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ccsr

Keeping New Teachers:

A First Look at the Influences of Induction in the Chicago Public Schools

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Acknowledgments

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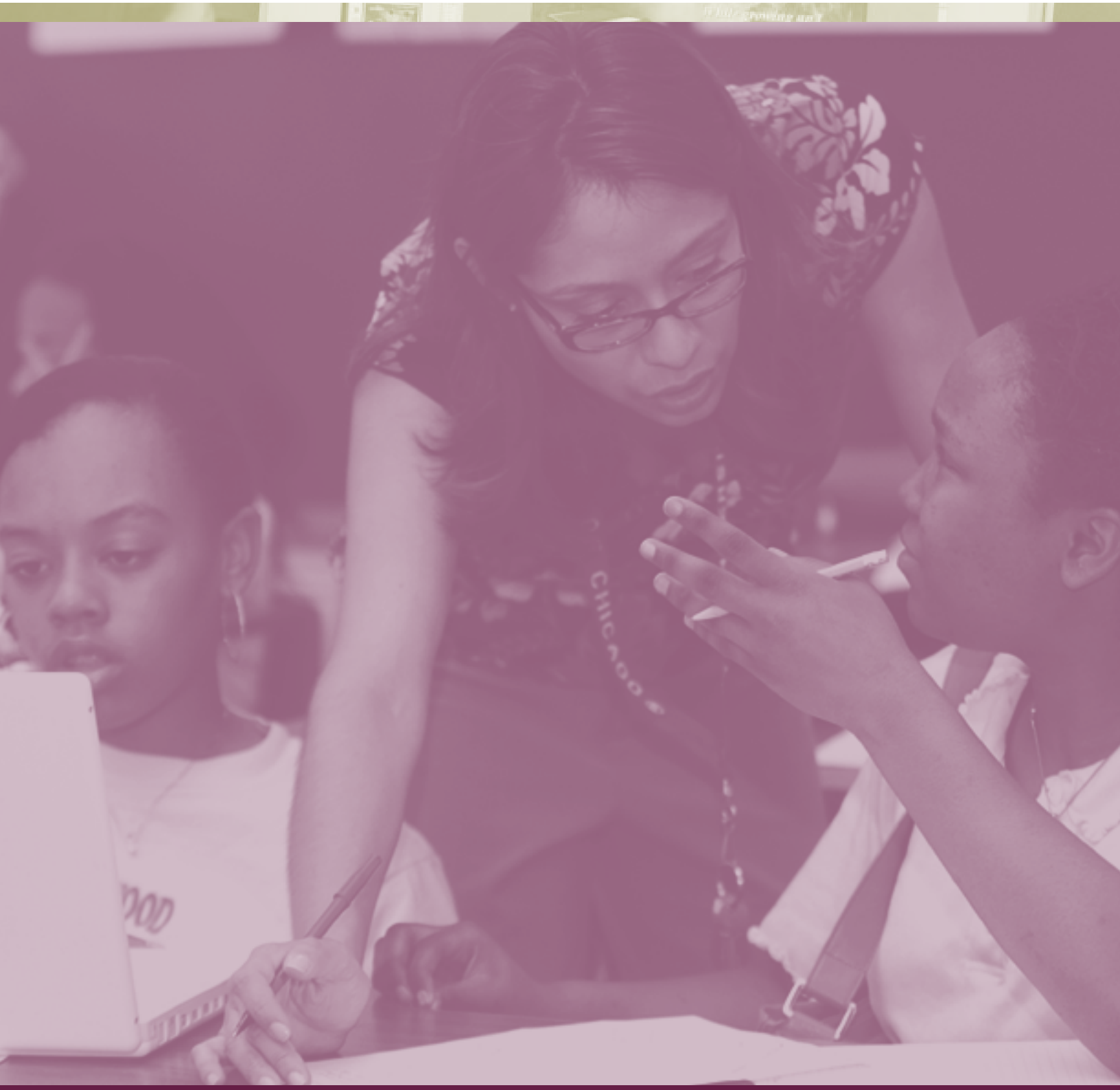


Executive Summary

Since the early 1990s, induction has become an increasingly popular strategy for school districts across the country as they seek solutions for high attrition rates among teachers who are new to the profession. In Illinois public schools, for example, the attrition rate among new teachers can be as high as 40 percent after only five years on the job.[1] Such turnover levels are costly for school districts and ultimately can erode student achievement.

Chicago, too, has embraced induction as a means for retaining good teachers. In addition to the Chicago Public Schools' (CPS) own GOLDEN Teachers Program—which is mandated for all first- and second-year CPS teachers—induction programs with various models and degrees of teacher contact are in operation in different regions of the city and among diverse populations of novice teachers.

To probe the effects of teacher induction, the Consortium on Chicago School Research (CCSR) included a new battery of questions designed specifically for new teachers on its spring 2005 surveys of CPS elementary and high school teachers. This first look at the influences of teacher induction uses responses from these surveys to evaluate the effects of participating in induction activities on teachers' reports of the quality of their teaching experience, whether they intend to continue teaching, and whether they plan to remain in the same school.

The key findings from this study are:

- In general, novice teachers are positive about their teaching experience.
- Many individual, classroom, and school factors, most particularly the number of students with behavioral problems, are strongly associated with novices' plans to continue teaching.
- A welcoming faculty that assists new teachers and strength of school leadership are the two school-level factors that have the greatest influence on novices' reports of good teaching experiences and intentions to continue teaching.
- Reports about the quality and perceived helpfulness of various induction activities, such as mentoring and supports, are highly predictive of novices reporting a good teaching experience and planning to continue teaching, regardless of where these activities originate. For instance, new elementary teachers receiving strong levels of support are *twice* as likely to report a good experience than peers receiving low levels, while new high school teachers receiving strong levels of support are almost *three times* as likely to report a good experience.
- Intensive contextual induction—which is a combination of context-appropriate and sufficiently intensive mentoring and support—can help novice teachers have good early teaching experiences that encourage them to continue in the profession. For example, new elementary teachers receiving intensive levels of induction are *twice* as likely to report a good experience than peers receiving weak levels, while new high school teachers receiving intensive levels of induction are almost *four times* as likely to report a good experience.
- However, for new CPS teachers, most of whom are in GOLDEN, participating in an induction program alone does not influence their plans to continue teaching or guarantee they receive these critical supports. In fact, about one-fifth of novice teachers report that they do not participate in an induction program.

Endnote

1 Illinois Education Research Council (2002).

Chapter 1

From Research to Practice: The Coming of Age of Teacher Induction

Urban school systems have long been fraught with high levels of teacher attrition.[1] Until recently scholars and district leaders believed that attrition was due primarily to the growing number of teacher retirements and to the difficulty of recruiting educated women, who have many more employment options than before. But these assumptions changed after the influential studies of Richard Ingersoll demonstrated that more than one million teachers—almost a third of the workforce—are in job transition annually, and that large numbers leave their positions long before retirement. This "revolving door phenomenon" raises questions about who is leaving the profession or transferring to other schools, and why they are making these decisions.[2]

Given the many challenges of being new to teaching, it is no surprise that new teachers are far more likely to leave their jobs than their more experienced peers.[3] The Illinois Education Research Council found that across Illinois, anywhere from 32 to 40 percent of new public school teachers leave within five years.[4] In urban school districts like Chicago, where the challenges novice teachers face are compounded, the statistics are still higher.[5] One study demonstrated that teachers in high-poverty, underperforming schools in Chicago leave at a rate as high as 39 percent after a single year.[6] A high rate of new teachers entering and leaving their positions is both costly for a district[7] and creates instability in schools, which ultimately affects student achievement.[8]

Addressing the Problem: Teacher Induction Programs

One widely accepted explanation for high levels of new teacher attrition is that teaching, unlike many other professions, has not typically had the benefit of a structured initiation—or induction—to guide and support novices as they enter the profession.[9] For this reason, many district policymakers have realized the importance of assisting novice teachers during the critical first years on the job, and they have embraced induction programming as a means to increase new teacher retention and improve the quality of instruction.

Induction is generally characterized as a means to orient, assist, and guide beginning teachers so they remain in the profession and grow into capable practitioners. Induction programs are distinct from *preservice* programs that prepare candidates to become teachers, and from *inservice* programs, which are professional development opportunities to develop teachers' skills after they have settled into their careers. Induction programs are typically designed to address common challenges associated with being a new teacher, for instance, managing a classroom and getting to know district policy and procedures.

The proportion of new teachers participating in induction across the nation has nearly doubled over the last decade, from approximately 41 percent receiving induction assistance in 1990 to almost 79 percent in 2000.[10] Nationally, more than half the states have initiated some form of induction for beginning teachers.[11]

Induction programs vary considerably in their goals. Some are designed to acculturate new teachers into their schools, while others are geared toward developing their instructional practice. Still others are designed to evaluate, assess, and perhaps even weed out those who are ill suited for the demands of teaching.[12] Such differing goals lead to wide variations in the content and organization of induction programs. Some consist of only a single orientation meeting in the beginning of the school year, while others are highly structured, multiyear programs that offer a range of assistance to new teachers beyond orientation sessions, including mentoring and professional development seminars.[13] The management and supervision of induction programs also varies widely: They may be administered by individual schools, school districts, university-based teacher education programs, or other external organizations.

Mentoring Plus Other Supports

Mentoring is the support most commonly associated with induction programs. It is generally understood to be a helpful and ongoing interaction between an experienced teacher and a novice, and is often cited as the most critical aspect of induction.[14] In fact, "mentoring" and "induction" are often used interchangeably.

Research has shown that the inclusion of effective mentoring can mean the difference between a successful induction program and an unsuccessful one.[15] Extensive research has been conducted on the factors that affect the quality and success of a mentoring relationship.[16] Some of these factors include, for example, whether mentors are chosen or assigned,[17] the degree to which mentors are trained and supported,[18] mentors' subject matter or grade level expertise,[19] their accessibility to novices, and frequency of contact.[20] However, mentoring alone does not ensure that novice teachers will enact strong instruction,[21] nor should it be considered a panacea for solving the problem of new teacher attrition.

When mentoring is used in combination with other induction supports, it can be an even more effective means of improving beginning teachers' experiences and prospects for remaining in the profession. For example, mentoring from a teacher in the same field or grade coupled with common planning time and/or collaboration with colleagues on instructional issues appears to have the most positive impact on retention rates.[22] Researchers have also found that participation in an external network of teachers and open communication with a principal or administrator can have a strong influence on novices' decisions to remain in the profession.[23] In addition to the type, number, and quality of induction components available to novices, the intensity of supports also affects the success of a program.[24]

An induction program is called *comprehensive* when it provides multiple supports such as those listed previously, with attention to professional standards and evaluation.[25] Comprehensive induction is another way to enhance intensity and strengthen the overall effectiveness of an induction experience. Researchers and education advocacy groups are in general agreement that comprehensive induction programs hold the most promise for reducing teacher attrition.[26] However, nationally, a mere 1 percent of teachers receive this comprehensive level of support.[27]

Induction Options for Chicago Public School Teachers

During academic year 2004–05, several induction programs were available in Chicago as a resource to beginning teachers. Some were affiliated with alternative teaching-certification programs, while others were associated with a particular geographic or instructional area. Six induction programs for elementary school teachers are represented in our research:[28] Chicago Public Schools' (CPS) GOLDEN Teachers Program (Guidance, Orientation, Leadership, Development, Empowering New Teachers), which is required for all first- and second-year teachers;[29] the Academy of Urban School Leadership (AUSL); New Teachers Network (NTN), sponsored by the University of Chicago Center for Urban School Improvement to serve Instructional Area 15 on the city's South Side;[30] Teach for America's support group for its graduates (TFA); and the New Teacher Support Initiative (NTSI) in Area 8. Induction programs for novice high school teachers in 2004–05 included GOLDEN, TFA, and CPS's network for new high school math and science teachers.

