention

Research suggests that the quality of mentoring varies widely (see, e.g. Sharon Feiman-Nemser, 2001) and, thus, it may have little impact on new teacher retention. Recent studies have taken a closer look at how mentoring is enacted through specific interaction and supports and have discovered promising effects. This more fine-grained analysis helps to explain how mentoring, given specific conditions, may have positive effects on new teacher retention.

The Public Education Network (PEN) (2004) collected data on 200 new teachers through surveys, focus groups, and interviews. PEN researchers find that “most teachers felt they benefited from having a mentor” (p. 34). Effects were especially positive for new teachers who taught the same grade and subject as their mentor and worked more often with him or her. These novices were more likely than their counterparts with less aligned and engaged mentoring experiences to indicate that mentoring “substantially improved their instruction” (p. 32).

Smith and Ingersoll (forthcoming) find a similar, positive relationship between mentoring and new teacher retention in their recent analysis of 1999-2000 Schools and Staffing Survey data and 2000-2001 Teacher Follow-up Survey data. Based on a sample of 3235 first-year teachers, they find that novices who had a mentor in their field were 30 percent less likely to leave the profession at the end of their first year; this statistic was significant at the .10 level (p. 21). However, mentorship did not have a significant impact on novices’ decisions to leave teaching if the mentor’s field differed from that of the new teacher. Moreover, mentorship did not have a significant effect on new teachers’ decision to switch schools.

Kardos (2004) also finds positive yet circumscribed effects of mentoring on new teacher retention. Based on a stratified random sample of new teachers in California, Massachusetts, Michigan, and Florida, Kardos reports that mentoring alone is not a significant predictor of satisfaction among new teachers. However, she finds that mentoring does have a significant, positive effect on new teacher satisfaction if the mentor teaches in the same school and grade as the novice and if the pair had at least three conversations about classroom management in the course of the first year. Thus, given these favorable conditions of matched subject, grade, and school, mentoring appears to have a positive effect on new teacher retention.

Despite these promising results, researchers confirm that high-quality mentoring is rare. The Public Education Network finds that substantive interactions between novices and mentors are infrequent (Public Education Network, 2004). Kardos’ (2004) data indicate that new teachers in low-income schools are less likely to have a mentor and less likely to have a mentor who shares their subject, grade, and school than those in high-income schools. New teacher support, then, appears more limited than one would hope, especially at low-income schools.

Induction and new teacher retention

Several studies suggest that induction is also related to new teacher retention. In one of the most recent and well-done studies, Smith and Ingersoll (forthcoming) explored the impact of induction on new teacher retention in the same study that yielded the mentoring results reported above. Testing the predictors separately, the authors find the following components of induction are associated with a significantly lower likelihood of new teacher attrition: a same-field mentor and collaboration/common planning time. The following components are associated with significantly lower teacher migration: frequent, “supportive communication” with the principal or other administrators and the assistance of a teacher’s aide (forthcoming, p. 23). Collaboration/ common planning time has a particularly large effect on new teacher turnover, decreasing new teachers’ risk of leaving by 43 percent.

Smith and Ingersoll further find that the more components in the induction package experienced by a novice teacher, the lower the predicted probability of turnover. For example, new teachers who experienced no induction had a 41 percent predicted probability of turnover. Those who received what the researchers call “basic induction” (mentoring and supportive administrator communication) had a turnover probability of 39 percent, a reduction in predicted probability of turnover that was not statistically significant. By contrast, new teachers who received bundles of seven induction components (the above plus collaboration/common planning time, seminars, teacher networks, an aide, and reduced course load) had an 18 percent predicted probability of turnover. In this case, the additive effect, meaning the difference between the probability of turnover with no induction components and the probability with seven components, was statistically significant.

Although Smith and Ingersoll (forthcoming) highlight how induction is associated with lower teacher turnover, most schools and districts do not use induction to their greatest benefit. Smith and Ingersoll note, in fact, that only about one percent of new teachers received the seven-component induction package outlined above and the majority received the “basic induction” package. Similarly, Kardos (2004) finds that about half of new teachers in her four-state sample planned and taught alone and did not discuss teaching strategies with other teachers.

Overall, the lesson to be learned is that, under certain conditions, mentoring and induction are associated with increased new teacher satisfaction and retention. Mentoring or “basic” induction alone appear to have little effect on satisfaction or retention. However, given supportive conditions (i.e. a shared field, grade, school, and substantive exchange), mentoring has a positive effect on new teacher satisfaction and retention. Likewise, in the case of induction, the type and number of induction components mediates its effect on retention.

What supports do experienced teachers need to remain in schools and the profession?

The empirical links between teachers’ professional needs, school-based support, and retention are clearest in the case of new teachers. Yet research suggests that experienced teachers also encounter periods of stress or strain and sometimes need fresh opportunities to keep them engaged and enthusiastic about teaching.

Huberman (1993) finds that some teachers with five to ten years of experience encounter “the emergence of a sense of routine, [and] the lowering of energy and interest” (p. 38). His data further

suggest a “danger zone” from seven to fifteen years of experience, in which teachers in his sample were most likely to consider leaving teaching (p. 138). Forty-three percent of the sample cited “[F]atigue, routine, frustration, [and] nervous tension” as reasons they might exit (p. 145).

While boredom and burnout plague some veterans, others seek increased competency in their work with students. They may look outside their classrooms to professional development to help them develop and hone their craft. Others, content with their teaching, may desire a new challenge that would require them to develop new skills, exercise wider influence in the school, and advance professionally.

Indeed, research suggests that some teachers experience stress and uncertainty while others thrive on opportunities to participate in professional development or expand their influence (see, e.g. Little & Bartlett, 2002). Based on their interviews with fifty Massachusetts teachers, Johnson and colleagues (2004) found that new teachers projected that, in the future, they would want opportunities to develop their practice through relevant, high-quality professional development and new roles and responsibilities. Thus, professional development, new roles, and career ladders are three potential ways to bolster retention efforts.

THE EVIDENCE ON PROFESSIONAL DEVELOPMENT.

Professional development has long been posited primarily as a means to update teachers’ skill and knowledge base. In part due to this belief, ninety-nine percent of American public school teachers participate in professional development (Lewis et al., 1999). Yet professional development that raises student achievement could have another benefit: in increasing teachers’ efficacy, it may make them more satisfied and thus, more likely to remain in schools and the profession. Indeed, Huberman finds that one of the primary predictors of ultimate satisfaction with the teaching career is “the experience of achieving significant results in the classroom” (Huberman, 1992 p. 131).

Research shows that professional development has not, on average, improved teacher practice or student performance (see, e.g. Garet, Porter, Desimone, Birman, & Yoon, 2001; Little, 1993). This comes as little surprise to many researchers and practitioners since professional development in the past has taken the form of short, single workshops, delivered to teachers in large groups that preclude personalization and minimize any effect it might have on teachers’ practice. As recently as 2001, “only about one-quarter of California teachers reported...that their professional development was sustained over time with ample participant follow-up and teacher support. Thirty-nine percent reported that their professional development was a series of single events with little or no follow-up” (Shields et al., 2003 p. 90).

There is reason to believe, however, that good professional development may improve teachers’ practice, thus increasing the likelihood of their retention. The literature on professional development, long comprised primarily of brief case studies and “how to” guides, is just beginning to amass an empirical base that suggests how professional development may be linked to teacher retention.

Professional development and teacher efficacy

Several empirical studies isolate those characteristics of professional development that increase teacher efficacy and thus help identify the aspects of professional development that may relate to retention. In an early study of the effects of professional development, Guskey found that, with pro-

fessional development, teachers “seemed to like teaching more, to feel more effective as teachers, and to be more confident of their abilities to handle challenging instructional problems (Guskey, 1985b)” (as quoted in Guskey, 1989, p. 443). He clarifies that the professional development around mastery learning in itself did not produce the described effect. Instead, the effects were due to the combination of the professional development and the gains in student performance observed by the teachers. Thus, according to Guskey, the opportunity to learn new methods, apply them, and observe positive results appeared to increase the teachers’ satisfaction and commitment to teaching.

Building upon Guskey’s findings about professional development and efficacy, Lewis, Parsad, Carey, Bartfai, Farris, and Smerdon (1999) investigated the relationship between professional development and teachers’ sense of “preparedness” for different aspects of teaching and schools. Based on an NCES survey of a nationally representative sample of 4049 teachers, the authors (1999) find that those teachers who had had professional development that focused on particular content (e.g. working with students with disabilities or implementing curriculum standards) felt more prepared to deal with that content than did teachers who did not receive the training. In helping teachers feel prepared, professional development may influence their retention. These results must be interpreted cautiously, however, because measures of “preparedness” were not gathered before the professional development. In other words, those teachers who received the professional development may have felt more prepared even before their training. Thus, estimates of the professional development “effect” may be biased upwards, or appear more positive than the actual impact of professional development.

Another group of studies furthers our understanding of how professional development may relate to teacher retention. These studies further break down the relationship between professional development and efficacy by identifying the components of professional development that likely lead to better teacher and student outcomes.

In 2001, Garet et al. examined how various characteristics of professional development affect teachers’ learning. The authors drew a proportional probability sample of 1027 mathematics and science teachers from data collected to evaluate the Eisenhower Professional Development Program, a federal program that provides funds to districts and other professional development service providers (e.g. universities, museums, libraries). Garet and colleagues find that an emphasis on content knowledge, opportunities to learn actively, and coherence with other development activities are central to professional development that improves teachers’ knowledge and classroom practice. Furthermore, time spent on activities—both in total contact hours and in duration of activity over time—is an important, positive predictor of professional development’s impact on teacher improvement. This study suggests that professional development that provides rich content, engages teachers in learning, connects to other development activities, and is sustained over time leads to improved teacher practice. Professional development that exhibits these characteristics may thus relate to teacher retention.

Professional development and teacher efficacy in today’s standards context

Professional development may have a closer link to teacher satisfaction and retention today than ever before. Recent reforms ask that teachers teach in new ways that may be unfamiliar and difficult for them. Simultaneously, student performance and, thus, teacher performance are scrutinized with increasing detail. Mevarech’s (1995) work in Israel illuminates the new challenges that experienced teachers face. Mevarech conducted several studies based on observations and interviews with experi-

enced mathematics and computer teachers implementing new teaching methods. Summarizing several of his empirical studies, Mevarech finds that “interestingly, although most of the teachers we observed and interviewed had more than five years of experience, at the survival stage they acted like novices. It seems that in implementing the new method they forgot their rich pedagogical knowledge base” (1995, p.155). Applied to today’s US context, veterans may feel lost, confused, and frustrated when they are asked, for example, to teach math using manipulatives rather than relying on a method they have used over time. Professional development may thus increase the efficacy of otherwise competent, experienced teachers who now must teach out of their proverbial comfort zone.

Job-embedded professional development

One relatively new approach to professional development situates this support at the classroom-level and weaves it into the daily work of the school. In contrast to off-site, one-day workshops, job-embedded professional development is ongoing and meant to inform and respond to teachers’ instructional practices more specifically than traditional professional development. Research suggests that this new sort of professional development may influence teacher satisfaction and retention.

Elmore and Burney (1997) examined one district, New York’s District 2, that engaged in such job-embedded professional development. Based on interviews, observations, and document analysis, Elmore and Burney find that, during a particular superintendent’s tenure, District 2 focused on professional development by bringing staff developers into the classroom and encouraging teachers to communicate about and improve their practice. These authors (1997) report that district employees estimate that nearly half of the teachers in District 2 left during the superintendent’s term. Principals counseled weak teachers out of the district and many teachers left of their own volition. The researchers report that the remaining teachers responded positively to the district’s professional development-oriented reforms:

Most principals and teachers with whom we spoke reported that they were gratified, energized, and generally enthusiastic, if sometimes a bit intimidated, by the attention they received through District 2’s professional development strategy. They report attending professional development activities outside the district or conducting visits to other schools and districts and being impressed with the amount of attention that teaching and learning receive in District 2. . . . For the most part, then, teachers seem to be aware that District 2 provides a range of opportunities that would not be available if they were teaching elsewhere, and they seem to value those activities (Elmore and Burney, 1997; p. 29).

Elmore and Burney’s analysis of District 2 shows that professional development, as it relates to the work demands and supports provided for teachers, may play a key role in retention. Professional development in its most intensive, integrated form, may simultaneously attract, retain, and rebuff teachers depending on their individual tastes.

As the research stands, the relationship between professional development and teacher retention remains unclear. Recent research indicates that professional development may increase teacher efficacy through specific activities; retention may then result. Other research indicates that the form and intensity of the professional development may contribute to teachers’ turnover decisions. However, no empirical research to date has examined the direct effect of professional development on teacher turnover.