These programs all have their own approach to providing assistance to novices. GOLDEN consists of pairing new teachers with a school-based mentor and requiring their attendance for 15 hours of workshops each year from an array of self-selected topics. AUSL programs employ full-time coaches to provide both in-classroom mentoring and support. NTN also utilizes full-time coaches, whose observations in the field also inform planning for biweekly professional development for the novice teachers. TFA has multiple opportunities for alumni to connect and support one another. NTSI uses lead mentors, who are prepared through a course sponsored by the University of Illinois at Chicago. The math and science teacher network is a professional development initiative in which new teachers meet to discuss practice. Some of these programs offer assistance to new teachers for multiple years.

Trends and Limitations in Induction Research

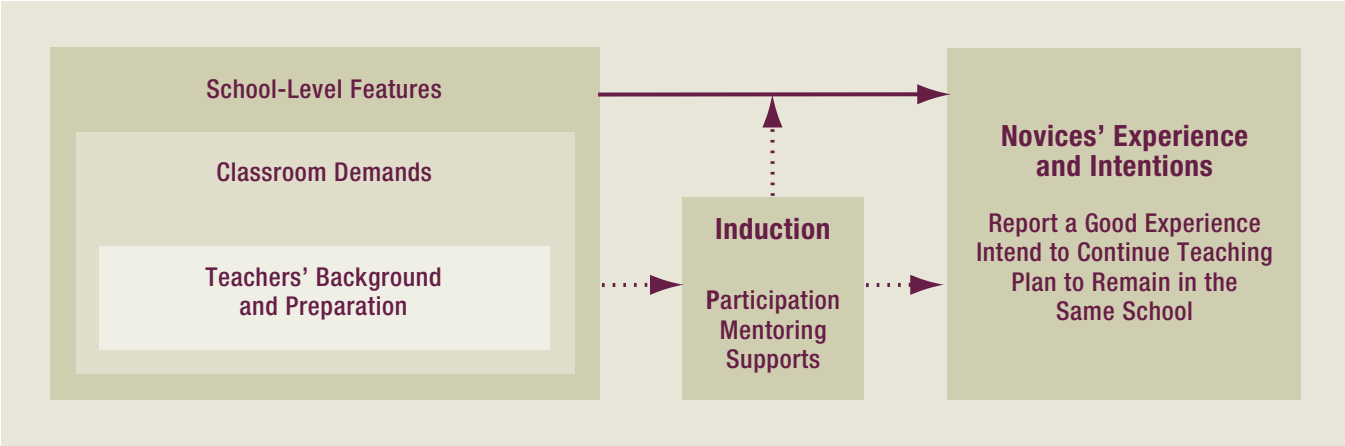
Induction research generally looks at teacher attitudes and teacher retention as outcomes.[31] Teachers' attitude toward their job is often measured through their sense of effectiveness and commitment to the school or to the profession. Based on this premise, we look closely at novice CPS teachers' reports about how good they feel about their year in the classroom and their intentions for future teaching.

Retention refers to the number or percentage of teachers remaining in the workforce after the completion of a particular time period (generally one to five years). Retention data are most often based on teachers' self-reports about their plans to remain in their school or in the profession. It is important to distinguish between teachers who leave the occupation altogether ("leavers") and those who leave their school, but not the profession ("movers"). Data on teacher transitions have not always accounted for the teachers who leave their schools but stay in the profession because this issue has few implications for a school district. However, a mover has the same impact on a school as a leaver, and should be included in any analysis of induction effectiveness.[32] For this reason, our findings differentiate between teachers' intentions to continue teaching and their plans to remain in the same school.

Only recently has empirical research begun to examine systematically the content and structure of induction as a teacher retention strategy. Perhaps even more significant, little attention has been given to both the *individuals for whom* and the *conditions under which* a particular set of induction supports is most effective.[33] We attend to both of these realms in this study.

FIGURE 1.1

Factors That Influence Novices' Experience and Future Teaching Intentions in Urban Schools



We know that the conditions of schools have profound influences on teachers' experience and their decision to remain in the profession.[34] We also know that the most direct influence on teachers' work and their perceptions of it come from the children in their classrooms, with whom they interact daily.[35] In addition, evidence suggests that teacher background characteristics and the manner in which they were prepared for the profession have implications for their early experience.[36] Given the complicated interplay of factors that influence turnover rates, questions must be raised about who receives what sort of induction, under what kind of circumstances, and with what consequences. In this study we begin to analyze this interplay. See Figure 1.1 for a diagram of this conceptual framework.

Goals of This Study

We contend that the effects of induction cannot fully be understood in isolation from its context, particularly when that context is a challenging urban school setting. For this reason, our study aims to accomplish the following:

- Deepen our knowledge about the novice teachers entering CPS
- Understand the contextual factors—individual, classroom, and school—that influence the experience and future teaching intentions of novice CPS teachers[37]
- Learn more about the induction assistance received by novice teachers—including mentoring and other supports—during their first two years on the job
- Determine whether participation in induction programs can mediate the influence of contextual factors, and
- Gain insight into the ways that these supports and assistance affect the quality of novice teachers' experience and their intentions to continue teaching and/or remain in the same school

Endnotes

1 E.g., Tyack (1974); Lortie (1975); and Ingersoll (2004).
2 Ingersoll (2001); and Ingersoll and Smith (2004).
3 E.g., Johnson et al. (2004); and Ingersoll (2001).
4 Illinois Education Research Council (2002).
5 Alliance for Excellent Education (2005).
6 Illinois ACORN (2005).
7 Alliance for Excellent Education (2005).
8 Lopez (1995); and Berliner (2000).
9 Waller (1932); Tyack (1974); and Lortie (1975).
10 Ingersoll and Smith (2004).
11 Fideler and Haselkorn (1999); and Serpell (2000).
12 Serpell (2000).
13 Huling-Austin (1990); Robinson (1998); Fideler and Haselkorn (1999); Arends and Rigazio-DiGilio (2000); Serpell (2000); and Ingersoll and Smith (2004) have all described the variety of induction programs in the context of their research.
14 This has been widely documented. A few key examples include Feiman-Nemser (1996); Ganser (2002); Robinson (1998); Fideler and Haselkorn (1999); Arends and Rigazio-DiGilio (2000); Ingersoll and Smith (2004); and Moir and Gless (2001).
15 Arends and Rigazio-DiGilio (2000); and Serpell (2000).
16 For example, see Feiman-Nemser (1996); and Arends and Rigazio-DiGilio (2000).
17 Robinson (1998).
18 For example, see Feiman-Nemser (1996); Ganser (2002); Arends and Rigazio-DiGilio (2000); and Serpell (2000).
19 Ingersoll and Smith (2004).
20 Robinson (1998); and Fletcher, Strong, and Villar (2003).
21 Feiman-Nemser (1996).
22 Ingersoll and Smith (2004). It should be noted that Ingersoll and Smith's work also documents that mentors outside of the novice's field or grade level are not associated with increased teacher retention rates.
23 Ibid.
24 The phrase "comprehensive induction" is often used in the literature, most recently by the Alliance for Excellent Education (2005) in reference to the supports identified and tested by Ingersoll and Smith (2004).
25 Horn, Sterling, and Subhan (2002).
26 Alliance for Excellent Education (2005); and Ingersoll and Smith (2004).
27 Ingersoll and Smith (2004).
28 Other programs offering assistance to novices in Chicago were not named specifically in CCSR's survey, the source of our data, but information on teachers' experience with them is captured within the category of "other."
29 The one exception was given to teachers in Area 15, who could substitute participation in the New Teachers Network for their GOLDEN requirement.
30 NTN recently became part of a new organization called the Chicago New Teacher Center.
31 Arends and Rigazio-DiGilio (2000); and Serpell (2000). Other researchers are increasingly using student achievement to measure the success of the induction programs. One example is Fletcher, Strong, and Villar's (2003) study on the effect of mentoring on student achievement. They found larger-than-typical student achievement gains in classrooms where teachers received a minimum of biweekly mentoring contact.
32 See Ingersoll's studies from both 2001 and 2004.
33 Ingersoll and Kralik (2004) note the importance of being attentive to both in their literature review of induction research.
34 Johnson (1990); Ingersoll (2002); and Johnson et al. (2004).
35 Johnson (1990); and Johnson et al. (2004). See also Waller (1932); and Lortie (1975).
36 Stronge (2002); Lortie (1975); Grossman (1990); Walsh and Tracy (2004); and Ladson-Billings (1994).
37 We use the term "experience" as shorthand for teachers' reports of the quality of their teaching experience during the 2004–05 academic year. We use the term "future teaching intentions" to indicate teachers' intentions to continue teaching and plans to remain in the same school.

Chapter 2

Who Are the New Teachers in CPS and What Are Their Experiences?

To better understand the influences of induction programs on CPS teachers, we first examine the population for whom the programming is intended and their perceptions of their work. We begin by comparing the schools in which new teachers work and the characteristics of the teachers themselves to the rest of the CPS schools and workforce. From there, we ask new teachers about their teaching experience and plans for future teaching.

A Representative Sample of Novice Teachers

In response to CCSR's biannual survey given to CPS teachers in spring 2005, 1,737 elementary and high school teachers identified themselves as being in their first or second year in CPS and as having less than three years of teaching experience. This is how we define a teaching "novice." About two-thirds of the novices in our sample teach in elementary schools; the remaining third teach in high schools.[1] The breakdown of respondents is given in Table 2.1 below.

TABLE 2.1

Sample of CPS Novice Teachers

	First-Year Teachers	Second-Year Teachers	Totals
Elementary School	662	518	1,180
High School	300	257	557
Totals	**962**	**775**	**1,737**

Note: Using CPS personnel records and the CCSR 2005 teacher surveys, we calculated the novice response rate for the elementary school teacher survey to be 73 percent. The novice response rate for the high school teacher survey is 71 percent.

Characteristics of Novice Teachers' Schools

The schools in which both our sample elementary and high school novice teachers work are comparable to other CPS schools with novices. (See Table 2.2 below.) For example, the majority of novices in our sample work in schools with student populations that are predominantly African-American, and relatively fewer teachers are working in integrated or mixed schools.[2] The schools in our sample have similar teacher retention rates (about 88 percent) and fairly similar proportions of new teachers on staff.

Characteristics of Novice Elementary School Teachers

Seventy-three percent of the novice elementary school teachers in CPS responded to our survey. About eight out of ten teachers in this sample are female. Fifty-five percent is white, 17 percent is African-American, and 18 percent is Latino. Two-thirds of the elementary school teachers in our sample hold bachelor's degrees as their highest level of education, and a little more than half entered the profession with some experience in a profession other than teaching (54 percent). About one-fifth of our sample entered teaching with alternative certification, and more than one-quarter are graduates of CPS (27 percent). Table 2.3 (See p.11) illustrates that our sample reflects the characteristics of all novice teachers working in CPS elementary schools.

Characteristics of Novice High School Teachers

Our novice high school sample is about half the size of the elementary school sample, but represents a similar a response rate of about 71 percent. Approximately one out of every two novice high school teachers in our sample is female (59 percent). This is in stark contrast to the elementary novice sample, which is predominantly female. Of the high school sample, 64 percent is white, 17 percent is African-American, and 9 percent is Latino. About two-thirds of this group entered teaching with some prior work experience in another field. Like their elementary school counterparts, approxi-

TABLE 2.2

Characteristics of CPS Schools with Novice Teachers

Percentages	All CPS Elementary Schools with Novices *N= 425*	Our Novice Sample's Elementary Schools *n=333*	All CPS High Schools with Novices *N= 90*	Our Novice Sample's High Schools *n=78*
Predominantly African-American	46	44	56	55
Predominantly Latino	18	18	13	14
Integrated	9	9	8	8
Mixed	8	9	23	23
Predominantly Minority	19	20	(na)	(na)
High Poverty	25	25	24	24
Low Poverty	25	25	24	24
Strong School Leadership	25	25	25	24
Weak School Leadership	25	25	25	24
New Teachers on Staff	11	10	14	14
Teachers Retained	89	89	87	87
Smaller School	14	14	58	55
Larger School	47	47	22	22

Note: See Appendix A for a description of these variables.

TABLE 2.3

Novice Sample Compared to Novice and General CPS Populations

Percentages	All CPS Elementary School Teachers‡ *N= 18,369*	CPS Novice Elementary School Teachers‡ *N=1,643*	Our Sample of Novice Elementary School Teachers* *n= 1,180*	All CPS High School Teachers‡ *N= 7,289*	CPS Novice High School Teachers‡ *N= 771*	Our Sample of Novice High School Teachers* *n=557*
Male	16	18	16	40	43	41
African-American	35	22	17	34	17	17
Latino	15	16	18	9	10	9
White	46	57	55	51	66	64
Other Race	4	6	9	5	7	10
Prior Work Experience in a Profession Other Than Teaching	49*	(na)	54	62*	(na)	65
Graduated from CPS	40*	(na)	27	37*	(na)	21
With Alternative Certification	11*	(na)	20	12*	(na)	21
With Bachelor's Degree as Highest Education Level	53	71	67	49	73	58
With Master's Degree as Highest Education Level†	46	29	26	49	27	28
With Education Level Higher than a Master's Degree†	1	0	7	2	0	14

‡ Data come from the 2004–05 CPS personnel records
* Data come from the 2005 CCSR Teacher Survey
† Education levels from the survey were categorized differently from CPS teacher personnel data. (See Appendix A.)

mately one-fifth of the group entered teaching with alternative certification. A notable difference between our sample and the overall population of novice high school teachers within CPS is that a greater number of our novice sample began teaching with an education level beyond a master's degree. In all other respects, our sample closely reflects the profile of high school novice teachers in CPS.

How Are CPS Novices Different from the Rest of CPS Teachers?

When we compare characteristics of novice teachers to the general teaching population of CPS teachers, we see several interesting differences. (See Table 2.3.) Our novice sample—as well as the overall novice population in CPS—contains more white and fewer African-American teachers. And while the proportion of white novice teachers is greater by about ten percentage points than the general teaching population, the proportion of Latino teachers appears about equal. In both the elementary and high school samples, slightly more novice teachers are of other races or ethnicities than the general teaching population.[3] The higher proportion of new white and other-race teachers entering CPS may have long-term cultural and linguistic implications, given that nearly half the CPS student body is African-American and more than a third is Latino, while only 8 percent is white.[4] Furthermore, fewer novices entering the system are graduates of CPS. As induction programs for CPS teachers are developed, it may be beneficial for these programs to attend to sociocultural issues and consider how they influence teachers' experience in the classroom and, by extension, their decisions to continue in the profession.

In addition, it appears that the composition of entering teachers is different from the general teaching population in terms of previous work experience and type of certification. Novices are more likely to have prior work experience in fields other than teaching. Also, more novices hold alternative teaching certificates. These differences in background characteristics and preparation may suggest a shift in the type of novice entering the workforce or may reflect the characteristics of individuals who ultimately stay in CPS. In either case, these possible differences in teacher background and preparation may also affect the manner in which induction, mentoring, and supports are best organized to assist CPS novices.

What Do Novices Report about Their Teaching Experience and Plans for the Future?

CCSR's 2005 survey included a new battery of questions designed specifically for novice teachers. We used one survey item from this section to assess the quality of novices' teaching experience ("Teaching this year has been a good experience for me"). We used a second item ("I am looking forward to teaching next year") to address teachers' intent to continue in the teaching profession. A third item captures teachers' plans to remain in the same school ("I am looking forward to teaching in this school next year"). These three outcomes will be examined through a variety of analyses in this report.

Rather than create a single scale out of the combined responses to these items, we use each item as a separate outcome. We distinguish those who intend to continue teaching from those who plan to remain in the same school in order to examine how classroom or school characteristics influence these outcomes differently. Similarly, we make a distinction between teachers reporting a good experience and those planning to remain in the same school.

Novices generally were very positive about their first-year experience and future teaching intentions.[5] (See Figure 2.1 for a summary of these outcomes.) About one out of every two new teachers strongly agreed that teaching during the past year was a good experience, that they intended to continue teaching next year, and that they planned to remain in the same school. Approximately 80 to 90 percent of novices responded positively (agree or strongly agree) to each of these three items.

Both elementary and high school teachers responded similarly to "Teaching this year has been a good experience for me." About 90 percent of elementary and high school teachers responded to this item with agree or strongly agree.

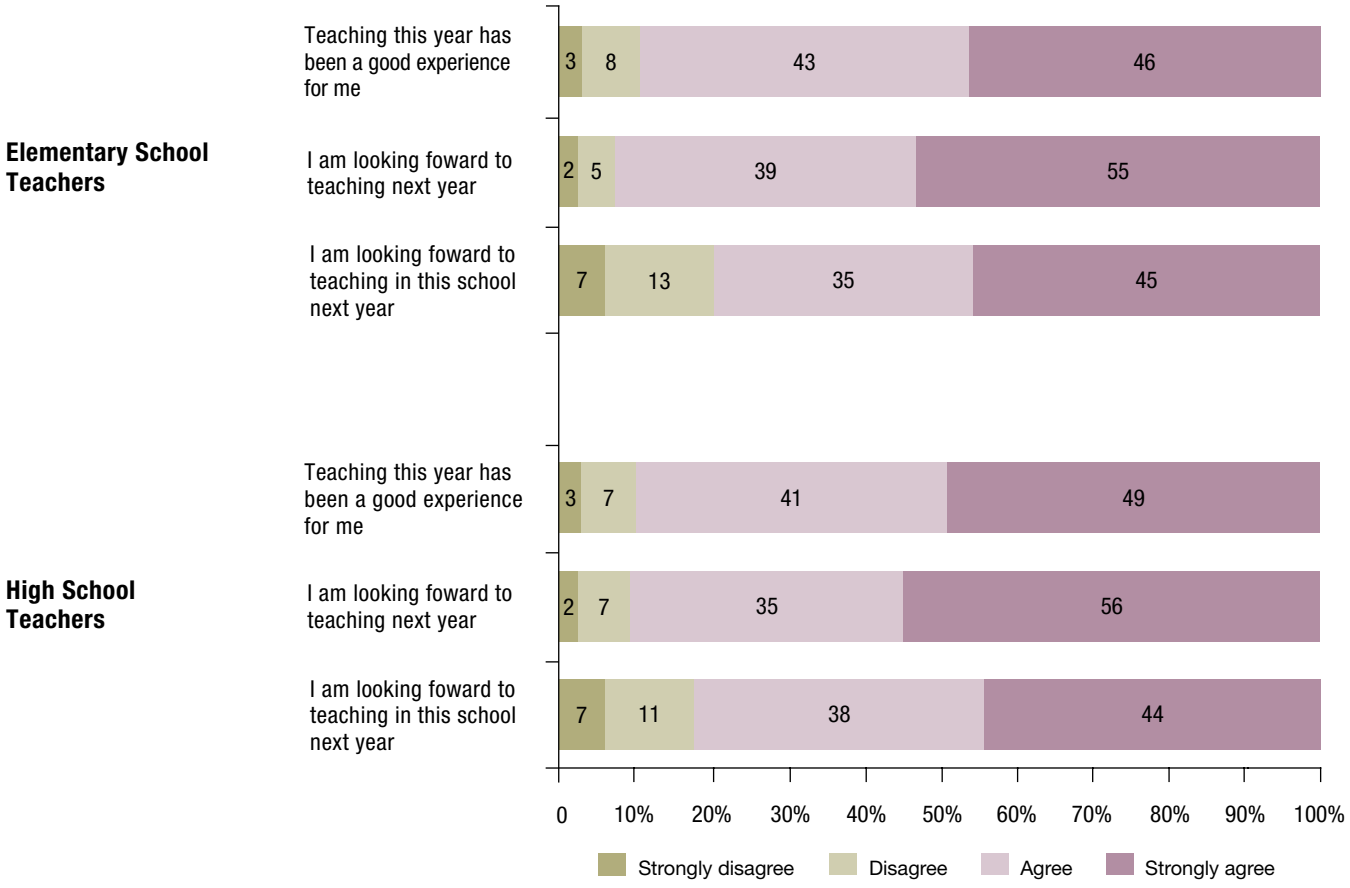
The item receiving the highest positive response among respondents was "I am looking forward to teaching next year," with 94 percent of elementary school teachers responding agree or strongly agree, and 91 percent of high school teachers responding agree or strongly agree.

The proportion of positive responses for the last item, "I am looking forward to teaching in the same school," was slightly lower, yet still very positive: 80 percent of elementary school teachers agreed or strongly agreed with the statement, while 82 percent of the high school sample agreed or strongly agreed. Overall, there were few differences between the responses of elementary and high school teachers.

These data indicate a high degree of satisfaction among novice teachers, and would seem to promise high levels of retention. However, statewide and local turnover rates reflect a much less optimistic outcome. It should be noted that our survey was given in spring of the academic year; therefore, our findings do not include the responses of new teachers who left the system earlier in the year, which might help to explain the high degree of satisfaction we find. In Chapter 3 we take a more nuanced look at these patterns.

FIGURE 2.1

Novices' Reports about Their Teaching Experience and Intentions for Future Teaching



Endnotes

1 Our sample does not include novice teachers working in charter schools.

2 Demographic definitions of elementary schools are: Integrated schools have a student population of more than 30 percent white students; mixed schools have a student population that is 15 to 30 percent white; predominantly African-American schools have a student population that is more than 85 percent African-American; predominantly Latino schools have a student population that is more than 85 percent Latino; and predominantly minority schools have a student population that is 85 percent African-American and Latino. Demographic definitions of high schools are: Integrated schools have a student population that includes 30 percent or more white students; mixed schools have a student population that is less than 30 percent white; predominantly African-American schools have a student population that is more than 70 percent African-American; and predominantly Latino schools have a student population that is more than 70 percent Latino.

3 The "other" category includes Asian, Native-American, biracial teachers, and teachers who identified themselves as in an "other" category. These were combined because of the low number in each category.

4 CPS identifies less than 6 percent of students as "other" race (Asian/Pacific Islander, multiracial, and Native American). All statistics are from CPS (available online at www.cps.k12.il.us/AtAGlance.html).

5 Throughout this report, "future teaching intentions" refers to teachers' responses to the statements "I look forward to teaching next year" and "I look forward to teaching in this school next year." A positive response includes those who agreed and strongly agreed with the items.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Chapter 3

Which Contextual Factors Influence Novices' Teaching Experience and Intentions for Future Teaching?