THE EVIDENCE ON DIFFERENTIATED ROLES AND CAREER LADDERS.

Although Lortie (1975) and McLaughlin and Yee (1988) found teachers sought to develop their careers within the classroom, recent research indicates that some teachers, as they gain experience, want to take on responsibilities and roles in the school at large (Henke, Chen, et al., 2000; Johnson et al., 2004; Little & Bartlett, 2001). Teachers' desire for different tasks and expanded authority may go unfulfilled in this historically flat, undifferentiated profession (Johnson, 1990; Lortie, 1975). However, in the past twenty years, schools have created new roles and career ladders to address teachers' requests for more variety in the teaching career and to increase the instructional capacity of the school.

Differentiated roles and career ladders are conceptually distinct. Differentiated roles are positions that give teachers expanded authority for work outside the classroom. Yet these roles are not necessarily permanent and are not usually arranged in a hierarchy that supplies additional influence with each new role. When teachers surrender their department head position, for example, they resume teaching a full load of courses. Their advancement on the pay scale is uniform before, during, and after serving as department head, even though they may have received a separate stipend for their special assignment. Career ladders, by contrast, create a hierarchy of reward for teachers based on merit. Some career ladders divide the teaching career into stages distinguished by increasing responsibility and leadership. In other versions, career ladders reward outstanding teaching practice. Roles and career ladders became popular during the mid-1980s at the same time as merit pay enjoyed a brief revival, and thus teachers' new positions and responsibilities sometimes have been tied to salary increases.

Notably, in part because new roles and career ladders were tied to pay, these innovations have often been grafted on to existing arrangements and have thus failed to represent real change in the structure of the teaching career. Therefore, we should use caution in assessing the results of studies estimating the impact of differentiated roles and career ladders on teacher retention and satisfaction. Real questions remain regarding the substantive change introduced by the career ladders and differentiated roles that were implemented in the 1980s.

Keeping this caution in mind, research indicates that differentiated roles and career ladders, if effectively implemented, may satisfy experienced teachers' needs for variety, new challenges, and increased responsibility. In this way, new roles may help retain veteran teachers and invigorate their work in schools.

Differentiated roles

Differentiated roles have long existed in American schools, but were in short supply in the past. The department head position at high schools is perhaps the most widespread and enduring differentiated role. Recently, new roles, such as mentor teacher, instructional coach, literacy coach, or grade-level team leader have emerged.

These roles may influence the retention of teachers in at least two ways. First, those who are less experienced may perceive the roles as a promising, future opportunity and thus decide to remain in schools and the profession. Second, teachers who hold the roles may experience heightened job satisfaction and increased retention. The literature suggests that differentiated roles have mixed effects on teacher satisfaction and retention, in large part due to the support, or lack of support, teacher leaders receive while in the role.

In their investigation of teacher leadership roles in a midwestern, K-8 district, Smylie and Denny (1990) underscore the potential influence of leadership roles in retaining less-experienced teachers. Through surveys of a random sample of non-teacher leaders, Smylie and Denny find that “most...perceived some form of benefit from the work of the teacher leaders” (p. 248). Of these benefits, many recorded “professional growth related to classroom practice. Others cited an increased sense of professionalism and commitment to classroom teaching” (p. 249). Lastly, non-teacher leaders highlighted “increased opportunities for professional recognition and rewards” as a benefit of the teacher leader role (p. 250). Unfortunately, Smylie and Denny did not ask teacher leaders to evaluate the impact of the roles on their conceptions of the teaching career.

A new role with new responsibilities may contribute to the retention of experienced teachers. In a recent study of 200 Israeli teachers in twelve schools, Rosenblatt (2001) finds that the majority hold “extra roles” such as grade-level or subject-area coordinator and that holding these roles affects teachers’ experience of job commitment and tendency to quit. Using structural equation modeling, she finds that teachers who hold multiple roles believe their skills are varied and well utilized in their current job and register significantly higher organizational commitment than those who do not hold multiple roles. Rosenblatt also finds that holding multiple roles, in and of itself, does not predict burnout or tendency to quit. Instead, the effect of holding these roles on burnout is mediated by skill variety and utilization, defined as the fit between a person’s conception of his/her own skills and those demanded by the job. Similarly, intention to stay is mediated by skill utilization. The lesson from this study is that holding leadership roles may increase teachers’ commitment to their schools and, if the roles are well-matched to individuals’ skills and offer skill variety, their avoidance of burnout and intention to stay.

For other teachers, entry into new roles with new responsibilities may introduce greater stress and strain. Examining the experiences of California teachers participating in the reform of their high schools, Little and Bartlett (2002) emphasize both the positive and negative outcomes of teachers’ movement beyond the classroom. Drawing on a decade of case studies, Little and Bartlett find that the dominant theme among teacher participants is one of initial enthusiasm for new roles and reform followed by disappointment. However, at one of the seven research sites, researchers found strong, positive effects of teacher participation in roles, in part due to the “seamless congruence” of the definition and enactment of the role (p. 350). Illustrating the differing responses to roles and reform, they note:

In one academic department where teachers took on an especially heavy load of leadership responsibility without compensation or reduction in workload, fully one-half of the teachers spoke of the costs to their personal lives and teaching performance. Turnover in the department was 50 percent over a 3-year period, compared with 15 percent in the same subject field in a school that structured most of the reform work in the regular work week and compensated teachers for extra work time. (p. 349)

This study shows how expanded roles may cause burn-out, dissatisfaction, and turnover for some teachers and satisfaction, growth, and retention for others. On the whole, the effect of roles on teachers’ job satisfaction and possibly their retention appears to rely heavily on the extent to which these roles are supported by schools and the degree to which the role matches the skills of the teacher leader.

Career ladders

Given the speculation about the projected impact of career ladders on teacher retention, this reform was the subject of sustained research in the late 1980s. Similar to differentiated roles, the research on career ladders has yielded mixed results on the question of teacher retention.

Conley and Levinson (1993) examined how career ladders influence the satisfaction and commitment of teachers with different levels of experience. Conley and Levinson surveyed 232 teachers in four districts in a southwestern state. Regression results indicate that participation in career ladder “work design” had a positive, significant relationship with job satisfaction for teachers with more than six years of district experience, but not for those with less than six years in the district. The researchers add that for the more experienced group, “work redesign appears to affect satisfaction primarily through a single item in the work rewards scale, that is, opportunities to use one’s own special abilities” (1993, p. 470). Interestingly, intrinsic rewards were a positive, significant predictor of job satisfaction for both groups, but extrinsic rewards were significant only for the less experienced teachers. Although this study is hampered by response rates as low as 47 percent in one of the schools in the sample, it is one of the only studies to address directly the question of career ladder effects on teacher satisfaction.

Similarly, Ebmeier and Hart (1992) compared questionnaire responses of teachers from 12 Missouri schools that had implemented career ladders with responses from their counterparts in a matched set of 12 Missouri schools without career ladders. The researchers find that, in general, career ladders tended to have positive effects on teachers’ ratings of their morale, commitment, satisfaction and efficacy. Despite this, they do not find significant differences between the two groups of schools in teachers’ desire to stay in education. Teachers with one to four years of experience in career ladder schools rated their schools higher than their counterparts in non-career ladder schools. The authors surmise that the Missouri career ladder may have served as an effective induction program for relatively new teachers, with potential long-term effects on their retention.

Henson and Hall (1993) offer counter-evidence about the effects of career ladders on teacher satisfaction. These researchers interviewed 13 principals and 69 teachers at two schools in a Missouri district that implemented a career ladder tied to performance-based teacher evaluation. The authors find that, for some teachers, the career ladder induced “additional anxiety and stress” due to extra committee assignments, paperwork, and the connection of career ladder advancement, evaluation, and pay (1993, p. 332). These critics also felt the career ladder focused their efforts outside of the classroom at the expense of their teaching. Henson and Hall conclude that, because of the emphasis on completing requirements in order to climb the career ladder and achieve the salary increment, “[i]nstead of promoting professional growth and long-term career development, the ladder has produced a short-run instrumentalism” (p. 341). From this study, then, it appears the institution of a career ladder in this district may have failed to provide substantive career options for experienced teachers. Instead, in creating stress and anxiety, the ladder may well have reduced teachers’ satisfaction in the district studied.

Thus, evidence of the effects of career ladders on teacher satisfaction and retention is mixed. Rosenholtz (1987) and Hart (1994) help to explain these uneven effects by identifying how variations in the design and implementation of career ladders may influence teacher satisfaction. Collectively, these studies suggest that if teachers do not perceive the roles created by their districts and schools as

legitimate, accessible, and “doable,” they are unlikely to view them favorably and, under such conditions, the roles will have little positive influence on teachers’ satisfaction or retention.

Rosenholtz (1987) compares one case of district-implemented career ladders reviewed by Hart in 1985 to another case, based in Tennessee, which she reviews. She concludes that well implemented career ladders, like the one documented by Hart, can provide teachers with welcomed opportunities for growth. However, poorly implemented career ladders, like the one Rosenholtz reviewed, can have negative effects on teachers’ commitment to their work. In the Tennessee case, she finds that teachers questioned the criteria for role selection when their mediocre colleagues were rewarded. This caused teachers to question the career ladder, which led to a decrease in the morale and the professional commitment of those not promoted. Rosenholtz concludes that career ladders may increase teacher retention, but only insofar as the selection criteria and process are embraced as fair and accessible to all teachers.

Similarly, Hart (1994) finds stark contrast in teachers’ response to career ladder implementation in two schools within one district. Based on observations and interviews with teachers, administrators, and students, Hart finds most teachers at one school viewed the career ladder favorably. At the other school, it was viewed as a “burden...on overloaded and exhausted teachers” (1994, p. 481). Hart finds that this contrast is in large part due to the schools’ differing implementation of the career ladder reform. In the first school, there was “a well-articulated communication effort characterized by clarity, shared belief, and positive interpretations and led by the formal leader of the school. This important leadership was not apparent at North...The absence of deliberate exchange left the articulation of the career ladder to the rumor network at North” (1994, p. 491). The relevant lesson from this study is that the career ladder’s effect on teacher satisfaction is mediated by school culture, administrative leadership, and, as Rosenholtz (1987) suggests, by the implementation process itself.

In sum, research indicates that career ladders have mixed effects on teacher satisfaction and potential retention. Early studies found that career ladders had positive effects on some teachers’ satisfaction, but the results were far from conclusive. Further investigation revealed that clear selection processes, committed leadership, and ongoing communication throughout the planning and implementation of a career ladder are associated with more positive response to this reform among teachers. Furthermore, the question of remuneration remains murky. Henson and Hall (1993) find that tying career ladder steps to remuneration took teachers’ focus off professional growth and onto financial gain but Conley and Levinson (1993) find experienced teachers’ job satisfaction immune to changes in extrinsic rewards. Within the relatively unexplored topic of career ladders, the role of extra pay remains a particularly unexamined sub-topic. (See Section Four of this report for further discussion of merit pay.) The generally uneven history of career ladders may explain why their role in teacher retention efforts has been downplayed (Mayrowetz & Smylie, 2004).

Teachers want differentiated work during their career

Despite the mixed record of career ladders, teachers voice a desire for such differentiated work. Hart and Murphy (1990) looked at how new teachers respond to redesigned work roles. In a large, urban district, they interviewed a random sample of 20 teachers with under five years of experience. Based on principals’ ratings and college GPAs, they categorized the teachers in three levels of “promise and ability.” The authors find that new teachers with high promise and ability judge career ladders

and differentiated pay more favorably than those with lower promise and ability. Teachers of high promise and ability discounted short-term roles, preferring stable roles that had close ties with the core functions of teaching and provided growth via teacher leadership. By contrast, teachers judged to have low promise and ability felt roles should rotate to give all teachers access to them and were more likely to question the selection process for the roles. Based on this study, to the extent that schools want to retain teachers of high promise, they should institute differentiated roles.

Similarly, in an analysis based on the Baccalaureate and Beyond (NCES) survey of 1992-1993 high school graduates, Henke et al. (2000) find that many people who had become teachers expected to move out of the classroom. The authors report that, as of 1997, 37.3 percent of the graduates who were still teaching planned to move into non-teaching, education-related jobs. Among Black, non-Hispanic teachers, nearly 50 percent expected to make such a career transition.

In their study of fifty new, Massachusetts teachers, Johnson et al. (2004) found that almost none of the teachers expected to remain solely in the classroom for the entirety of their career. Indeed, nearly all of the teachers who considered a long-term teaching job voiced a desire to take on new responsibilities after a few years in the classroom. As one respondent said, "I think after four or five years of it, I'd be bored. I wouldn't be challenged...you need variety or a new challenge" (p. 233).

Finally, there is evidence that more young people would consider teaching if it offered more opportunities for advancement. A recent survey of 802 college graduates under age 30 revealed that 69 percent believed that "teachers do not have good opportunities for advancement—and at the same time, about seven in ten (68 percent) believe that their current jobs provide this" (Public Agenda, 2000, p. 15). Thus, the absence of legitimate opportunities to advance may prevent people from entering the classroom and hasten the exit of those who become teachers.

If schools fail to offer teachers support and opportunities throughout the teaching career, they risk losing them prematurely. Research shows that thoughtfully designed, well implemented mentoring and induction programs provide the support novices need in order to do good work, feel satisfied, and remain in their schools. There is some evidence that schools and districts are responding to novices' needs by implementing such programs. Research indicates that experienced teachers desire programs—in professional development, new roles, and career ladders—that target their needs as well. The same story holds for these efforts: when designed and implemented well, they may positively influence teacher satisfaction and retention.

It is clear that schools need to respond more proactively to the needs of teachers, new and experienced alike. For both new and experienced teachers, initiatives that help them be more successful with students are likely to increase their satisfaction, enthusiasm, and engagement in the classroom and schools. While new teachers are perhaps more homogeneous in their desire to develop sound classroom practice, experienced teachers express a desire for various forms of support and opportunity. If schools fail to respond to teachers' need for support and opportunity, they risk losing staff at high rates. The loss may be particularly great among those teachers who seek the expanded influence and responsibility most at odds with the traditional course of the teacher career path and the traditional organization of schools.

Directions for future research

Among researchers as among school leaders, there is much to be learned about the relationship of the teaching career to teacher turnover. There are two ways in which the existing research could be vastly improved. First, much of the research on mentoring, professional development, and roles and career ladders has not paid much attention to the quality of the initiative studied. In other words, some mentoring programs exist in name only; novices are assigned mentors but very little “mentoring” occurs. A study that documents the effects of such a program does not advance our practical understanding about what can be done to help new teachers. Thus, we argue that studies must define the program examined and consider how the quality of programs may mediate their effect on teacher satisfaction and retention.

Second, we found no experimental studies of the effects of mentoring, induction, professional development, or roles and career ladders on teacher satisfaction or retention. Thus, when researchers have discovered a positive effect of an initiative they have not been able to attribute it fully and undoubtedly to the intervention. For instance, Smith and Ingersoll (forthcoming) find that a same-field mentor is associated with a lower probability of attrition, but they cannot conclude that the lower probability is due to the mentor. The novices who received the same-field mentor may have been otherwise influenced to stay in the profession by good working conditions, unusually supportive colleagues, or greater overall commitment to the profession. Because the group who received mentoring may differ from the group who did not receive mentoring, Smith and Ingersoll cannot conclude that mentoring caused the probability of attrition to decline. To isolate the extent to which these initiatives cause teacher satisfaction and retention to increase or decrease, we need experiments based on large samples.

Turning to the details of this chapter, the early part of the teaching career has the soundest empirical base in terms of what new teachers experience and how mentoring and induction can help them be more satisfied with their work. Nevertheless, it would be helpful to know more specifically how mentoring and induction support new teachers. What do new teachers need most from mentoring and induction to be successful and satisfied in the classroom? Do different types of new teachers need different things from these programs? For instance, does a recent college graduate require different mentoring than a fifty-year old former navy fighter pilot? Comparative qualitative studies could investigate such questions.

Such research could also advance our understanding of the experiences and career decisions of experienced teachers. Beyond Huberman’s work, which is now somewhat dated, we know little about these teachers’ professional needs and career plans. Qualitative, longitudinal studies that probe how teachers’ needs change over time are warranted. Similarly, we know little about what opportunities appeal to today’s experienced teachers. We know that, in the past, many teachers wanted to hone their skills in the classroom for most of their career. Do today’s teachers feel similarly? What are their long-range plans and what factors influence their decisions? Qualitative research that examines the career decisions of different types of teachers within different kinds of schools would advance our understanding.

Of all the initiatives explored in this chapter, the impact of professional development on teachers’ career decisions is least developed. We found no studies that examine the effect of professional

development on teachers' satisfaction or retention. Moreover, one might assume that teachers enter the profession seeking knowledge and that this might be a key reason they remain in or depart from their schools. Yet our search located no studies that examine how different forms of professional development might feed teachers' thirst for knowledge and intellectual discourse.

Lastly, many of the analyses of differentiated roles and career ladders were conducted in the late 1980s. Since then, reforms have created new roles for teachers and a new generation, with new expectations for the teaching career, has entered the teaching workforce. Do today's teachers evaluate new roles in the way their counterparts of the 1980s did? How might new reforms such as No Child Left Behind and the National Board of Professional Teaching Standards affect teachers' satisfaction with roles and career ladders? Are differentiated roles and career ladders a viable strategy to retain today's experienced teachers? Do these opportunities appeal to some teachers and not to others?

This section of the review uncovers as many questions as it answers. It is clear that there is much to be learned about teachers' careers, the supports they receive, and their decisions about whether to stay in their schools and the profession.

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— CONCLUSION —

This review of research is intended to provide a broad understanding of the issue of teacher retention and to define the range of topics that call for further investigation. Informing the decisions of policymakers and the work of practitioners requires taking a multi-faceted perspective, one that corresponds to the complicated realities of teachers' careers and work. Understanding why teachers choose to stay, decide to find new school, or elect to leave teaching altogether requires knowing a great deal about the potential influence of an array of factors, from pay and teaching assignments to relationships with colleagues and opportunities for professional growth. Given the breadth of issues to be examined, researchers' strategies must be focused, their approaches coordinated, and their findings cumulative.

Educational research about school policy and practice is often diffuse rather than focused, as individual scholars pursue an assortment of questions and hypotheses, using diverse methods and a variety of concepts and measures. Although individual studies may be skillfully designed and informative, the overall impact of such research tends to be more centrifugal than centripetal.

A strong knowledge base about teacher retention can be established only if researchers coordinate their efforts and consolidate what they learn. Both qualitative and quantitative methodologies must be used in iterative fashion if researchers are to appreciably advance what is known about teacher retention. Comparative case studies, carried out with interviews and ethnographies, can increase our understanding of teachers' experiences and preferences.

There is evidence that sub-groups of teachers (e.g., men and women; white teachers and teachers of color; elementary and secondary teachers) respond differently to various opportunities and constraints. Moreover, it appears that teachers' priorities change over the course of their career. What matters to novices is less important to veterans. It is not enough to ask how teachers, as a group, think or act in response to a range of factors, such as pay, working conditions, and career opportunities, because their responses are likely to vary by sub-group and over time. Context matters as well, for the challenges of working in low-income communities differ from those of working in high-income communities. Large schools and small schools present different demands. Certain content areas, such as chemistry or computer science, require facilities and equipment that others, such as English and social studies, do not. Those teaching a subject or grade in which students are tested by the state experience stress that teachers of untested grades and subjects do not. Therefore, it is important that researchers learn systematically from qualitative studies that are designed to provide telling comparisons of groups and contexts.

On the basis of qualitative studies, researchers can generate hypotheses to be tested quantitatively with larger, random samples of teachers and schools. The design of such quantitative studies is stronger when it is informed by qualitative research studies that indicate what factors, sub-groups, and contexts warrant analysis in larger populations. Sound qualitative research can also

ensure that survey questions will be meaningful. Far too many surveys about teacher retention brush superficially across the surface of many topics, rather than exploring any in depth, or they neglect to include answer choices that truly represent respondents' opinions. Many surveys, some with very low response rates, focus on how teachers rank order a series of workplace elements, without achieving any depth of understanding about how these factors might affect practice or interact. Carefully designed quantitative surveys that are informed by qualitative research can generate precise and broadly relevant findings using the power of quantitative methods.

In addition to combining the strategies and advantages of qualitative and quantitative methods, researchers can make strides in understanding teacher retention by attending to differences in the context of teachers' work over time. As this review shows, early and influential research about teachers' work was conducted over thirty years ago with a cohort of teachers who have begun to retire, in a simple and stable policy context that no longer exists. With the turnover of an entire generation of teachers, important questions emerge about whether today's teachers differ in important ways from their predecessors. Are the priorities of today's entrants different? Are they affected by today's labor market, which offers many attractive career options outside education, or today's policy context, which makes intense demands on them for collaborative work and progress on student achievement? Although current research can rely on past studies to inform research design, only a thorough investigation of today's teachers' attitudes and actions can yield findings on which to base future policy and practice.

As those in policy and practice draw practical lessons from research about how best to retain teachers, it will be important to systematically evaluate the programs and activities that they subsequently develop and implement. Much is happening today in the name of teacher retention, with little evidence about whether it is effective. Researchers should continue to conduct empirical studies and develop evaluation tools that can be used to guide such initiatives.

Finally, there are two major outcomes that matter in a study of retention. First, there is the decision that teachers make to remain in their schools, transfer to new ones, or leave teaching altogether. Much of the research reviewed here focuses on teachers' statements of satisfaction or dissatisfaction about their work and workplace, or predictions about their future behavior, that is, whether they are likely to stay or go. Longitudinal studies that track teachers' actual behavior are difficult to conduct but, ultimately, far more informative. However, longitudinal studies provide valuable insights only if a great deal is known about the background and characteristics of the teachers being studied, as well as their experiences and workplace conditions. Typically, the data available to interpret teachers' career decisions are limited to rather routine information, such as salary or the demographic composition of the student body, rather than information that may be equally important, but more difficult to collect and quantify, such as how the principal leads or whether the teacher has access to a good curriculum or useful professional development. Thus, in order for longitudinal research to be truly informative, researchers must systematically collect data about the wide range of factors known to influence teachers' decisions.

The second major outcome that ultimately matters in studying teacher retention is student achievement. As we have seen, studies of teacher retention generally disregard the issue of teacher quality, even though retention is of little value as an end in itself. Ensuring that each of the nation's classrooms has a teacher matters little if students do not learn from her. Therefore, there is a need

for studies to include measures of teacher quality, ideally, measures that take a range of student outcomes into account. Ultimately, sound advice about policy and practice depends on understanding the factors that support and retain the most effective teachers.

— ANNOTATED BIBLIOGRAPHY —

Ballou, D., & Podgursky, M. (1997). *Teacher pay and teacher quality*. Kalamazoo, MI: W. E. Upjohn Institute for Employment Research.

In this book, Ballou and Podgursky employ quantitative methods to create models explaining the impact of teacher pay on teacher quality. The bulk of their argument rests on the premise that teacher quality in the U.S. is poor and that, while it might seem logical that increasing teachers' pay would attract more highly-qualified teachers into the profession (they assert that highly qualified teachers, based on SAT scores, college selectivity, etc., produce better results with students), such strategies actually serve to retain the current teaching force, creating fewer openings for new, better qualified teachers to fill.

Blase, J., & Blase, J. (2001). *Handbook of Instructional Leadership: How Successful Principals Promote Teaching and Learning*. Thousand Oaks, CA: Corwin Press.

In this book, Blase and Blase attempt to fill a gap in the empirical literature on principals' practices that influence teachers and instruction. Over 800 open-ended questionnaires were collected from teachers who were enrolled in graduate coursework at three major universities. The respondents included teachers at all grade levels, from urban, suburban and rural schools, and with varying levels of education and experience. These teachers described their principals' characteristics and provided their own interpretations of how those principals' characteristics influence them and their work. The researchers identified descriptive categories and themes in the responses to code and analyze the data. Findings suggest that successful principals build a culture of collaboration and commitment by giving thoughtful attention to their talk with teachers, to their efforts to promote professional growth, and to encouraging teachers' reflective practice. The data also provide rich examples of the types of behaviors by principals that lead to high motivation, reward and increased sense of security in teachers, as well as those practices that lead teachers to feel confused, fearful, and angry. While these data do not allow conclusions to be drawn about the consequences of these feelings, such as the impact on teacher attrition and retention, they do allow us to identify characteristics of principals that contribute to teacher satisfaction.

Bryk, A., Camburn, E., & Louis, K. S. (1999). Professional community in Chicago elementary schools: Facilitating factors and organizational consequences. *Educational Administration Quarterly*, 35, 751-781.

The authors administered a questionnaire to public elementary school teachers in Chicago in 1994. The questionnaire included six component measures of professional community: reflective dialogue, de-privatized practice, staff collegiality/collaboration, focus on student learning, collective responsibility for school operations and improvement, and teacher socialization. Using a principal

components factor analysis, they developed a construct of professional community and sought to learn what role professional community might play in school improvement. They identified certain structural and human resource factors that support the development of professional community, including small school size and facilitative leadership by the principal. They concluded that having a professional community increases the prospects that the school will be capable of supporting improvement efforts. Given the importance of collaboration, the authors speculate that new teachers must be deliberately socialized if they are to participate effectively in the school. It seems likely that this attention to socializing new teachers would increase their satisfaction as well.