In order to effectively assist novice teachers as they make the transition into the CPS workforce, we must first understand the range of contextual factors that can influence their early teaching experience and intentions for future teaching. Drawing upon research in new teacher retention, we organized these factors into three general categories: Those associated with the teacher, the classroom, and the school. Table 3.1 below summarizes

TABLE 3.1

Factors Analyzed for Influence on Novice Teachers' Teaching Experience and Intentions for the Future

Teacher Background and Preparation	Gender Race/ethnicity (white, African-American, Latino, other) Whether a graduate of CPS Highest level of education (bachelor's, master's, beyond master's) Type of preparation (i.e., traditional or alternative certification) Prior work experience outside of teaching
Classroom Demands	Class size Composition of students: Percentage in a bilingual program Percentage lacking knowledge and skills needed to learn material being taught Percentage that create serious behavior problems
School-Level Features	Racial composition School size Overall teacher retention rate Percentage of new teachers on staff Student socioeconomic status (SES) Concentration of poverty (low to high) Strength of school leadership (weak to strong) Faculty that welcomes and assists new teachers ("socialization")

Note: We provide descriptions of each of these factors in Appendix A.

the factors we analyze within each category.

As a first step in our analysis, we examined the effects of each of these factors within the categories of teacher, classroom, and school.[1] For example, without controlling for classroom and school factors, Latino teachers appeared to be more likely to stay in teaching and report a good experience, while teachers who were alternatively certified appeared to be more likely to leave their schools and the profession. Without accounting for teacher background, novices working in poor schools appeared more likely to leave teaching and their school. However, because we know that individual teacher characteristics, classroom demands, and school-level features do not operate in isolation from one another, we conducted a more thorough analysis that combines all of the factors. This multilevel approach acknowledges their simultaneous presence and helps us determine which contextual factors are uniquely associated with novices' experience in the classroom and their future teaching intentions.[2] Our combined analysis reveals a more complex story: The factors that appear as prominent in the initial analysis—such as teachers' race, the manner in which they are prepared, and school poverty—are outweighed by other, more influential factors. Figure 3.1 and the following sections summarize the findings of our multilevel analyses.

Teacher Background and Preparation

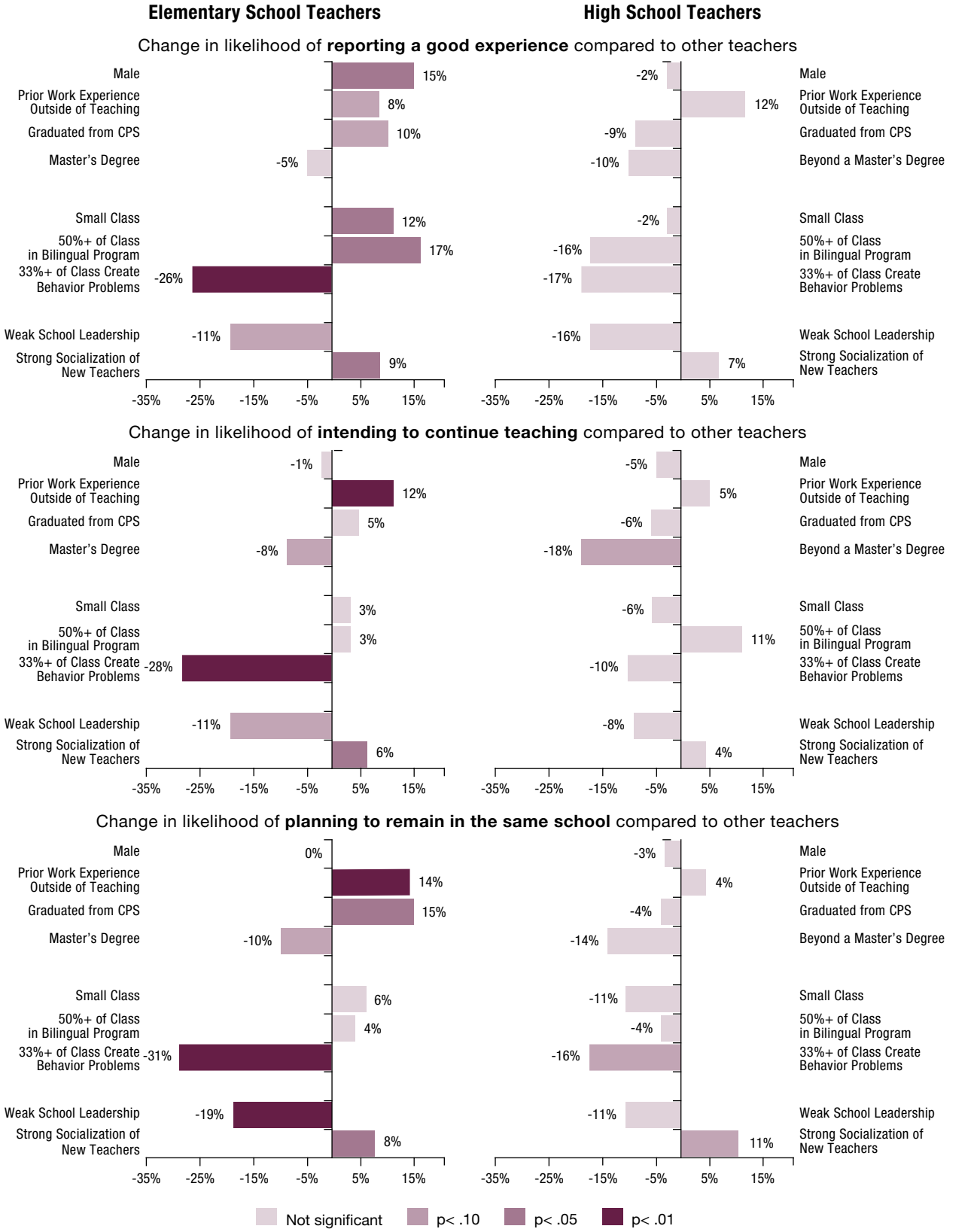
We begin with factors associated with the teacher. Given the predominance of female teachers in the workforce, we include gender as a variable in this analysis. Some studies indicate that teachers' race (relative to the race of the students in their schools) may be associated with their decision to remain in or leave the school in which they are teaching.[3] This factor is an important one for CPS, where students are primarily African-American and Latino, and novice teachers do not necessarily reflect the racial makeup of the student body. Other studies raise questions about how teachers' own level of education and type of preparation affects their intent to stay in the profession; we therefore include these factors in our analysis.[4] The relationship between attrition rates and the manner in which teachers are prepared, particularly as this relates to alternative certification, is relevant to CPS, given the number of new teachers currently entering the system with alternative certification. Another factor we test that is related to preparation is the extent to which novices have prior work experience outside of teaching. Finally, we examine whether being a graduate of CPS influences a novice's experience and future teaching intentions, not only because it is an interesting research question, but also because the percentage of novices who were CPS graduates is lower than the percentage in the general teaching population. Given this large difference, assumptions about teachers' knowledge about the system may have to be reexamined by induction providers. Of these background and preparation factors, we try to determine which are most strongly associated with novices' experience in the classroom and future teaching intentions.[5]

Our analysis showed that factors relating to teacher background and preparation particularly matter to novices working in elementary schools. New male teachers are more likely to report a good teaching experience than their female counterparts. Novice teachers with prior work experience in a field other than teaching are more likely to report a good teaching experience, intend to continue teaching, and plan to remain in the same school than novices entering with no other work experience, perhaps because they are older and more mature, as other research has asserted.[6] Novice elementary school teachers who graduated from CPS are more inclined to report a good teaching experience and are more likely to say they will remain in their schools than their peers who have not graduated from CPS. These results may be due to their having a greater awareness of and comfort with the system. Those holding master's degrees are more likely to intend to leave teaching than their peers in similar classroom and school contexts.

The factors influencing high school novices are similar: Novices with an education beyond a master's degree are more likely to intend to leave the profession altogether. This might be due to their having other career options should the challenges inherent in being a new teacher in CPS prove overwhelming. This explanation could hold true for elementary school teachers as well. Although not statistically significant, high school

FIGURE 3.1

Teacher, Classroom, and School Factors Influence Novices' Experience and Future Intentions



Note: Differences in probabilities are calculated after controlling for all teacher, class, and school factors. This table shows significant and non-redundant variables. For more information about our models, see Appendix C. See Appendix E for the complete HLM output.

novices with prior work experience also seem slightly more likely than their peers to report a good teaching experience. One difference between high school novices and elementary novices is the influence of being a graduate of CPS: Experience with the system appears to have a negative influence on high school novices, although this finding is not statistically significant.

Classroom Demands

We know that teachers' work and their perceptions of it are most directly influenced by the children with whom they interact daily,[7] and yet the classroom as an organizational structure is typically overlooked in induction research. The collective effect of students with varying needs and behaviors can be taxing on any teacher, particularly those new to the profession.[8] To ascertain the difficulty, or classroom demand, that novices experience, we examine the students our sample of novices were assigned to teach and explore how classroom composition might influence their experience and future teaching intentions. The classroom factors we examine include class size,[9] and classroom composition (teacher reported) in terms of the percentage of students who are in a bilingual program, the percentage lacking knowledge and skills needed to learn material being taught, and the percentage that create serious behavior problems.

Because our classroom variables are teacher reported, we recognize that our findings might be more representative of teacher perceptions rather than classroom demands. See p. 19 for further exploration of this issue.

Our findings show that teachers working in classrooms with a higher percentage of students with behavior problems are much less likely than their peers to report a good teaching experience, to intend to continue teaching, and to plan to remain in the same school.[10] These findings hold true for both elementary and high school teachers. Novice teachers' inexperience with establishing classroom routines and procedures, rather than the behavior of the children themselves might also be contributing to this result. Given the well-documented challenges that new teachers have with classroom management, these are not surprising findings.

An interesting series of patterns is related to the influence of working with bilingual students: Elementary school novices are more likely to report a good experience than their peers not working with bilingual students. However, high school novices working with large numbers of students with bilingual needs are less likely to report a good experience, although this finding for high school teachers is not statistically significant. These findings suggest that the classrooms of non-English speaking students influence elementary and high school novices differently.

Having a relatively small number of children in the classroom favorably influences the likelihood that elementary school novices report a good teaching experience. Class size does not, however, appear to translate into future teaching intentions for elementary novices. At the high school level, small class size does not appear to have a statistically significant effect on any of the outcomes.

School Setting

The final set of factors we analyze is related to the larger workplace—the schools in which novice teachers work. As in any organization, the workplace culture of schools is profoundly influenced by its structures, relationships, and activities.[11] Together these features result in school-level forces that influence novice teachers' success. We therefore looked at the ways in which the demographic features of a school—such as size, racial composition, and poverty levels—are associated with novices' experience and future teaching intentions. We look at the overall teacher retention rates and the percentage of new teachers on staff to gauge the stability of the school workforce. We also look at two specific factors in the school that have been discussed in studies of novice teachers: The extent to which new teachers are made to feel welcome in the school and are assisted[12] and the strength of school leadership.[13] School leadership encompasses principal-teacher relationships, teachers' involvement in decision making, principal instructional leadership, and instructional program coherence.[14]

We found it interesting that most school demographics, including poverty, did not appear to influence novices' experience or future teaching intentions in our

Novice Teachers Are Assigned More Demanding Classrooms Than Non-Novice Teachers

Novices report higher proportions of students who "lack the skills necessary to learn new material" and "create serious behavior problems" in the class than other teachers who completed our survey. We cannot fully confirm the extent to which these reports reflect reality rather than the perceptions and inexperience of beginning teachers. We can, however, match student-level data to a subsample of our novices who voluntarily provided us with their room numbers. This link allows us to check teachers' reports against actual student data. From this sample we selected fourth- to eighth-grade elementary school teachers and examined the school records of their students.