Bryk, A., & Schneider, B. (2002). *Trust in schools: A core resource for improvement.* New York: Russell Sage Foundation.

In an effort to better understand the social dynamics of school change, Bryk and Schneider focused on the experiences of three Chicago elementary schools, drawn from a sample of twelve schools intensively studied in the early 1990s. The three schools represented the range of experiences schools had implementing school reform. The authors use the concept of “relational trust” to frame their analysis. Relational trust—which is an organizational quality that encompasses respect, competence, personal regard for others, and integrity—is played out by individuals in their roles as teachers, principals, parents, and students. Case studies of the three schools provide insight into the way in which relational trust can enhance school improvement. Surveys and test-score data provide additional dimensions to the analysis. On the basis of statistical analyses, the authors conclude that there is a strong statistical link between relational trust and improvements in student learning. They recommend that teachers be involved in collective decision-making and encouraged to take risks on behalf of better schooling. They speculate that, in order to attract and retain better teachers to urban schools, schools must become better professional workplaces that support both new and veteran teachers.

Buckley, J., Schneider, M., & Yi, S. (2004). *The effects of school facility quality on teacher retention in urban school districts.* Chestnut Hill, MA: National Clearinghouse for Educational Facilities.

In this study, Buckley, Schneider, and Yi investigated the effects of the condition of school facilities on teacher retention. Between May and June of 2002, building representatives for the Washington D.C. Teachers Union distributed and collected surveys from K-12 teachers in Washington D.C. (N=835). The response rate was 25 percent. Teacher retention, the outcome variable, was a dichotomous response to the survey question, “Do you plan to remain another year in your current school?” Buckley, Schneider, and Yi found that the condition of school facilities is an important predictor of the decision to remain in a current teaching position. Furthermore, they found that the relationship was positive and statistically significant at the $p < .05$ level. Therefore, the authors concluded that “as the perceived quality of the school facilities improves, *ceteris paribus*, the probability of retention increases” (p. 7). The authors also compared “the marginal change in predicted probability estimated by varying facility quality over its entire range” (p. 8) for select factors and found that the effect of facilities was “larger than the effect of dissatisfaction with pay ($p < .05$).” The authors concluded that the effect of facilities quality is important for policy analysts and administrators to consider as the benefits of improving the condition of school facilities can be equal or greater than those of increased pay.

Carroll, T., Fulton, K., Abercrombie, K., & Yoon, I. (2004). *Fifty Years after Brown v. Board of Education; A Two-Tiered Education System*. Washington, D.C.: The National Commission on Teaching and America's Future.

In this report, writers conclude that it is not fair to hold all students to the same high standards when students who typically need the most help to succeed in school – those in high-poverty areas – have far less adequate educational facilities and resources than do their peers in lower-poverty areas. In order to reach this conclusion, staff of the National Commission on Teaching and America's Future (NCTAF) analyzed responses from 3,336 teachers randomly surveyed by the Peter Harris Research Group for Lou Harris in CA, WI, and NY. Surveys, distributed in the spring and fall of 2002, asked teachers to “describe what really happens in their buildings” (p. 10), and compared teachers' responses in schools that serve high numbers of children at risk (“high-risk schools”) with those of teachers in schools serving low numbers of children at risk (low-risk schools). Carroll concludes that, across the three states and compared with their colleagues in low-risk schools, teachers in high-risk schools reported more uncredentialed teachers, “inadequate physical facilities; ...inadequate textbooks and materials for students to use in class or to take home; inadequate computers and limited internet access” (p. 5). The recommendations based on survey findings include acknowledging unequal school conditions and changing funding formulas; better support for well-qualified teachers and principals; and holding public officials accountable for educational equity.

Community Training and Assistance Center. (2004). *Catalyst for change: Pay for performance in Denver*. Boston, MA.

This report on the four-year pilot of Pay for Performance (PFP) in Denver, CO, provides detailed information on the PFP plan; a quantitative analysis of the impact of PFP on student achievement at the 16 pilot schools; survey and qualitative data on the impact of the plan on stakeholders; and recommendations and implications based on this research. The plan's primary goal is to improve student achievement through the attainment of teacher-developed objectives. These objectives are focused in increasing student achievement, and, if achieved, are rewarded with increased pay. The program evaluation finds that the impact of PFP on student achievement in pilot schools varies. At the elementary level, NCE scores on math and reading were lower than scores at control schools. At the middle school level, NCE scores on writing, math, and reading were higher than scores at control schools. Finally, at the high school level, NCE scores on language, math, and reading tests were higher than at control schools. All of these differences are statistically significant.

Cohen, D. K., & Murnane, R. J. (1985). The merits of merit pay. *The Public Interest*, 3-30.

In this piece, Murnane and Cohen investigate both the history of merit pay and a variety of merit pay plans that were in place in the early 1980s. They identify three challenges to merit pay plans: finding a clear way to decide which teachers deserve merit pay; devising strategies to minimize conflict amongst teachers; and being able to navigate the lack of connection between measures of teacher quality and student achievement. The authors present detailed case studies of the merit pay plans in three districts, including information from other districts where they gathered data. They cite, as the most important implication of their research, the fact that merit pay plans in high-

achieving school districts will ultimately be self-defeating – a fact that Murnane and Cohen believe is not entirely negative, because such plans lay the groundwork for greater cooperation between administrators and teachers.

Decker, P. T., Mayer, D. P., & Glazerman, S. (2004). *The effects of Teach For America on students: Findings from a national evaluation.* Princeton: Mathematica Policy Research, Inc.

In this recent study Decker, Mayer, and Glazerman sought to answer the question: “Do Teach For America teachers improve (or at least not harm) student outcomes relative to what would have happened in their absence?” (p. xi). Based on a pilot study conducted in Baltimore in 2001-2002, they conducted the full-scale quantitative study in five additional regions during 2002-2003. The final research sample included 17 schools, 100 classrooms, and almost 2,000 students, who were randomly assigned to Teach For America (TFA) teachers or non-TFA teachers within the same building and grade level. The researchers conducted two types of comparisons. First they compared gains in achievement by students in classes taught by TFA teachers to those taught by all control teachers—both novices and veterans. Then they compared test score gains by students in classes taught by novice TFA teachers and novice control teachers (novice being defined as someone in her first three years of teaching). It is important to remember that the control teachers in this study are not representative of schools nation-wide. Many of the control teachers, themselves, had not entered the teaching profession through traditional certification tracks. Furthermore, the schools involved were high-poverty schools that have traditionally had a harder time finding and retaining teachers. The researchers found that TFA teachers had a positive impact on the math achievement of their students; the average scores of their students showed one month more progress than student scores of teachers included in the control group. There were no apparent differences in literacy achievement. Decker, Mayer, and Glazerman also found, through survey data, that TFA teachers anticipate leaving teaching at higher rates than their non-TFA counterparts. Only 11 percent of the TFA teachers reported that they expected to remain in the profession as long as they were able, and none expected to stay until retirement. This study raises many questions regarding TFA’s potential to attract and prepare prospective teachers who will remain in the classroom.

Dee, T. S., & Keys, B. J. (2004). Does merit pay reward good teachers? Evidence from a randomized experiment. *Journal of Policy Analysis and Management*, 23(3), 471-488.

In this article, the authors evaluate the effects of Tennessee’s Career Ladder Evaluation System on student achievement. Using data from the Project STAR randomized class-size experiment (n=23,956), Dee and Keys conducted regression analyses that were relatively unbiased because of the randomized student assignments. The authors found that, overall, students assigned to career-ladder teachers showed statistically significant gains in their mathematics scores, but not in their reading scores. More specifically, assignment to teachers at the lower rungs of the career ladder produced statistically significant mathematics gains, while assignment to teachers at the higher rungs did not. The opposite holds true in reading, where students assigned to teachers at the top two rungs of the career ladder showed the only statistically significant gains in reading. Upon conducting tests to see whether their results were confounded by either non-random student reassignments or attrition from the study, the authors found that the results from their original analyses held.

Doherty, K. M. (2001, January 11). Poll: Teachers support standards—with hesitation. *Education Week/Quality Counts 2001*, p. 20.

This short article reports highlights from Education Week’s “National Survey of Public School Teachers, 2000.” Through a telephone survey, which included 1,019 randomly-selected K-12 public school teachers, this research determined that teachers generally support standards. They think that students are working harder and behavior is improving due to new standards. “Eighty-seven percent of teachers agreed that raising standards was a ‘move in the right direction’” (p.20). At the same time, many teachers feel they have not had the training and support they need to implement standards and to use their accompanying assessments effectively. In addition, they believe there is too much emphasis on testing and that they spend too much time teaching to the test and teaching lessons on test preparation. These findings, which appear almost contradictory, identify an interesting tension for teachers at this time when the policy context has gone from having few standards and little accountability to comprehensive standards and school-by-school accountability.

Elmore, R. & Burney, D. (1997). *Investing in teacher learning: Staff development and instructional improvement in Community School District #2, New York City*. Washington, D.C.: National Commission on Teaching and America’s Future.

In this case study, Elmore and Burney examine how New York City’s District 2 used professional development to improve student achievement system-wide. Based on interviews, observations, and document analysis, Elmore and Burney concluded that one of the main aims of District 2’s professional development was to reduce teachers’ isolation and prompt serious conversations about instruction among school faculty members. This was accomplished through a number of coordinated professional development activities, including professional development laboratories, peer observation, off-site trainings, and administrator “walk-throughs,” which pushed teachers to improve their practice. District 2 administrators also created a culture of continuous teacher learning and actively recruited teachers who endorsed this culture. These new efforts influenced teacher turnover in the district. Nearly half of District 2’s teachers left the district during the period in which these professional development efforts occurred. Elmore and Burney found that the remaining teachers were excited about the professional development reforms and assessed their district favorably in comparison to other districts. Specifically, the researchers report that District 2 teachers appreciated the district’s unusually strong focus on teaching and learning and the wide range of professional development options it provided to them.

Farkas, S., Johnson, J., Duffett, A., Moye, L., & Vine, J. (2003). *Stand by me: What teachers really think about unions, merit pay, and other professional matters*. New York: Public Agenda.

This report is based, in part, on the results of a national mail survey of over 1,000 K-12 teachers that asked teachers about their “views on unions, tenure and merit pay, as well as teacher recruitment, evaluation, certification and professional development” (p. 9). The survey response rate was only 27 percent. Data were also collected during six focus groups and through 20 in-depth interviews with “experts in the field of education” (p. 40). While much of this report referred to the results of other Public Agenda studies, there were specific results reported for this study as well. For example, about half of the teachers interviewed in the study reported that working conditions at

their school were “manageable,” while only “3 in 10 (31 percent) say they are very good” (p. 12). In addition, “most teachers believe that their own district fails to remove teachers who do not measure up” (p. 20). Finally, while teachers seek to improve teacher quality, those interviewed are not sure that merit pay is the way to do it. “Only 27 percent think that merit pay would ‘make the teaching profession more appealing to the best and brightest’ – 53 percent don’t” (p. 28).

Farkas, S., Johnson, J., Foleno, T., Duffett, A., & Foley, P. (2000). *A Sense of calling: Who teaches and why*. New York, NY: Public Agenda.

This report focuses on three groups: new teachers, “young college graduates” who did not choose to teach, and supervisors of teachers. The study began with “one-on-one interviews with leading experts” and continued with focus groups with young people in education and in other types of work (p. 8). The remainder of the data were gathered through three telephone surveys: “one of 664 public school and 250 private school teachers with five years’ experience or less; a second of 802 college graduates under 30, now in jobs other than teaching; and a third of 511 school superintendents and principals” (p.8). Overall, Farkas et al. found that the majority of new teachers that they interviewed love teaching. While the teachers do believe that they are underpaid, the intrinsic rewards of teaching and the high sense of efficacy that they experience when they are doing a good job seem to provide rewards that are as appealing (perhaps even more so) than higher pay. About 1 in 5 of the non-teachers interviewed said that they would consider teaching if working conditions were better. Finally, the issue of teacher preparation was discussed, and the results indicate that teacher training programs lack enough pedagogical instruction. Teachers report that they need more “training to manage a classroom” (p.37).

General Accounting Office. (1995). *School facilities: America’s schools not designed or equipped for 21st century* (No. HEHS-95-95). Washington, D.C.

From January 1994 to March 1995, the GAO studied the adequacy of U.S. public school facilities, environmental conditions, and capacities to support technology in the 21st century. Based on survey results from a nationally representative stratified random sample of approximately 10,000 elementary and secondary public schools, and site visits to 10 selected school districts that varied in location, size, and minority composition, the GAO concluded that most U.S. schools are not prepared for the 21st century. The response rate was 78 percent of schools sampled. Among their findings, the GAO reported that many school facilities are insufficient for supporting effective teaching, utilizing computer networks, or conducting science labs. In addition, the GAO found that such problems are more prevalent in schools with a student population that is over 50 percent minority. They also found that “rates of unsatisfactory environmental conditions tend to be higher in schools where over 40 percent of the students are approved to receive free or reduced lunch, where over 50 percent of the students are minority students, [and] in schools in the West” (p. 15).

Goldhaber, D., & Anthony, E. (2004). *Can teacher quality be effectively assessed?* Washington, D.C.: Center for Reinventing Public Education, Evans School of Public Affairs, University of Washington.

This study examines the relationship of National Board for Professional Teaching Standards (NBPTS) certification to student achievement gains as measured by standardized tests, in an effort

to determine if National Board Certification is actually identifying teachers who seem to be more effective in the classroom and whether or not the expense of National Board Certification is cost-effective. Using a value-added model and data from North Carolina, Goldhaber and Anthony link teacher characteristics to the performance of their students. The researchers find that NBPTS certification does tend to accurately identify teachers whose students experience greater achievement gains. It also finds that students of NBCT applicants do not experience greater gains, indicating that during the year of certification, potential National Board Certified Teachers (NBCTs) are not teaching as effectively as they might, and that retaining NBCTs is very important in realizing benefits associated with National Board Certification. It also finds that student achievement for NBCTs varies by grade level (3rd graders with NBCTs benefited more than 5th graders with NBCTs) and type of student (students classified as non-white or non-black had higher gains than white and black students with NBCTs). Finally, it does not find evidence that NBPTS certification leads teachers to be more effective. These findings have potential policy implications for schools in terms of whom to support through the NBCT process and when encouraging NBPTS certification might be cost-effective. More generally, this study acknowledges that an NBPTS-type assessment can measure teacher effectiveness as determined by student gains. This study informs retention efforts insofar as NBPTS certification may provide a means by which we can identify the high-quality teachers who warrant being kept in the classroom.

Grossman, P., & Thompson, C. (2004). *Curriculum materials: Scaffolds for new teacher learning?* Seattle: Center for the Study of Teaching and Policy.

Throughout this four-year longitudinal study, Grossman and Thompson observed and interviewed three new secondary English teachers in order to gauge their response to the curriculum materials that they have been given. The authors were particularly interested in how the teachers understood and used their two sets of curriculum materials. Grossman and Thompson collected data from the teachers about their current work and prior knowledge through interviews (over 11 individual interviews) and observations (observing each teacher a minimum of 5 times). The authors also studied the curricular materials in order to determine whether or not they contained any opportunities for teacher learning. Overall, the authors found that a teacher's first experience with curriculum materials tends to have great impact on their teaching. Over time, Grossman and Thompson found that teachers are able to adjust their practice according to their increased knowledge as well as the needs of their students. However, it was clear that new teachers' eager acceptance of packaged curricula led to a lack of initial critical analysis of their curriculum materials. Thus, Grossman and Thompson conclude that new teachers must be given the opportunity to talk with colleagues about what is useful and not useful about their district's curriculum materials. It is important to keep in mind that while this report is detailed and longitudinal, it has an incredibly small sample size.

Hanushek, E. A., Kain, J. F., & Rivkin, S.G. (2004). Why public schools lose teachers. *Journal of Human Resources* 39(2), 326-354.

Using matched student/teacher panel data on all public elementary school teachers in Texas from 1993-1996, Hanushek, Kain, and Rivkin explore the factors that affect school transitions. In addition to pay differences, they examine the effects of teacher characteristics, school characteristics,

and student characteristics on teachers' decisions to change schools or exit teaching. They found that, when teachers who have taught for less than ten years change schools, they receive, on average, an increase of 0.4 percent over their previous annual salary. This slight change in salary contrasts with the marked change in student population between sending and receiving schools. Overall, teachers who change schools move to schools with higher average student achievement and lower percentages of Black and Hispanic students. The authors did find some differences according to the race of the teacher, with Black teachers tending to move to schools with higher percentages of Black students; Hispanic and white teachers moved to schools with lower percentages of Black and Latino students. Student populations also affect the probability of whether or not a teacher will exit a school: white teachers are more likely to exit a school with a higher minority enrollment rate than with a lower minority rate. On the other hand, on average, the probability that Black and Hispanic teachers will exit a school is lower for schools with high minority enrollment rates. The authors note the fact that teachers' apparent preferences for students of certain ethnicities or certain achievement levels might be a proxy for their desires to work in schools with better working conditions than those they left.

Hart, A. W. (1994). Creating teacher leadership roles. *Educational Administration Quarterly*, 30(4), 472-497.

This comparative case study is based on a year (1983-84) of data collected at two junior high schools implementing career ladders. Hart gathered data through interviews with teachers, students, and administrators, observation, and document analysis. Hart found that the two junior high schools differed markedly in the way they implemented the career ladder and, as a result, this reform provoked divergent responses from the teachers in the schools. In one school, South, "the prevailing assessment. . . was that the career ladder positions had potential as a means for improving instruction, the curriculum, and teacher morale" (p. 481). However, at North, "the prevailing assessment. . . was that the career ladder position caused more problems than they solved and were yet another burden imposed by the legislature and school administration on already overloaded and exhausted teachers" (p. 481). Strong leadership and clear communication by the principal and the teacher leaders helped to facilitate the career ladder's success at South. Such leadership and communication were not present at North. Hart concludes "no matter how carefully planned, or how thoughtfully integrated with good instructional practice, the new work design for teachers in the comparative case study analysis ultimately was shaped within each school" (p. 494). This study highlights how career ladder implementation varies at the local level. Such variation helps to explain how career ladders' influence on teacher retention may vary depending on implementation.

Hoff, D. J. (2001, January 11). Missing pieces. *Education Week/Quality Counts 2001*, pp. 43-45, 48.

In this synthesis of information on standards-based teaching, Hoff reports that researchers have found a discrepancy between state standards and actual classroom practice. Additionally, the emphasis placed on teaching to standards varies greatly from state to state. Hoff reports that few of the teachers surveyed had adequate access to textbooks or curriculum guides or felt they had sufficient access to training related to state standards. In addition, it wasn't until participants received at least 11 hours of training around state standards that a majority of them felt that they could interpret test results, alter their curriculum according to the standards taught, and use test results to "diag-

nose” students. Hoff reiterates other researchers’ suggestions that teachers need time to truly understand their state standards.

Huberman, M. (1993). *The lives of teachers*. New York: Teachers College Press.

Based on 160 interviews with secondary school teachers in Geneva, Switzerland, this study outlines distinct stages in the career of teachers. Huberman found that the career could be divided into the following stages: career entry, stabilization, experimentation and diversification, reassessment, and serenity and relational distance. The data indicate that teachers were most likely to experience struggles in their first few years of teaching, but more experienced teachers often felt doubts about continuing to teach. Huberman identified a “danger zone” between seven and ten years into the career in which teachers often consider leaving the profession. Huberman also found that long-term satisfaction with the teaching career was associated with a sense of success in the classroom and slight role shifts every few years.

Ingersoll, R. M. (2002). *Out-of-field teaching, educational inequality, and the organization of schools: An exploratory analysis*. Seattle: Center for the Study of Teaching and Policy.

This analysis of Schools and Staffing Survey data from 1990-91 identifies out-of-field teaching as a source of educational inequality. Ingersoll attempts to identify the scope of this problem and to explain how it is that so many teachers are teaching subjects for which they hold no undergraduate or graduate major or minor. On the basis of a multiple regression analysis, Ingersoll characterizes the inequity: “Schools with high poverty enrollments, schools with high minority enrollments, and those in urban areas sometimes have less access to qualified teachers” (p. 14). More specifically, teachers in high-poverty schools are less likely to have graduate degrees, more likely to have novice status, and more likely to be teaching out of field. In addition, 45 percent of teachers teaching out of field hold degrees in other subjects, raising important questions about why these teachers have been assigned to teach outside of their training. According to this researcher, the need to fill positions in areas of teacher shortage explains only a small part of the situation. He finds that schools with hiring regulations in place, effective principals, and larger class sizes have less out-of-field teaching than schools that do not. In addition, larger school size and higher starting salaries are associated with less out-of-field teaching. Out-of-field assignment may be a strategy employed by many school leaders to retain teachers, but it goes against the aim of ensuring higher quality teaching. This research highlights the importance of the principal’s role in staffing decisions.

Ingersoll, R.M. & Alsalam, N. (1997). *Teacher professionalization and teacher commitment: A multilevel analysis*. Washington D.C.: National Center for Education Statistics.

These researchers examined SASS data from 1990-91 in order to characterize the relationship between teacher professionalization and teacher commitment. Teacher professionalization is indicated by the use of credentials in hiring, the provision and effectiveness of induction assistance, the extent of participation and support for professional development, the extent of collective and individual authority, and the compensation teachers receive. Teacher commitment was captured by responses to a single questionnaire item: “If you could go back to your college days and start all over again, would you become a teacher or not?” When hierarchical linear modeling was used to examine the association between these characteristics of teacher professionalization and teacher com-

mitment, these researchers found that teachers with higher levels of commitment were also likely to report higher levels of classroom autonomy, greater policymaking influence in their schools, effective assistance for new teachers in their schools, and higher end-of-career salaries. While these statistically significant relationships were not strong, they do provide evidence that teacher commitment can vary across schools and is associated with certain characteristics. This study provides empirical support for future research that might explore how schools can be organized for greater teacher commitment, and ultimately, retention.

Johnson, S. M. (1986). Incentives for teachers: What motivates, what matters. *Educational Administration Quarterly*, 22(3), 54-79.

In this literature review, Johnson explores the link between motivation and teachers' performance. In particular, she examines research evidence about the influences of intrinsic and extrinsic motivators on teachers and looks at new policies aimed at providing teachers with different types of motivators, such as merit pay and career ladder plans. Johnson examines these policies through the lens of three motivation theories: expectancy theory, equity theory, and job enrichment theory. Expectancy theory, pursuing a goal such as improved teaching or student performance, is behind the wave of pay reforms mentioned above. Ultimately, Johnson concludes that, while such pay plans and the potential for higher status that accompanies them might draw teachers to the profession, they are not enough to sustain and retain teachers, particularly the most talented ones.

Johnson, S. M., Kardos, S. M., Kauffman, D., Liu, E. Donaldson, M. L. (2003). *The Support Gap: New Teachers' Early Experiences in High-Income and Low-Income Schools*. Paper presented at the American Educational Research Association Annual Meeting, Chicago, Illinois.

This paper analyzes data from two multi-state surveys (n=374 and n=295) to provide a picture of the types of support that new teachers want, need and receive, and to compare the experiences of teachers who work in low-income and high-income schools. These surveys both received response rates of about 67 percent. The authors examine three types of support: hiring, mentoring and curriculum. They found that, on average, teachers in low-income schools experience hiring that is less personalized, less information-rich, and later than teachers in high-income schools. Additionally, teachers in low-income schools were less likely to receive a mentor, and those who did were less likely to receive a mentor paired by grade, school, or subject than their colleagues in high-income schools. Finally, in the area of curriculum, teachers in low-income schools were less likely to receive appropriate curricular guidance, but also more likely to be provided curricula that are highly prescriptive and test-focused. The low levels of support received by new teachers in low-income schools as documented by these researchers helps to explain the relatively high rate of turnover in these schools. The authors conclude with recommendations that aim to help low-income schools and districts retain quality teachers.

Johnson, S. M., & The Project on the Next Generation of Teachers. (2004). *Finders and keepers: Helping new teachers survive and thrive in our schools*. San Francisco: Jossey-Bass.

In 1999, Johnson et al. began a longitudinal interview study of 50 first- and second-year teachers who worked in various types of Massachusetts public schools. Throughout much of the book, Johnson et al. use the stories of 10 teachers to illustrate critical points present in the testi-

monies of the larger sample of 50. To begin, Johnson et al. report on the characteristics of 50 Massachusetts teachers, concluding that today's new teachers are "more diverse in experience, preparation, and career plans than the retiring generation" (p. 16). Subsequent chapters of the book explore new teachers' feelings about the following topics: pay and the costs of teaching compared with other professions; the characteristics of students and teachers, and the challenges teachers face educating students from increasingly diverse backgrounds; how schools' organizational structures and cultures affect the kinds of teaching and learning that can take place; new teachers' preferences regarding curriculum materials and support; how hiring and teacher induction programs have important implications for how many new teachers remain in the profession; and how new teachers envision their growth in the profession. The authors provide specific recommendations for school administrators, experienced teachers, and policymakers.