Our data indicate that novices' perceptions of the students who lack basic skills in their classrooms are correlated with the percentage of students in their class below norms in reading and math,[a] which suggests that we can reasonably rely on their survey reports. Additionally, using CPS data we can confirm that novice teachers in 2004–05 had classrooms with more students reading below norms (71 percent for novice teachers as compared to 62 percent for non-novices) and more students below norms in math (64 percent for novice teachers as compared to 56 percent for non-novices). Novice teachers also tend to have classrooms with lower median reading and math percentiles than experienced teachers in CPS. We use these data to suggest that novice teachers often work in more challenging classroom contexts than more experienced teachers. Given the multiple challenges new teachers face, placing them in less-demanding classrooms might ease their transition into the workforce. See the table below for these comparisons.

We do not have a way to match perceived student behavior data with actual behavior data, but we noted a correlation between the percentages of students with behavior problems with the percentages of students scoring below norms. This suggests that student behavior problems may be indicative of academic needs.[b]

Classroom Characteristics for Elementary School Teachers

	Non-novice Teachers *n=1,402*	Novice Teachers *n=327*
Percentage of students in class who are below norms in reading	62%	71%
Percentage of students in class who are below norms in math	56%	64%
Median reading percentile of class	41	36
Median math percentile of class	45	39
Percentage of special education students in class	10%	9%
Percentage of students retained	2%	3%
Percentage of bilingual students in class	10%	10%
Students per class	26	25

Note: Data come from the classrooms of teachers who voluntarily reported their room number in the reading teacher section of the 2005 CCSR elementary teacher survey. We used room numbers to link student information to teachers. Math and reading scores are from the Iowa Tests of Basic Skills (ITBS).

Endnotes

a The correlation between lack of skills with the percentage of students below norms in reading is .36. The correlation between lack of skills with the percentage of students below norms in math is .38.

b The correlation between behavior problems with the percentage of students below norms in reading is .28. The correlation between behavior problems with the percentage of students below norms in math is .33.

analysis. Our data suggest that classroom demands are more important. It is likely that the effects of poverty may be seen in the strong classroom effects that we observe: That is, both the challenges stemming from behavioral and academic needs in these novices' classrooms are a reflection of the relative poverty of the students.[15] The two school-level factors that did emerge as vital, however, are a welcoming faculty that assists new teachers and strength of school leadership.

Our analysis shows that the degree to which new teachers are welcomed and assisted by school faculty has a significant influence on new teachers' reports of good experiences, intentions to continue in the profession, and plans to remain in the same school. This finding holds true for both elementary and high school novices, although to a lesser degree for new teachers in high schools.

School leadership also proves to be a critical factor for novice teachers. Novices working in schools with weak levels of school leadership are less likely to report a good experience, intend to continue teaching, and plan to remain in the same school than similar teachers at schools with average leadership. A welcoming, supportive faculty and school leadership appear to be less influential for high school teachers, although patterns are similar to those of elementary teachers.[16] These weaker findings may be a function of the size and manner in which high schools are organized. The subject-area departmental structure and the dynamics within departments may be more significant in influencing the decisions of novice high school teachers to remain teaching in the same school. It is possible that the weaker findings for high school teachers may also be due to a comparatively smaller high school novice sample size, or that other factors not captured in our survey are in play.

Summary

We conclude this chapter by noting how the contextual factors of teacher background and preparation, classroom demands, and school-level features work in concert to influence novices' teaching experience, and by extension, their likelihood to continue in the profession and remain in the same school. We must understand both the combination of factors that increase the potential for new teacher retention, as well as those that put novices at risk for leaving their schools and teaching altogether. It follows that in order for induction programs to be effective, they must be organized to address these specific contextual influences.

Endnotes

1 For more information about the models, see Appendix C. For more information about initial outcomes, see Appendix D.

2 We used hierarchical linear modeling for these analyses, which allowed us to nest teachers in schools. From this point on, we will refer to these analyses as "combined analyses." See Appendix E for the output.

3 Hanushek, Kain, and Rivkin (2002).

4 The relationship between teachers' own academic skills and their intentions has been noted in the literature, for example, in a recent study by D'Angelis, Presley, and White (2005). We use teachers' highest level of education as a proxy for academic skills. The effect of novices' highest level of education and type of preparation have also been noted as having an influence on attrition by Feng (2005).

5 We use the term "future teaching intentions" to indicate teachers' plans to continue teaching, and remain in the same school. We use the term "experience" as shorthand for teachers' overall quality of their teaching experience during the 2004–05 academic year.

6 Haberman (1995).

7 Johnson (1990); and Johnson et al. (2004).

8 Ibid.

9 For an overview of the role of class size in the induction research, see Allen (2005).

10 We noted a strong correlation (.49) between teachers' reports of the percentage of students with behavior problems and the percentage lacking necessary knowledge and skills. Although lacking skills was not statistically significant in our findings, this correlation suggests that it may nevertheless be important in the classroom.

11 See for example Bidwell (1965); Tyack (1974); Lortie (1975); Johnson et al. (2004); and Talbert and McLaughlin (1994).

12 School leadership and a welcoming, supportive faculty (socialization) measures have been previously used by CCSR to quantify school climate. These are not individual-level variables that reflect personal feelings, but instead a measure derived from ratings received by all teachers working in the school.

13 See for example Carver (2003); and Ganser (2002).

14 This study relies on an average of ratings of these items, which have previously been identified by CCSR research as important aspects of school leadership. See, for example, Luppescu and Hart (2005).

15 For elementary school novices, we found a positive correlation (.20) between classrooms with high percentages of students with behavior problems and high-poverty schools, and a negative correlation (-.20) with low-poverty schools. For high school novices, we found a positive correlation (.15) between classrooms with high percentages of students with behavior problems and high-poverty schools, and a negative correlation (-.18) with low-poverty schools.

16 We also tested school-level student achievement as a possible factor in the high school analysis, but it did not appear to influence novices' experience or future teaching intentions.

Chapter 4

New CPS Teachers and Their Involvement with Induction Programs

The overwhelmingly positive responses from novices regarding their experience and future teaching plans, described in Chapter 2, seem to imply that new teachers are very content in their positions and are unlikely to leave CPS. However, Chapter 3 suggests that new teachers have a number of contextual factors to contend with that induction programs could mitigate. In this chapter we look at who is participating in formal induction programs and the influences such programs have on new CPS teachers.

During academic year 2004–05, almost four-fifths of all first- and second-year CPS teachers in our sample reported that they participated in an induction program (915 elementary school teachers and 414 high school teachers).[1] Participation rates are fairly evenly distributed across grade-level teaching assignments. The majority of novice teachers who responded to our survey participated in the GOLDEN Teachers Program, since it is a requirement for all first- and second-year teachers in CPS.[2] (See Table 4.1 for participation rates.) New teachers had the option to participate in more than one program. Seven percent of novice elementary school teachers and 4 percent of novice high school teachers did so.

Interestingly, we found minimal differences in induction participation rates between first- and second-year teachers. In elementary schools, 76 percent of first-year teachers reported participating in induction programs and 80 percent of second-year teachers participated. First-year high school novices were more likely, however, to participate in induction than second-year teachers(81 percent of first-year teachers, compared to 68 percent of second-year teachers), which might suggest that second-year novices in high school have attained a degree of comfort with teaching that makes them more likely to forgo the induction requirement.

TABLE 4.1

Percentage of CPS Novice Teachers Participating in Induction by Program

Induction Program	Novice Elementary School Teachers *n= 1,158*	Novice High School Teachers *n= 531*
GOLDEN	62	67
New Teachers Network (NTN)	3	(na)
Academy of Urban School Leadership (AUSL)	1	(na)
Teach for America (TFA)	2	1
New Teacher Support Initiative (NTSI)	<1	(na)
Other	4	6
Network for new math and science high school teachers	(na)	<1
Multiple	7	4
None	21	22

Approximately one-fifth of the novice teachers responding to our survey said they were not in a formal induction program, even though participation is required. Our data revealed several patterns, based on teacher background and preparation, among novices who reported not participating in induction. Fewer graduates of CPS participated in induction. Their familiarity with the school system may contribute in some way to their decision not to participate in induction. Our data also show that African-American teachers were more likely to report not participating than teachers of other races. It appears that teachers who have graduated from traditional preparation programs, rather than alternative programs, also participate less in induction programs. This may result from a greater perception of need among alternatively certified teachers because their preparation is typically shorter than teachers who have participated in degree-granting programs. Or graduates of alternative-certification programs might be participating in induction because involvement in postgraduate support is encouraged, as is the case with teachers certified through Chicago's chapter of Teach For America, for example. Determining whether reasons for nonparticipation are related to access or perceived lack of helpfulness, for instance, should be informative to induction providers.

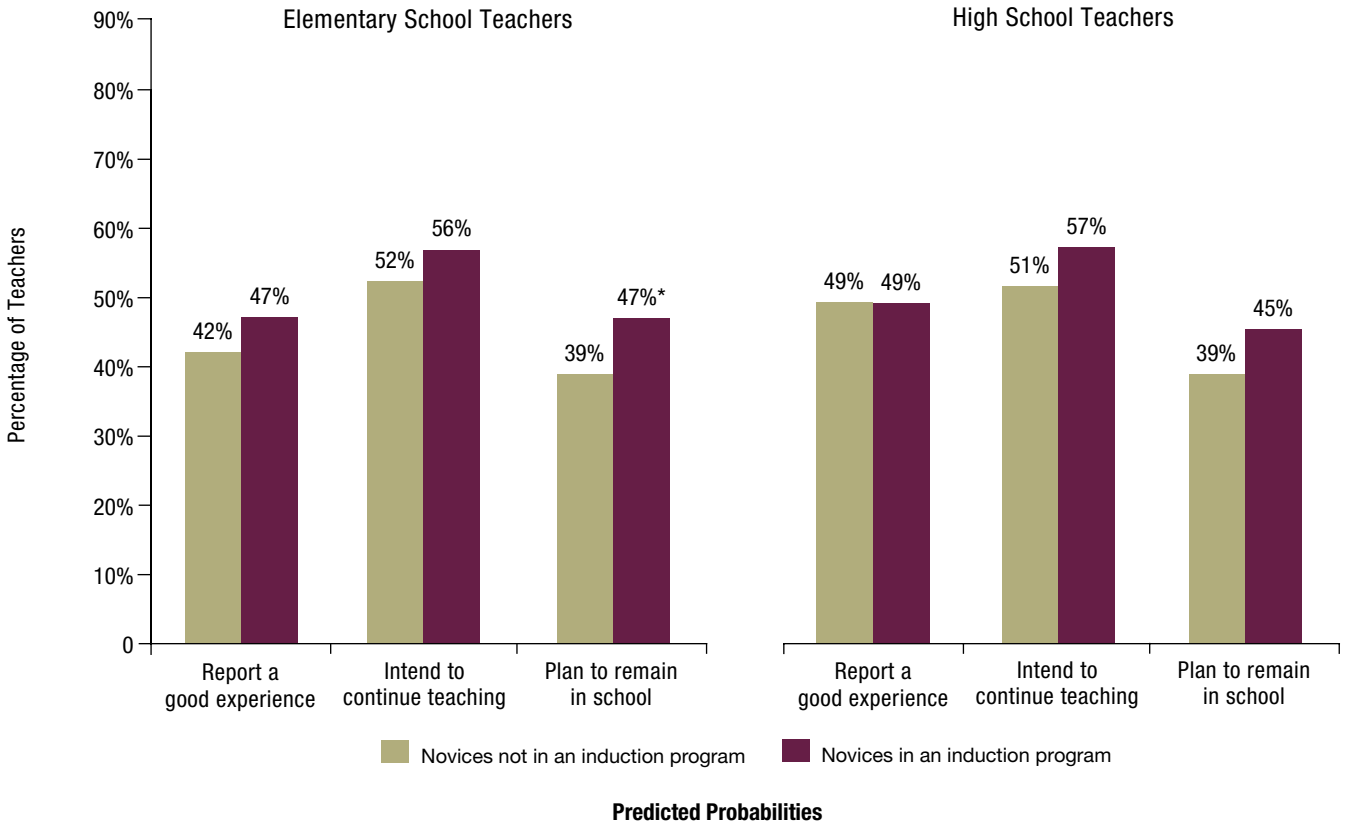
We examined the influence of induction program participation on three outcomes: Novices' teaching experience, their intent to continue in the profession, and their plans to remain teaching in the same school. We conducted this analysis in two ways. First we looked at participation in induction without adjusting for context—that is, teacher, classroom, and school-level factors. Without these adjustments, participation in induction generally appears to have a positive effect. However, when we examined the influence of induction programs while accounting for contextual factors, our findings suggest otherwise. Simply participating in an induction program, as currently organized in CPS, has little bearing on the quality of novices' teaching experience and future teaching intentions. Figures 4.1 and 4.2 illustrate these outcomes. In Figure 4.2 we see that many of these advantages disappear when we adjust for context. Given all we know about the positive effects of comprehensive induction from the literature, we can speculate about explanations for this finding.

One simple explanation is that generally new teachers are receiving similar levels of mentoring and support, but some teachers do not identify these supports as related to induction. Another possibility is that new teachers are not participating in induction programs, yet they are receiving assistance from other sources. A third explanation is that nonparticipating teachers may not see the need for induction, and perhaps are likely to remain in their positions even without induction programs. For example, fewer CPS graduates participate in induction, and in the case of elementary novices, they are also less likely to leave their positions. A fourth explanation is that the wide variation and inconsistent enactment of induction programming across CPS makes it difficult to achieve overall positive results. Yet another possibility is that induction programs in Chicago are not designed to meet the specific needs of novices working in the challenging CPS setting, and therefore do not address what matters most to new teachers as they begin their careers.

In the next chapter, we examine whether receiving particular types of supports commonly associated with induction—rather than simply participating in an induction program—made the difference for novice teachers. Chapter 5 describes our analysis.

FIGURE 4.1

Before Adjusting for Contextual Factors, Elementary Novices Participating in an Induction Program Are More Likely to Plan to Remain in the Same School

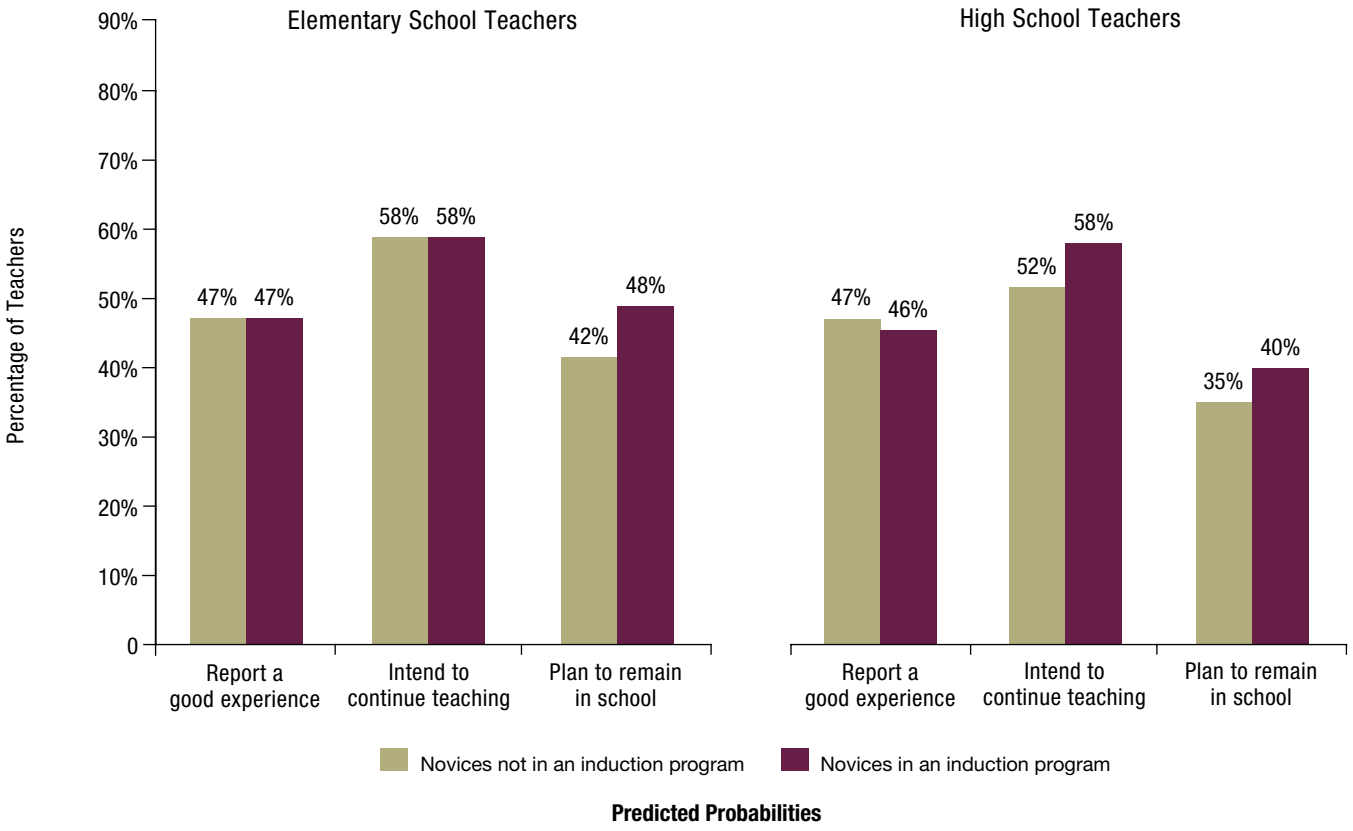


**=p<.05*

Note: These percentages come from logistic regression models without adjusting for teacher, class, and school-level factors. For more information about our models, see Appendix C.

FIGURE 4.2

After Adjusting for Teacher, Classroom, and School Factors, Participation in an Induction Program Has Little Bearing on Novices' Teaching Experience and Future Teaching Intentions



Note: These percentages come from hierarchical linear models with teachers nested in schools with a dummy variable representing participation in induction. These models adjust for teacher, class, and school level factors. For more information about our models, see Appendix C. None of these differences is statistically significant.

Endnotes

1 Teachers who indicated they were in any of the listed programs were considered to have participated in induction, while those who did not indicate a program were considered to have not participated in induction.

2 The one exemption was given to teachers in Area 15, who could substitute participation in NTN for their GOLDEN requirement.

Chapter 5

How Do Mentoring and Other Supports Influence Novices' Teaching Experience and Intentions for Future Teaching?

We conclude this study by looking at the quality and intensity of the mentoring and other supports commonly associated with induction that new CPS teachers are receiving. We then explore how those supports influence new teachers' work experience and future teaching intentions.

Mentoring

As we noted earlier, mentoring is the most common support associated with induction, and is a component of GOLDEN and other induction programs examined in our research. Approximately three-quarters of the novice teachers in our sample answered questions about their formally assigned mentor.

TABLE 5.1

Frequency of Interaction with Mentors

	Elementary School Teachers n= 871	High School Teachers n= 420
Never	7%	9%
Monthly or Less	21%	20%
About Every Two Weeks	16%	15%
Weekly	30%	33%
Daily	26%	24%
This Frequency Was...		
Too Little	17%	18%
Sufficient	81%	80%
Too Much	2%	2%

Of these teachers, approximately 70 percent met with their mentors at least every two weeks, and more than half met weekly or more often (see Table 5.1). The vast majority of novices reported that they were satisfied with the amount of mentoring contact they received.

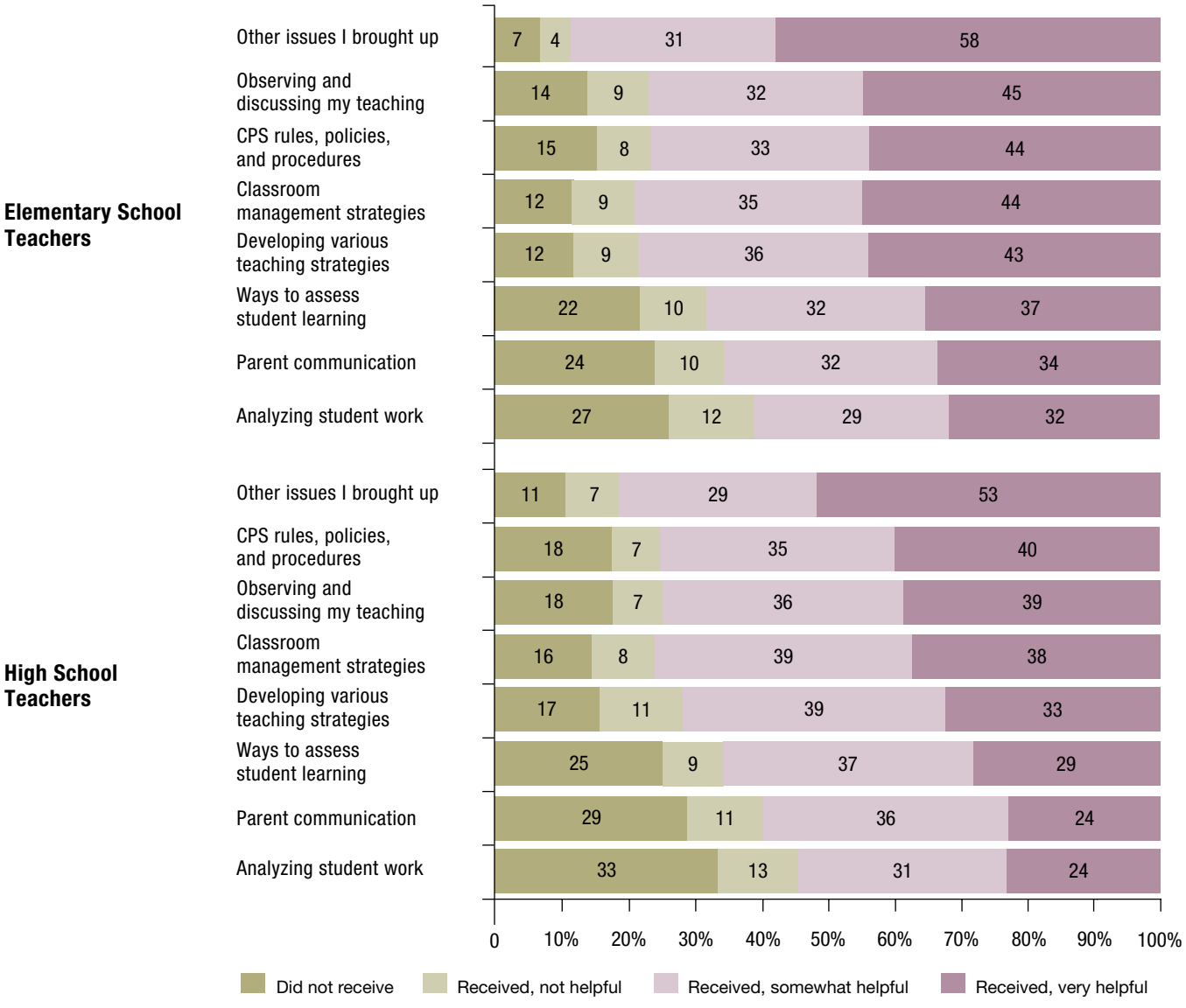
Frequency is an important aspect of mentoring, but equally important is the content of mentoring assistance. We asked teachers who were formally assigned a mentor, coach, or master teacher to rate the helpfulness of the various types of mentoring activities they participated in. Figure 5.1 shows their responses.