Johnson, S. M. (1990). *Teachers at work: Achieving success in our schools*. New York: BasicBooks.

This book examines how a diverse group of teachers, judged to be "very good" by their principals, experience their schools as professional workplaces. With the help of several research assistants, Johnson conducted semi-structured interviews with 115 teachers in order to understand how good teachers felt their schools supported or undermined their work. To generate her sample, Johnson contacted public and private school principals and asked them to recommend teachers "whose work is respected by their colleagues and whose contributions to the school would be missed if they were to leave" (p. 345). Based on these recommendations, teachers were selected in order to ensure a sample that would be diverse by subject, assignment, grade level, years of experience, gender, race, and ethnicity. Johnson finds that teachers assess their work and workplaces on the basis of physical, organizational, sociological, economic, political, cultural, and psychological factors. She finds that teachers placed the most importance on factors that promoted or obstructed their success in the classroom. On the whole, she finds that, public schools "prove to be deficient workplaces" (p. 326). Johnson concludes that "in a variety of ways, the school as a workplace determines the character and quality of schooling, promoting satisfaction, commitment, and continuing improvement of practice or causing discouragement, withdrawal, and an ever-worsening instructional climate" (p. 326).

Kardos, S. M. (2004). *Supporting and sustaining new teachers in schools: The importance of professional culture and mentoring*. Harvard University, Cambridge, MA.

Based on a survey of new teachers in four states, Kardos finds that mentoring, under certain conditions, is associated with new teacher satisfaction. She selected a stratified, random sample of 486 first- and second-year teachers with a response rate of 65 percent. Kardos found that 78 percent of her sample had been assigned mentors but that few novices had mentors who shared their grade and school or with whom they conversed frequently about teaching matters. She did not find a significant effect of mentoring, tested alone, on satisfaction among new teachers. However, she found that new teachers whose mentors teach the same grade, in the same school, and converse with them at least three times about classroom management are, on average, more satisfied with their jobs. Kardos also found a significant relationship between satisfaction and a school's having an "integrated professional culture." Such a culture includes novices and veterans, features frequent exchange and collaboration, and reduces novices' responsibilities. To the extent that satisfaction is related to

retention, Kardos's findings suggest that mentoring and integrated professional cultures may help retain novices.

Kauffman, D. (2004). *Second-year teachers' experiences with curriculum materials: A three-state survey*. Unpublished manuscript in preparation, Harvard University, Cambridge.

For this study, Kauffman conducted a survey of a random sample of second-year, K-5 teachers in three states (Massachusetts, North Carolina, and Washington, $n=295$, 67 percent response rate) to investigate their experiences with curriculum. He found that 75.4 percent of the teachers did not feel that they received sufficient direction regarding "what to teach and how to teach it" in at least one core subject area. Only 22.2 percent of the teachers in the study reported receiving too much direction in at least one core subject area, and very few teachers reported that this was the case in the areas of science and social studies. While Kauffman found that many of these new teachers were required to teach specific content in mathematics (96.5 percent), fewer teachers reported having similar pedagogical requirements (40.8 percent). However, Kauffman reports that of the teachers who reported high prescription, it is the prescription of pedagogy that was of greater concern to teachers than other types of curriculum constraint. Finally, Kauffman studied the percentage of respondents who believe that they receive the right amount of direction regarding what to teach and how to teach it and found that mathematics (66.4 percent) is the most supported subject, followed by language arts (53.5 percent), science (41.8 percent) and social studies (29.2 percent).

Kauffman, D., Johnson, S. M., Kardos, S. M., Liu, E., & Peske, H. G. (2002). "Lost at sea": New teachers' experiences with curriculum and assessment. *Teachers College Record*, 104(2), 273-300.

In this interview study of 50 new teachers in Massachusetts, Kauffman et al. found that most of the participants received "little or no guidance about what to teach or how to teach it" (p. 273). Although the results of this study cannot be generalized, the finding that most new teachers in this sample wanted more support regarding curriculum is notable. Approximately 20 percent of study participants were not given any direction regarding curriculum. Over half of the respondents reported that they were told what had to be taught but were given no curricular materials or other types of guidance. Kauffman et al. found that these teachers spent a good deal of their own time and money purchasing or creating instructional materials. Finally, a larger proportion of teachers in low-income than high-income schools said that their curriculum was too closely specified and that they were required to conduct test preparation. Ultimately, the authors conclude that new teachers appreciate the curricular support that they are given and, with the exception of some teachers who reject scripted curricula, usually crave more, not less, of this type of support.

Lankford, H., Loeb, S., & Wyckoff, J. (2002). Teacher Sorting and the Plight of Urban Schools: A Descriptive Analysis. *Education Evaluation and Policy Analysis*, 21(1), 37-92.

In this article, the authors utilize data on all teachers in New York State from 1984-85 through 1999-2000 to explore the variation in teacher attributes across schools, districts, and regions in the state. The authors employed a descriptive analysis and found evidence of systematic sorting within the New York state public schools, based on teacher qualifications, such as the caliber of their undergraduate institution, their certification status, or their performance on one of two teacher tests. Overall, teachers in urban schools, and teachers of non-white, low-income, and low-

achieving students are less-qualified than other teachers. In their examination of teacher transfers between districts, Lankford, Loeb, and Wyckoff found an average gain of \$4,798 in actual teacher salaries between the sending and receiving districts. The authors assert that salary is a potential policy tool for influencing teacher decisions, and thus the distribution of teachers across schools, districts, and regions.

Levin, J., & Quinn, M. (2003). *Missed opportunities: How we keep high quality teachers out of urban classrooms.* Washington, DC: New Teacher Project.

This recent study by Levin and Quinn, researchers for The New Teacher Project, demonstrates empirically that a delayed teacher selection process in hard-to-staff urban districts is associated with the movement of higher quality applicants out of the candidate pool. Levin and Quinn conducted their study in four large, urban districts located in the Southeast, Midwest and East. For each district, they created an applicant tracking database for the 2002 hiring cycle; conducted follow-up surveys of a sample of applicants to two districts; reviewed applicants' files in one district; and interviewed human resource personnel in districts near the four focal districts. Levin and Quinn found that the late-summer hiring conventions of the four urban districts differed sharply from the spring hiring of the surrounding districts. In 50-70 percent of the cases, the lateness of hiring was one of the major reasons candidates gave for withdrawing their applications for jobs in the urban districts, although the response rate per district for these surveys was low—27 percent in one case. Levin and Quinn further found that people who withdrew their applications were “more qualified:” they had significantly higher college GPAs, more education coursework, and were more likely to have a major or minor in the field they would have taught. This study suggests that, if school officials are concerned with attracting and retaining the strongest possible teaching staff, the hiring process must be conducted in a timely way.

Little, J. W. (1982). Norms of collegiality and experimentation: Workplace conditions of school success. *American Educational Research Journal*, 19(3), 325-340.

In this earliest and most influential studying relating collaboration among teachers with student performance, Little conducted semi-structured interviews with 105 teachers and 14 administrators in six urban, desegregated elementary and secondary schools, selected to represent a range of involvement by teachers in staff development and a range of success on standardized achievement tests. Drawing on the interview data, Little characterizes teachers' work practices, with particular attention to those that might be characterized as collegial. Overall, she found more evidence of collegial interactions in schools that were more successful than in schools that were less successful. The components of a collegial workplace identified in 1982 serve as the foundation for subsequent conceptualizations and research about professional communities during the 1990s.

Little, J.W. & Bartlett, L. (2002). Career commitment in the context of comprehensive school reform. *Teachers and teaching: Theory and practice* 8, (3/4).

This paper summarizes the findings from a decade of ethnographic case studies conducted by Little and colleagues, which document teachers' response to reform in a sample of California high schools. In most of the cases, reforms involved expanded teacher roles. In the first two rounds of case studies, Little and colleagues found that the teachers involved in reform were at first enthusiastic

but ultimately disappointed by their participation. Reform, the authors recount, often led to stress, burn out, and turnover. The authors report a similar finding from the second round of case studies, and connect teachers' dissatisfaction with the reform and roles to inadequate and inconsistent institutional support. The most recent round of studies, however, included one school in which teachers responded positively to reform and new roles and another school in which teacher response differed by academic department. Little and Bartlett judge that, in the case of the first school, "whole school congruence" reinforced expanded teacher roles and was responsible for their success. In the case of the second school, the authors find that "innovation bubbles" allowed certain groups, often academic departments, to experience roles positively. The researchers find, thus, that new roles may represent a paradox first described by Huberman: that large-scale reforms provide an opportunity for considerable growth as well as potential disenchantment.

Liu, E. (2004). *New Teachers' Experiences of Hiring in Four States*. Harvard University, Cambridge, MA.

This study is based on a random sample survey of 486 first- and second-year K-12 public school teachers in California, Michigan, Florida, and Massachusetts. Liu conceptualizes hiring as a two-way process with teacher candidates and schools selecting each other. Using a two-stage stratified cluster design, Liu found characteristics of the new teachers' hiring—namely the degree to which the exchange between the new teachers and school representatives was "information rich" and the timing of their hiring relative to the start of the school year—affect the teachers' satisfaction in the first years of their career. Liu found that, despite districts' movements towards the decentralization of hiring, most of the new teachers' hiring experiences were "information poor." Moreover, approximately one-third of new teachers were hired after the school year had started. Liu's work suggests that the late and information-poor hiring practices that most teachers encounter affect their "fit" with their job placements and, thus, their satisfaction once in the classroom, which may have implications for teacher retention.

Liu, E., Johnson, S. M., & Peske, H. G. (forthcoming, 2004). New teachers and the Massachusetts signing bonus: The limits of inducements. *Educational Evaluation and Policy Analysis*.

This article traces the experiences of 13 of the 59 recipients of the Massachusetts Signing Bonus. Instituted in 1998, the signing bonus program was designed to lure highly-qualified individuals to teaching who might not otherwise consider the profession. They were offered a \$20,000 bonus to begin work as teachers, paid over four years. The findings from this study indicate that the bonus played little if any role in the decisions of these 13 individuals to become teachers. Most had already considered entering the profession and were attracted to the quick certification program linked to the bonus, as opposed to the money itself. Ultimately, 8 of the 13 participants in the study left teaching before the fourth year of the program. These participants' decisions were influenced primarily by the working conditions and lack of intrinsic rewards that they experienced. The fact that they would forfeit their remaining bonus payments upon leaving teaching did not factor into their decisions. The authors conclude that inducements such as the signing bonus are not effective, and that the results of the study confirm the fact that the lack of qualified individuals considering teaching is not merely based on the low pay associated with teaching.

Loeb, S., & Page, M. (2000) Examining The Link Between Teacher Wages and Student Outcomes: The Importance of Alternative Labor Market Opportunities and Non-Pecuniary Variation. *Review of Economics and Statistics*, 82(3), 393-408.

In this article, Loeb and Page investigate the relationship between teacher salaries and student outcomes. Citing previous research in which researchers have failed to find a relationship between the two, Loeb and Page replicate the methods used by others and obtain similar results. However, these earlier studies failed to control for many aspects of teacher wages: non-pecuniary attributes of the job; wage opportunities in alternative professions; and the opportunity cost of teaching versus another profession. The authors utilize state-level panel data based on the Public Use Microdata Samples (PUMS) from 1960-1990. Controlling for these effects in their regression analyses, Loeb and Page do find a statistically significant relationship between higher wages for teachers and student outcomes, as measured by dropout rates. On average, controlling for other variables, an increase of 10 percent in teachers' wages is associated with a 3 percent to 6 percent decrease in dropout rates. The authors suggest that their findings have important implications for policy makers. Notably, they found effects associated with raising teacher salaries. Additionally, their work points to the importance of accounting for non-wage attributes in investigating teacher salaries and student achievement.

Loeb, S., & Reininger, M. (2004). *Public Policy and Teacher Labor Markets What We Know and Why It Matters* (policy report): The Education Policy Center at Michigan State University.

This report is a synthesis of what is known about the teacher workforce in the U.S. and trends in attracting and retaining teachers, written to inform policy decisions meant to retain teachers. It uses an economic framework that examines teacher preferences and constraints. It describes three important variables that tend to make teachers prefer some districts to others: wages, school characteristics, and distance of the school from home. The data in this report come from multiple sources including data collected from the NCES and New York State. The authors conclude that policy should focus on high-need districts, by providing them with things like subsidies for capital improvements and increased wages, and streamlined teacher certification.