As noted in Figure 5.1, the majority of novices found the content of their mentoring helpful. Both elementary and high school novice teachers characterized as helpful their mentors' guidance with regard to teaching strategies, classroom management, CPS policies and procedures, observation and discussion of teaching, and other self-selected issues. Areas in which novices received the least assistance included analysis of student work, parent communication, and student assess-

FIGURE 5.1

Helpfulness of Mentoring Activities, as Reported by Novice CPS Teachers

How helpful was your mentor/coach/master teacher in providing support related to the following issues and practices?



ment. These data also reveal patterns that suggest that elementary school novices are receiving slightly more mentoring assistance than high school novices.

We also examined each of these mentoring activities in light of the teacher, classroom, and school factors that we discussed in Chapter 3. For more information

TABLE 5.2

Influence of Specific Mentoring Activities on Novices' Teaching Experience and Intentions for Future Teaching

	Elementary School Teachers	High School Teachers
Increase in likelihood of reporting a good experience, given the following mentoring activities:		
Developing various teaching strategies	4%~	23%*
Classroom management strategies	14%*	25%*
Observing and discussing my teaching	16%**	17%
Analyzing student work	13%*	24%*
Ways to assess student learning	13%*	14%~
Parent communication	4%	17%~
CPS rules, policies, and procedures	10%	26%*
Other issues I brought up	15%~	23%
Increase in likelihood of intending to continue teaching, given the following mentoring activities:		
Developing various teaching strategies	3%	13%
Classroom management strategies	3%	13%
Observing and discussing my teaching	0%	10%
Analyzing student work	5%	16%
Ways to assess student learning	3%	11%
Parent Communication	-4%	11%
CPS rules, policies, and procedures	-5%	16%
Other issues I brought up	6%	19%
Increase in likelihood of planning to remain in the same school, given the following mentoring activities:		
Developing various teaching strategies	17%**	10%
Classroom management strategies	16%*	16%
Observing and discussing my teaching	10%	11%
Analyzing student work	12%*	25%*
Ways to assess student learning	15%*	14%
Parent communication	5%	16%
CPS rules, policies, and procedures	7%	21%
Other issues I brought up	11%	19%

*~=p<.10 *=p<.05 **=p<.01*

Note: These percentages come from hierarchical linear models with teachers nested in schools with dummy variables representing each mentoring activity found to be somewhat or very helpful. These models adjust for teacher, class, and school-level factors. For more information about our models, see Appendix C. Significance ratings account for variability and group mean differences.

about these models, see Appendix C. We summarize our findings in Table 5.2.

Influence of Mentoring Activities

As shown in Table 5.2, new elementary school teachers whose mentors set up classroom observations and facilitated discussion about classroom management strategies and other issues chosen by the novice were most likely to report a good teaching experience. The fact that focus on "other issues" seems to matter so much to novices suggests either that novices had needs that were not captured in our survey, or that "other" is a proxy for mentors' general responsiveness and/or accessibility. Working with a mentor on activities related to developing teaching strategies, managing a classroom, and assessing student learning is most strongly associated with elementary school novices' intention to remain in the same school. Note that the important role mentors play in helping new teachers with classroom management supports our finding about the impact of classroom demands on novices' experience, described in Chapter 3.

Learning about CPS policies from a mentor mattered most to new high school teachers in terms of reporting a good experience, followed by support with classroom management. Analyzing student work was the only statistically influential mentoring activity associated with new high school teachers' intentions to remain in the same school.

No one specific mentoring activity appears to have a particularly strong influence on novice elementary or high school teachers' decisions to continue teaching. This particular finding might be indicative of a type of mentoring activity that we did not capture in our survey items, or it might simply suggest that the types of activities novices engaged in with their mentors were not specifically relevant to their staying in the profession.

An Overall Measure of Mentoring

We combined teachers' responses about the quantity and quality of mentoring activities in order to derive a measure of their collective influence on novice teachers.[1] We broke this measure of mentorship into three levels of mentorship—weak, average, and strong. Teachers receiving *weak* mentorship said they either received no mentoring assistance, or they received some mentoring activities but found them at most somewhat helpful. Teachers reporting *average* levels of mentorship received most types of mentoring assistance and found them to be somewhat or very helpful. Teachers receiving *strong* levels of mentorship received all of the mentoring activities and found them very helpful. Table 5.3 displays the levels of mentoring received by novices in our sample. These data suggest that of teachers who were formally assigned a mentor, only about one-fifth of high school novice teachers and about one-quarter of elementary novices are receiving strong levels of mentorship, and that the majority of novices are getting average or weak levels of mentorship.

TABLE 5.3

Percentage of Novice Teachers with Various Levels of Mentorship

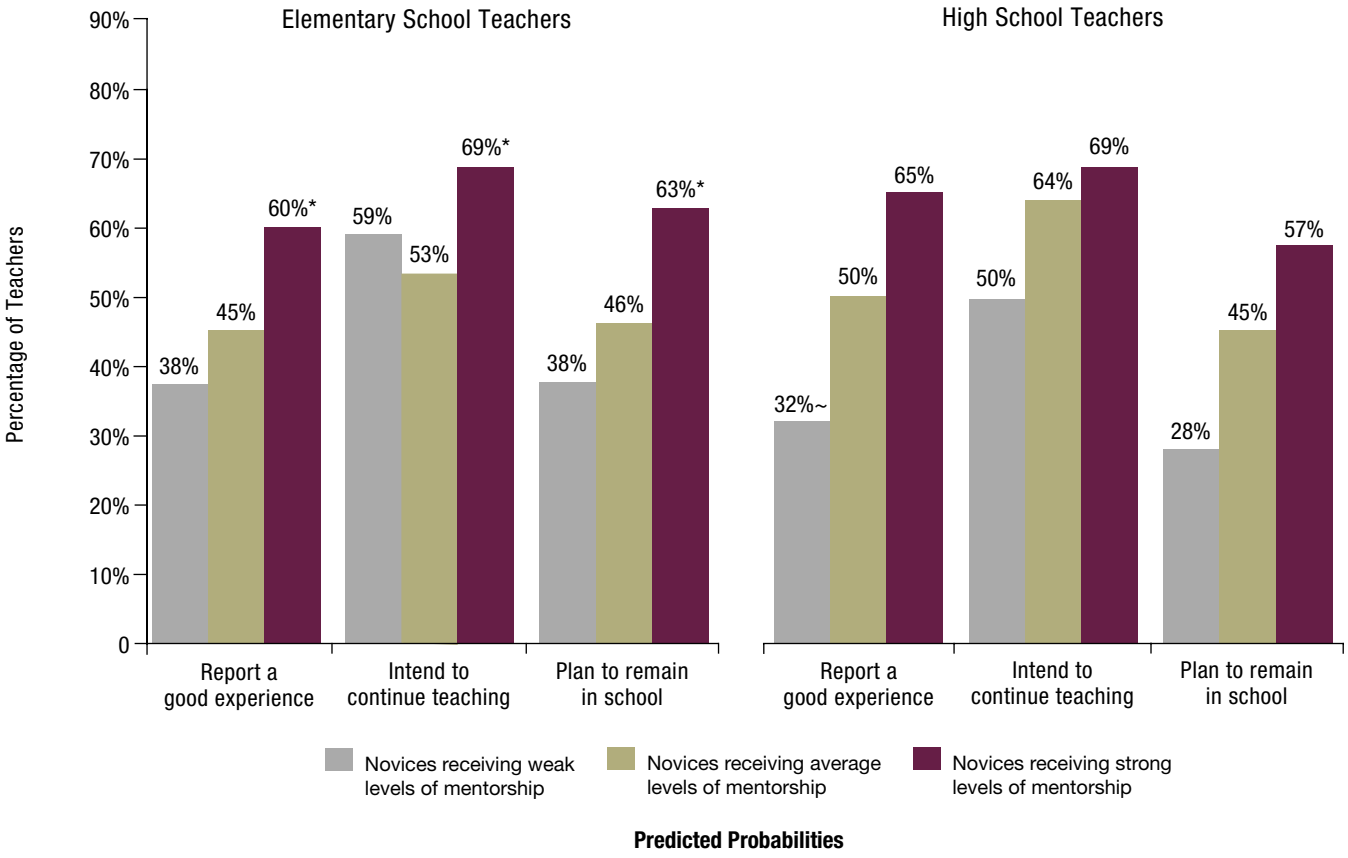
	Mentorship Level		
	Weak	Average	Strong
Elementary School Teachers	37%	37%	26%
High School Teachers	42%	37%	21%

Note: The percentages reflect the expected responses in each category rather than actual observed responses. See Appendix B for the methods used to calculate the expected values.

Figure 5.2 depicts how various levels of mentoring influence new teachers' experience and intentions for future teaching. At the elementary level, new teachers receiving strong levels of mentoring were much more likely to report a good experience, intend to continue teaching, and plan to remain in the same school. For high school novices, similar patterns emerged, although they were not all statistically

FIGURE 5.2

Novice Elementary and High School Teachers Benefit from Stronger Mentoring



*~=p<.10 *=p<.05*

Note: These percentages come from hierarchical linear models with teachers nested in schools with dummy variables representing the various levels of mentorship. These models adjust for teacher, class, and school-level factors. For more information about our models, see Appendix C.

significant. This finding points to the importance of training and supporting mentors so that their interactions with novices are productive and responsive.