Lortie, D. C. (1975). *Schoolteacher: A sociological study*. Chicago: University of Chicago Press.

This classic work about teachers and their workplace is widely regarded as the best, most comprehensive analysis of teachers' experiences and priorities. Lortie relied on two sources of data for this analysis. In 1963, he interviewed 94 teachers, randomly selected from a group of five metropolitan-Boston school districts, which represented the socio-economic range of communities in the area. In 1964, he surveyed all teachers in Dade County, Florida, a large and diverse school district. The response rate for this survey is not specified, although Lortie notes that it was very high and "represented the normal attendance pattern of teachers during a work day" (p. 246). Lortie's work is valuable, not only because it provides great insight into why teachers choose to teach and how they think about their work within the context of public schools, but also because it allows us to compare the responses of teachers forty years ago with those of teachers today and to consider whether there are significant cohort differences between the groups.

Louis, K. S., Marks, H. M., & Kruse, S. (1996). Teachers' professional community in restructuring schools. *American Educational Research Journal*, 33(4), 757-798.

Based on a conceptual framework of professional community, which included five critical elements (shared norms and values, collective focus on student learning, collaboration, de-privatized practice, and reflective dialogue), Louis, Marks, and Kruse analyzed survey data collected from teachers in 24 high schools participating in a larger study of schools engaged in restructuring and committed to authentic pedagogy. Research teams also visited the schools and studied regular activities. Using hierarchical linear modeling (HLM), researchers found that, although most of the variation in professional community can be explained by within-school factors (e.g., differences in teachers' background, perceptions, and experiences) 40 percent of the variance exists between schools. Factors found to influence professional community were both structural (e.g., size, staffing complexity, schedule) and human resource (e.g., support of the principal, respect, openness to innovation). They found that "[I]n schools where teachers were empowered—with influence over school, teacher, and student policy—the level of professional community was also considerably higher" (p. 774) and that "professional community contributed strongly to responsibility for student learning" (p. 780).

Leukens, M. T., Lyter, D. M., Fox, E. E., & Chandler, K. (2004). *Teacher attrition and mobility: Results from the Teacher Follow-up Survey, 2000-01*. Washington, D.C.: National Center for Education Statistics.

This report analyzes the 1999-2000 Schools and Staffing Survey and the 2000-2001 Teacher Follow-up Survey to describe who is most likely to leave teaching, why they leave and where they go. For the purposes of the report they break their sample of 8,400 teachers into 3 groups: leavers, movers and stayers. The report consists mainly of tables that exhibit trends in the data. Among other things, they observed variations among teacher attrition, mobility and retention between public and private school teachers, among teachers with varying experience, and among teachers with different salary levels. They also identify opportunities for a better teaching assignment and dissatisfaction as reasons teacher moved or left. The purpose of the report is to inform policy decisions and future research.

McCarthy, M. & Guiney, E. (2004). *Building a professional teaching corps in Boston: Baseline study of new teachers in Boston's public schools*. Boston, MA: Boston Plan for Excellence.

In this longitudinal study, McCarthy and Guiney examined the support, induction, and retention patterns of new teachers in the Boston Public Schools from 2002 to the current date. Surveys were sent to 470 new K-12 teachers in the spring of 2003, when they were completing their first year; the response rate was 51 percent. McCarthy and Guiney concluded that lengthy hiring processes and late hiring may have resulted in an unknown number of candidates leaving for districts with earlier hiring processes. The average candidate surveyed was hired by BPS 16.6 days before the first day of school and 50 percent of candidates were hired within 2 weeks of opening day. This study reported that late hiring left new teachers with little time to prepare, learn about the school, and learn about their students. Teachers who reported feeling unprepared were more likely to predict a shorter stay in their teaching position and were more likely to leave their position. Teachers with a more "accurate perception" of the school, students, and supports from the hir-

ing process were more likely to report higher job satisfaction and an intention to remain in their teaching position.

McLaughlin, M. W., & Talbert, J. E. (2001). *Professional communities and the work of high school teaching*. Chicago: The University of Chicago Press.

In this book, McLaughlin and Talbert draw upon over a decade of research at the Center for Research on the Context of Secondary School Teaching, where researchers spent four years studying each of 16 high schools in California and Michigan. Throughout, they sought to understand how the various contexts of secondary schooling affect teachers' work lives and professional practices. This analysis focuses on the "teacher learning communities" they found in those schools. They assert that strong professional communities "establish distinctive expectations for teachers' work and interactions with students," which emphasize "shared responsibility for students' mastery of content and progress in the curriculum" and "innovative teaching methods" (p. 10-11). Although most of the schools that they studied had weak professional communities with traditional instructional practices and tracked classes, there were encouraging instances of strong professional communities in particular departments and schools. The book includes illuminating case data from the various schools and explains how strong professional communities enhance the careers of teachers.

Metz, M. H. (1993). Teachers' ultimate dependence on their students. In J. W. Little & M. W. McLaughlin (Eds.), *Teachers Work: Individuals, colleagues, and contexts*. New York: Teachers' College Press, 104-136.

Metz worked with teams of researchers to visit eight ordinary, comprehensive high schools to understand more about teachers' dependence on their students. During the course of a year, the research team members met the principals, examined school documents, visited classrooms and interviewed the teachers in six public and two Catholic schools which are located in urban and suburban sections of a Midwestern metropolitan city. The schools served students with different levels of socioeconomic resources; two were considered high, two mid-level and two were low-income schools. Metz found that for teachers in the five schools whose students were not college-bound, their sense of self-efficacy and self-respect "were in constant danger." The common resulting attitudes of students' hostility, non-responsiveness, behavior, and academic failure were cynicism, anger and self-doubt. This was found to be more pronounced for men than women, and more consistent for teachers who "shared or understood" their students' backgrounds than those who were less knowledgeable or accepting of their students' personal history.

Murnane, R. J., Singer, J. D., Willett, J. B., Kemple, J. J., & Olsen, R. J. (1991). *Who will teach?: Policies that matter*. Cambridge: Harvard University Press.

In order to better understand the employment patterns of public school teachers, the authors draw on data from the Departments of Education in North Carolina and Michigan. For North Carolina, they use data on 50,502 people who were licensed to teach in public schools between January 1974 and December 1985. For Michigan, the data set contained information on 30,614 people who entered public school teaching in the state between September 1972 and September

1981. Using survival analysis, the authors examine how long, on average, teachers remain in the profession. They report that teachers are most likely to leave the profession in the first few years on the job, with the risk of leaving after the first year being the highest. Additionally, controlling for district characteristics, they found that White teachers are more likely to leave than Black teachers, and secondary teachers leave sooner than elementary teachers. Finally, teachers with higher standardized test scores have, on average, much shorter teaching careers than those with low scores, and teachers who are paid the lowest salaries leave the quickest, with salary being an important factor, especially during the early years of teachers' careers.

National Education Association. (2003). *National Education Association: Status of the American public school teacher 2000-2001*. Washington, D.C.

The NEA has surveyed public school teachers in the U.S. every five years since 1956. This report includes important findings for 2000-2001 and notable trends over four decades of the survey's administration. Researchers used a two-stage sample design, first randomly selecting a sample of school systems, classified by pupil enrollment into nine strata, and then randomly selecting teachers from teacher lists of those school systems obtained from various sources (the NEA, the American Federation of Teachers, Quality Education Data, Inc.). Researchers achieved a 67 percent return rate, with 1,467 usable surveys. Researchers used descriptive statistics to report the data. The survey included 60 items covering a range of topics about teachers' work and life. The report includes a number of issues relevant to retention, including teachers' reasons for entering the profession, their willingness to teach again, their plans to remain in teaching, sources of help and hindrance, and salaries and additional income.

Neild, R. C., Useem, E., Travers, E. F., & Lesnick, J. (2003). *Once & for all: Placing a highly qualified teacher in every Philadelphia classroom*. Philadelphia, PA: Research for Action.

This report about the recruitment, hiring, and retention of teachers in Philadelphia provides a detailed and informative picture of the challenges faced by high-poverty schools in a large urban district. The researchers drew upon an array of data sources including a data detailing a set of characteristics for all full-time teachers over four years and a New Teacher Survey administered to all new teachers attending an October 2002 induction program (266 of 598 teachers hired, representing 61 percent of all new teachers). Descriptive statistics are presented along with a clear and useful analysis. Overall, the study reveals that the highest-poverty schools present the greatest staffing challenge in that they repeatedly have the most vacancies and hire the least experienced and the most uncertified teachers. Most teachers are hired by the district office, rather than by the schools where they will teach. Late hiring is a particular problem in high-poverty schools. The report describes various reforms currently underway to improve both recruitment and retention.

Public Agenda (2004). *Teaching interrupted: Do discipline policies in today's public schools foster the common good?* Washington, D.C.: Public Agenda.

This examination of teachers' and parents' perceptions of student discipline reveals some interesting new insights regarding the age-old problem of student discipline and makes claims about the impact of student behavior on teacher retention. Using data from focus groups and telephone and

mail surveys (response rate 24 percent), the report concludes, “Too many students are losing critical opportunities for learning—and too many teachers are leaving the profession—because of the behavior of a few persistent troublemakers” (p.1). Their claims regarding the impact of student behavior on retention are based on the following findings: about one third of teachers responded that they have considered quitting because of student discipline issues, and about one third know someone who quit or was asked to leave due to student discipline problems. This study also finds that the majority of teachers (78 percent) report that their middle and high school students don’t let them forget that their parents can sue; this fear of litigation, and the general lack of support from parents, concerns many teachers.

Public Education Network. (2004). *The voice of the new teacher*. Washington, D.C.: Public Education Network.

The Public Education Network (PEN) conducted research in four communities—Chattanooga, TN; New York, NY; Seattle, WA; and Washington, DC; and throughout the state of West Virginia. Data were collected from 200 teachers who completed surveys, were interviewed, or participated in focus groups. No information is provided about the methods used for selecting respondents. The report includes information about the areas in which teachers feel most and least prepared; career plans; sources of dissatisfaction; views of principals; and satisfaction with induction and mentoring. Data are reported somewhat informally and the charts are often difficult to interpret. However, the analysis is informative and the findings are consistent with those studies that use more systematic methods.

Rosenholtz, Susan J. (1989). *Teachers' Workplace: The Social Organization of Schools*. New York: Longman.

Seventy-eight elementary schools in eight Tennessee districts participated in this study, which was designed to identify the effects of schools' organizational features on teachers' lives and on teaching and learning. Teacher-level data were collected through questionnaires, which solicited information about their background characteristics and their perceptions of their work, and through 74 individual open-ended interviews. In addition, school-level data such as test-scores, attendance and demographic data were obtained. These data were used to examine the influence of school organization on a variety of outcomes, including the establishment of shared school-wide goals, teacher collaboration, teacher learning, teacher certainty, and teacher commitment. Rosenholtz found that students and parents can influence teachers' sense of efficacy, satisfaction and commitment to teaching, yet the direction of influence can be mediated by the social organization of the school. She also concludes that teachers' beliefs and dispositions are shaped by their particular school context and she compares schools where there is shared agreement about goals, priorities and practices (high consensus schools) with schools where views are disparate and atomistic, differing from teachers to teacher (low consensus schools). Rosenholtz concludes that the schools making progress in reform are high consensus schools. Although she does not introduce any measure of student performance in her analysis, she provides rich and informative analysis of teachers' motivation and the school's role in shaping it. This work served as a foundation for subsequent studies of teachers' professional communities.

Schneider, M. (August 2003). *Linking school facility conditions to teacher satisfaction and success*. Washington, D.C.: National Clearinghouse for Educational Facilities.

In this study, Schneider surveyed K-12 public school teachers in Chicago and Washington, D.C. to determine the effects of school facilities on teachers' satisfaction, career plans, and teaching effectiveness. The response rate was near 25 percent. One-third of teachers in Chicago and more than one-half of teachers in D.C. reported dissatisfaction with facilities. Sixty percent reported that science labs were inadequate. More than 40 percent reported that classrooms were the wrong size. Twenty-five percent said that they were teaching in non-classroom spaces such as closets. More than two-thirds of teachers in Washington D.C. and over one-half of teachers in Chicago said that air quality was fair to poor. Approximately one-third of respondents in Washington D.C. and more than one-fourth of Chicago teachers reported adverse health effects stemming from poor facilities. Schneider also found effects of low quality school facilities on retention. More than 40 percent of teachers who scored their school facility a C or lower reported that poor working conditions led them to consider changing schools and 30 percent said that they were considering leaving teaching. For teachers who reported health problems related to facilities, these percentages were even higher. The study did not examine whether these teachers actually remained in their current position.

Shen, J. (2003). *New teachers' certification status and attrition pattern: a survival analysis using the Baccalaureate and Beyond Longitudinal Study 1993-1997*. Paper presented at the AERA annual meeting, Chicago.

In this study Shen addresses the question of whether there is a relationship between new teachers' certification status and attrition patterns. The paper includes a brief literature review of the two policies implicated in the study: the various methods of entry into teaching and the retention/attrition of teachers. The author then discusses the strengths of his study: 1) it is longitudinal and over a longer time-span (five years) than most studies; 2) the approach to analysis is a strength because the outcome measure is "months of teaching," before attrition happens or does not happen rather than the dichotomous variable of "whether or not" attrition happens; 3) the study focuses on new teachers exclusively. The data is from the Baccalaureate and Beyond Longitudinal Study 1993-1997. The sample consisted of 1,702 respondents who went into teaching and responded to three rounds of surveys. A Cox regression model survival analysis was used. The study found that the following attributes are associated with higher retention rates: greater levels of teacher preparation; previous teacher certification; current (1997) teacher certification; higher levels of teacher certification in 1994 or 1997. Shen found that about 34 percent of those who entered teaching left by the end of the fifth year and that those entering teaching without experience in a teacher education program or without certification were more likely to leave.

Shields, P. M., Esch, C. E., Humphrey, D. C., Young, V. M., Gaston, M., & Hunt, H. (1999). *The status of the teaching profession: Research findings and policy recommendations. A report to the Teaching and California's Future Task Force*. Santa Cruz, CA: Center for the Future of Teaching and Learning.

During 1998-99, SRI International conducted a statewide survey of a representative sample of K-12 California public school teachers and eight case studies of local teacher development systems throughout California. For the survey, researchers used a two-stage sampling process, first selecting

a stratified random sample of schools and then selecting teachers within those schools to create a sample representative of the statewide population of teachers. The response rate was 77 percent. The survey data were analyzed using descriptive statistics and discussed in light of themes that emerged from the case studies. In addition, researchers analyzed secondary data bases and interviewed key state policy makers. As a result of a 1996 policy to promote class size reduction, California experienced the challenges of teacher shortages and the consequent uneven distribution of teacher quality earlier than other states and, thus, their experiences are especially useful. Overall, the study reveals the uneven distribution of qualified teachers, with low-income students having the highest proportions of underqualified teachers and teachers with the highest rates of turnover. Researchers found that, among other things, teachers were dissatisfied with professional development and induction.

Sikes, P., Measor, L., & Woods, P. (1985). *Teachers' careers: Crises and continuities* (Vol. 5). London: The Falmer Press.

This study, conducted over twenty years ago in England, yields important insights about teachers' conceptions of career, which are informative in the U.S. today. It begins from the premise that teachers are in crisis—and at risk of leaving the profession—at many stages in their careers. Novices frequently experience the stress of crisis in their socialization process and in their recognition of the fact that the reality of teaching does not match their ideal. More experienced teachers often experience ambivalence about their roles, their capacity, and their efficacy, while those who are more confident in their work experience crisis in their acknowledgement that in this flat career, the only way to move up is to move out of teaching. These researchers probed the “life histories” of 40 art and science teachers from two different regions of England through a series of open-ended interviews in order to learn about how teachers think about their careers and how these crises interact with their work. Their work led them to propose new theories about the structure of teachers' career-life development, the influence of teachers' contexts on how they think about their work, their strategies for managing or coping with their careers, and how their teacher identities are constructed.

Smith, T., & Ingersoll, R. (forthcoming). Reducing teacher turnover: What are the components of effective induction? *American Educational Research Journal*, 41(2).

Smith and Ingersoll conducted an analysis of the impact of induction on new teacher retention. Using the 1999-2000 Schools and Staffing Survey data and 2000-2001 Teacher Follow-up Survey data, Smith and Ingersoll drew a sample of 3,235 first-year teachers. The authors found that mentoring has a positive effect on new teacher retention in the profession, provided the mentor teaches in the same field as the novice. The researchers found no significant impact of mentoring when the mentor does not teach in the same field or when the outcome is mobility rather than attrition from the profession. Smith and Ingersoll further found that induction had a positive effect on new teacher retention. Testing various components of induction, the researchers found that collaboration/common planning had the largest lone impact, reducing the predicted probability of attrition by 43 percent. Lastly, the researchers report that an increased number of induction components was associated with a decreased predicted probability of turnover. New teachers with two induction components had a 39 percent predicted probability of turnover whereas, for those receiving eight components, estimated turnover probability was 18 percent.

Smylie, M. A., & Denny, J. W. (1990). Teacher leadership: Tensions and ambiguities in organizational perspective. *Education Administration Quarterly*, 26(3), 235-259.

In their investigation of teacher leadership roles in a Midwestern, K-8 district, Smylie and Denny (1990) focus on the development and performance of these roles. The researchers used interviews and surveys of the 13 teacher leaders and surveys of a random sample of 56 of the district's teachers, with a response rate of 62 percent, to collect the data for this study. Smylie and Denny's main finding is that organizational context shapes how roles are defined and performed. For example, the researchers found that teacher leaders defined their role in terms of providing support for other teachers. However, the teacher leaders reported that they spent most of their time participating in meetings rather than providing direct support to colleagues. In surveying teachers who did not hold leadership roles, Smylie and Denny find that "most [of the non-teacher leaders] perceived some form of benefit from the work of the teacher leaders," (p. 248). Of these benefits, many recorded professional growth related to classroom practice. Others cited an increased sense of professionalism and commitment to classroom teaching," (p. 249). Non-teacher leaders also highlighted "increased opportunities for professional recognition and rewards" as a benefit of the teacher leader role (p. 250). Unfortunately, Smylie and Denny did not ask teacher leaders to evaluate the impact of the roles on their conceptions of the teaching career.

Stinebrickner, T. R. (2001). Compensation policies and teacher decisions. *International Economic Review*, 42(3), 751-779.

In this article, Stinebrickner utilizes quantitative methods to analyze the choices of a sample of 551 people who were certified to teach between 1975 and 1985 (drawn from the National Longitudinal Study of the High School Class of 1972). He then traces the employment choices made by these individuals (over a nine year span), examining factors that led to their entry into, retention in, and attrition from teaching, as well as other careers, in addition to choices to leave the job force. Stinebrickner finds that pay is a significant factor in determining length of stay in teaching, finding a relationship between a potential pay increase for all teachers and longevity in the profession.

Sunderman, G. L., Tracey, C. A., Kim, J., & Orfield, G. (2004). *Listening to teachers: Classroom realities and No Child Left Behind*. Cambridge: The Civil Rights Project at Harvard University.

Sunderman et al. studied teacher attitudes about NCLB in the urban districts of Fresno, California and Richmond, Virginia. They administered a survey to teachers in May and June of 2004 and achieved a 77.4 percent response rate. The main findings of this survey, which was distributed to teachers in 30 Fresno schools and 25 Richmond schools include the following: (1) teachers were generally "positive about the instructional program in their schools," including standards and curriculum; and (2) they did not think that simply labeling schools as "making adequate yearly progress" would lead to an improvement in the schools. Directly related to retention is the finding that "many of the teachers in schools that were identified as needing improvement do not plan to be teaching in them five years in the future," (p. 3). Due to the demands that are now put on teachers' time and energies since the institution of NCLB, it is believed by this sample that teachers currently working in schools needing improvement will soon leave those schools. This has important implications, since these just may be the schools that need quality teachers most of all.

Tye, B. B., & O'Brien, L. (2002). Why are experienced teachers leaving the profession? *Phi Delta Kappan*, 84(1), 24-32.

In 2001, Tye and O'Brien mailed 900 surveys to master's degree graduates from Chapman University, their employer at the time. The purpose of their research was to determine whether or not these students, chosen at random from a pool of 4,534 graduates, experienced the same discontent regarding increased accountability, of which many teachers in California complained. They had a response rate of only 12.6 percent (only 114 surveys were returned), and even though the results are unable to be widely generalized, the data that they received is insightful. Overall, Tye and O'Brien found that the number-one reason for those who had already left teaching was that of accountability (defined as high-stakes testing, test preparation and standards). For those teachers who were still teaching, they reported that accountability was among the three top reasons why they might consider leaving (along with salary considerations and increased paperwork). After a discussion of each variable, Tye and O'Brien conclude that the work environment and working conditions of teachers must be improved in order to allow teachers to feel better about their work and so that they will be more likely to remain in the profession.

Useem, E. (2003). *The retention and qualifications of new teachers in Philadelphia's high-poverty middle schools: A three-year cohort study*. Philadelphia: Philadelphia Education Fund.

This study looked at the retention rate of a cohort of 60 new teachers in seven high-poverty middle schools in Philadelphia from the 1999-2000 school year through the 2002-2003 school year. Researchers collected information by interviewing the original 60 teachers once during their first year of teaching and then continued to conduct yearly interviews with those teachers who remained at their original school through the 2001-2002 school year. In the second year of the study, 38 of the original 60 (63 percent) remained at their original schools. In the third year, 25 teachers (42 percent) remained in their original schools. By the fourth year, only 19 teachers (32 percent) remained in their original schools. Teachers reported that the primary reason they would leave the district was low salary. Other contributing factors included student behavior/school climate issues, lack of supplies, and large class sizes. Retention rates varied significantly by school, which indicated that strong school leadership may contribute to higher levels of teacher retention. School climate appeared to be a very important factor in teacher retention. For instance, one middle school that had the most serious problem of school climate actually lost all 12 of its new teachers over the period of the study.

Useem, E., & Farley, E. (2004). *Philadelphia's teacher hiring and school assignment practices: Comparisons with other districts*. Philadelphia, PA: Research for Action.

In this study, Useem and Farley compared the teacher hiring and placement practices in Philadelphia to those of thirteen other large urban districts across the country and to nine regional suburban districts. Five of the seven urban districts were larger than Philadelphia. The suburban districts were relatively large and included nearby demographically diverse districts in New Jersey and Pennsylvania. Relying on document analysis and interviews, Useem and Farley found that, while only 44 of 264 Philadelphia schools used "site-selection" hiring, other urban districts in the study "almost always" used decentralized or school-based staffing practices. They also found that

problems such as late hiring occurred in Philadelphia and in most of the urban districts as a result of late notification of retirement and resignations, uncertain budgets, and late decisions about initiatives such as school consolidation or reductions in class size. Delayed hiring processes were not reported as a problem in suburban schools. All nine suburban districts had site-based hiring practices and relied on internal candidates for elementary and some secondary openings. Suburban teachers in eight of nine districts were allowed to apply for transfers within the district, but were not required to be hired by the principal. Useem and Farley concluded that practices in Philadelphia such as late hiring and a centralized hiring process were limiting the impact of efforts to improve retention and recruitment practices.

Vedder, R. (2003). Comparable worth. *Education Next: A Journal of Opinion and Research* (Summer), 14-19.

In this piece, Vedder challenges the notion that teachers are underpaid. Using data from the National Compensation Survey (NCS) of the Bureau of Labor Statistics, he computes the hourly wages for teachers as well as those in comparable professions. Vedder used the number of hours that teachers are required to work according to their contracts for his analyses, as well as the number of weeks per year required by those contracts. He found that the average hourly wage for elementary school teachers in 2000 was \$28.79. For secondary teachers the figure was \$29.14, and for special education teachers, \$29.97. According to Vedder's calculations, these hourly wages mean that teachers earn more per hour than architects, engineers, nurses, and librarians, amongst other professions. Vedder believes that the distribution of pay amongst teachers needs to be realigned—keep the average stable, but pay some teachers (such as those in shortage areas) more than others.

Weiss, E.M. (1999). Perceived workplace conditions and first-year teachers' morale, career choice commitment, and planned retention: A secondary analysis. *Teaching and Teacher Education*, 15, 861-879.

In this article, Weiss uses ordinal logistic regressions to analyze data from a nationally representative sample of first-year teachers responding to the Schools and Staffing Surveys of 1987-88 and 1993-94. In one of the few quantitative studies that analyzes first-year teachers' career plans, Weiss found that "a school culture that supports collaboration and teacher participation in decision-making was most strongly related to higher morale, stronger commitment to teaching, and intentions to remain in the profession" (p. 861). Weiss writes that her study suggests that "school leadership that incorporates teacher participation influences whether new teachers feel it is worthwhile to do their best work, whether they would choose teaching again as a career, and whether they plan to remain in teaching" (p. 866). While very informative, this study relies on teachers' predictions about their career, not their actual decisions.



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