Other Supports for New Teachers

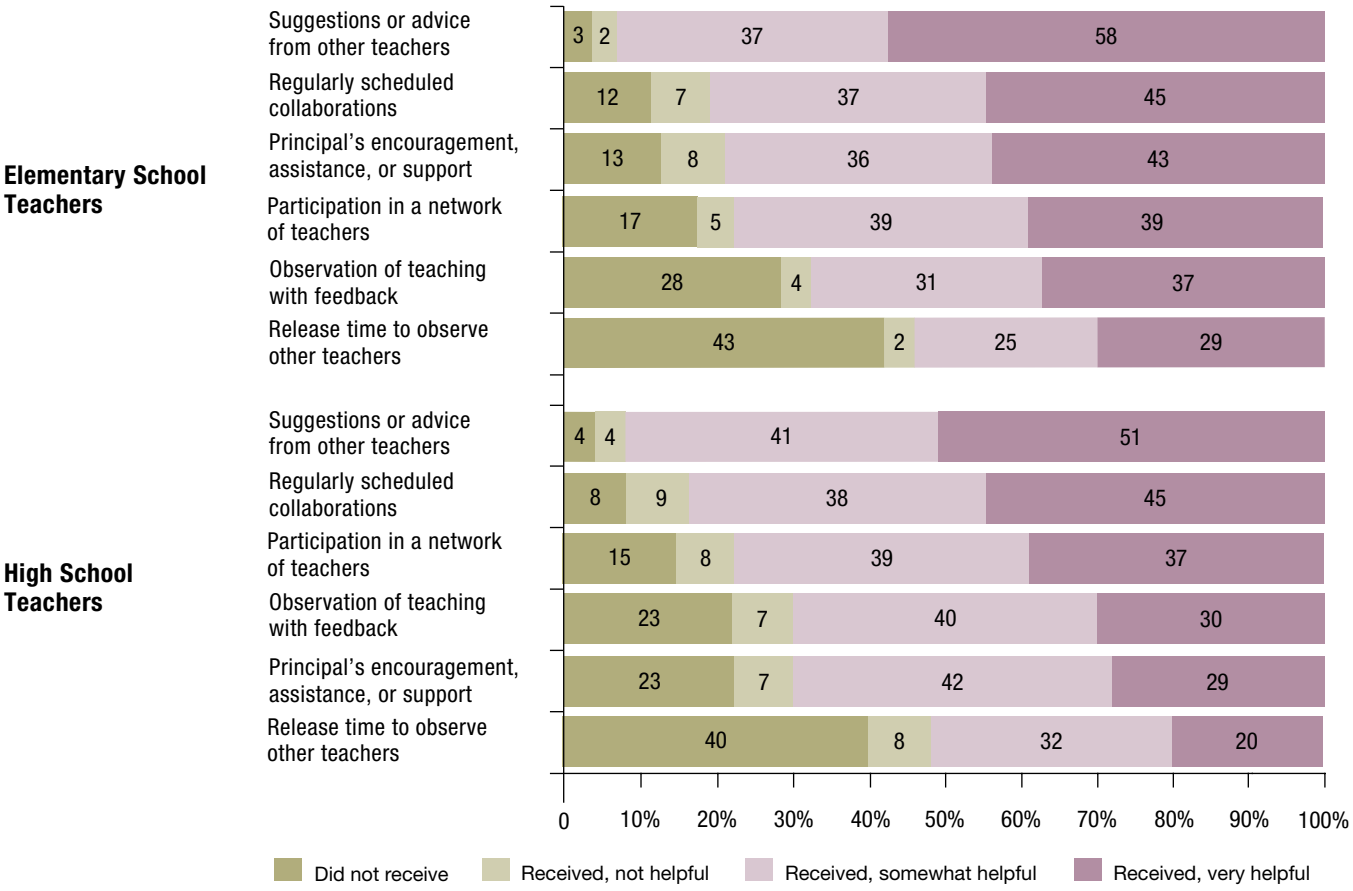
Ideally, beginning teachers should have access to a variety of supports beyond mentoring as they enter the profession. These supports can come through a formal induction program or from within the school. Supports might include suggestions from a colleague, opportunities to collaborate and plan with grade- or subject-level teams, or release time to observe another teacher's practice. Supports might also include participating in a network of teachers and receiving feedback on one's own teaching from an observer. To examine how different supports influence novices' experience and future teaching intentions, we looked at how novices rated the helpfulness of a number of supports. The results are displayed in Figure 5.3 (See p. 30).

Novice teachers reported receiving a variety of supports and found these supports very beneficial. In both elementary and high school, the support that novices rate as most helpful is receiving suggestions or advice from peers. A considerably smaller proportion of teachers are given release time to observe other teachers' practice, or to be the subject of observation and feedback.

FIGURE 5.3

Supports Received and Their Helpfulness, as Reported by Novice CPS Teachers

How helpful did you find the following supports this year?



We then examined the extent to which these supports influence novices while taking into consideration what we learned about the contextual (teacher, classroom, school-level) factors that affect teaching experience and intentions to continue in the profession.[2] These results are illustrated in Table 5.4.

Influence of Supports

Three supports had the greatest influence on new elementary school teachers: Encouragement and assistance from their principal, regularly scheduled opportunities to collaborate with peers in the same field, and participation in a network of new teachers. These supports made them more likely to report a good teaching experience and intend to remain in the same school. The first two supports—principal encouragement and collaboration—most influenced novices' intention to continue teaching.

High school novices who reported principal support, participation in a network, and receiving suggestions from peers were most likely to report a good teaching experience. Principal support and peer collaboration were supports that influenced high school novices' intention to continue teaching. Principal support, participation in a network, and release time to observe others teaching were the supports most associated

with novices' planning to remain in the same school. These findings align with those described in Chapter 3 that highlight the importance of school leadership on novices' future teaching intentions.

An Overall Measure of Supports

We combined teachers' responses about the quantity and quality of supports received in order to derive a measure of their collective influence on novice teachers.[3] We divided the sample teachers into three categories—those receiving weak, average, and strong levels of support. Teachers receiving *weak* levels said they received either no supports, or some supports and found them at most somewhat helpful. Teachers receiving *average* levels said they received most supports and found them somewhat helpful or very helpful. Teachers receiving *strong* levels said they received all supports and found them very helpful. As shown in Table 5.5 (See p. 31), only about one-fifth of the elementary and high school teachers in our sample received strong levels of support. As shown in Figure 5.4 (See p. 31), new elementary school teachers receiving strong levels of support are twice as likely to report a good teaching experience than peers receiving low levels. High school

TABLE 5.4

Influence of Specific Supports on Novices' Teaching Experience and Intentions for Future Teaching

	Elementary School Teachers	High School Teachers
Increase in likelihood of reporting a good experience, given the following supports:		
Regularly scheduled collaborations	18%**	18%
Participation in a network of teachers	14%**	20%*
Release time to observe teaching	9%*	19%*
Observation of teaching with feedback	11%*	10%
Principal's encouragement, assistance, or support	21%**	30%*
Suggestions or advice from other teachers	-4%	32%*
Increase in likelihood of intending to continue teaching, given the following supports:		
Regularly scheduled collaborations	10%*	16%*
Participation in a network of teachers	5%	11%
Release time to observe teaching	3%	14%~
Observation of teaching with feedback	3%	9%
Principal's encouragement, assistance, or support	14%*	22%*
Suggestions or advice from other teachers	0%	26%
Increase in likelihood of planning to remain in the same school, given the following supports:		
Regularly scheduled collaborations	28%**	19%~
Participation in a network of teachers	20%**	23%*
Release time to observe teaching	11%*	24%**
Observation of teaching with feedback	12%*	10%
Principal's encouragement, assistance, or support	30%**	30%*
Suggestions or advice from other teachers	13%	26%~

*~=p<.10 *=p<.05 **=p<.01*

Note: These percentages come from hierarchical linear models with teachers nested in schools with dummy variables representing each support found to be somewhat or very helpful. These models adjust for teacher, class, and school level factors. For more information about our models, see Appendix C. Significance ratings account for variability and group mean differences.

teachers receiving strong levels of supports were more than twice as likely to report a good experience.

The intentions of both novice elementary and high school teachers to continue teaching and remain in the same school were also strongly influenced by the level of supports they received. High school novices receiving strong supports were almost twice as likely to intend to continue teaching and about three times as likely to plan to remain in the same school as their peers receiving weak support. The level of supports received by novices clearly influences their experience and intentions.

TABLE 5.5

Percentage of Novice Teachers with Various Levels of Support

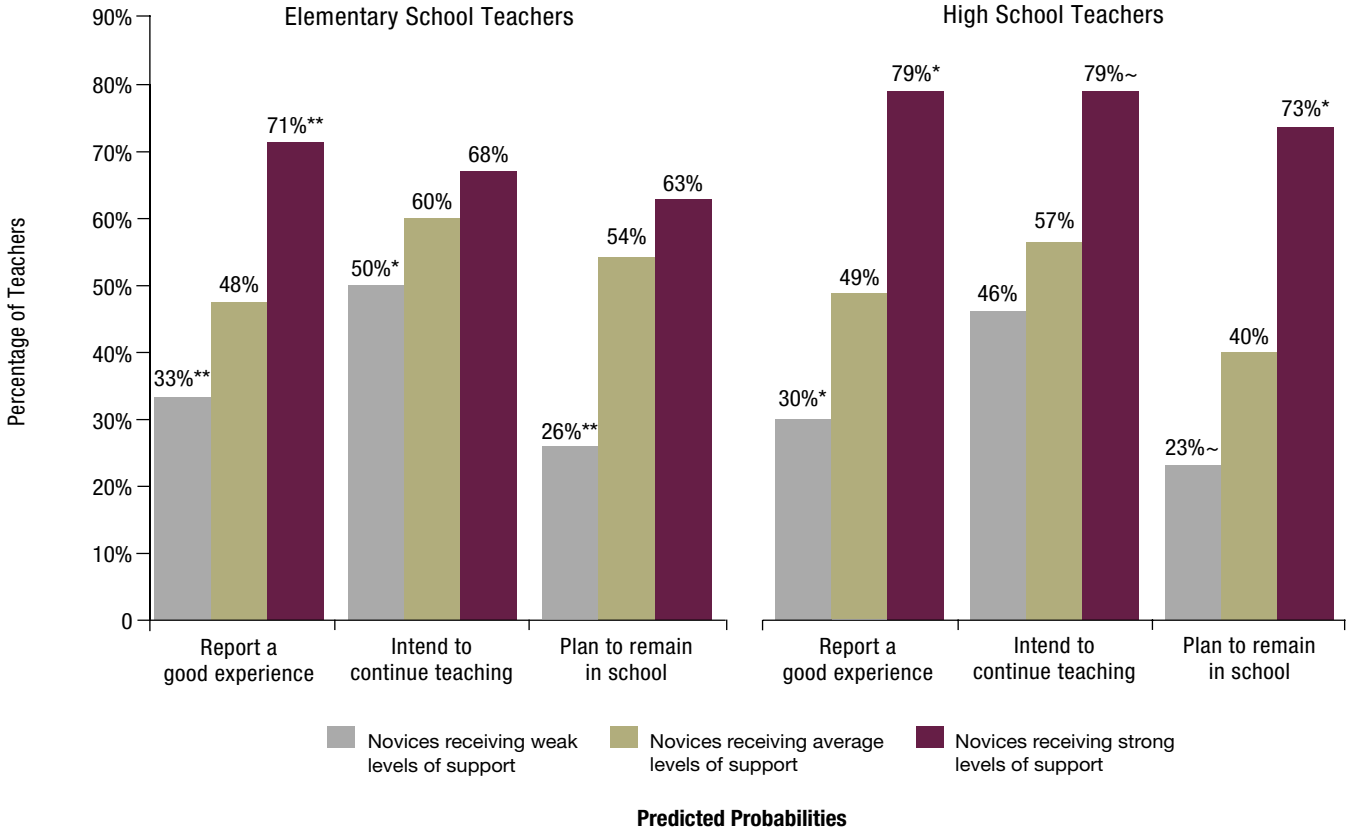
	Support Level		
	Weak	Average	Strong
Elementary School Teachers	38%	42%	21%
High School Teachers	42%	41%	17%

Note: The percentages reflect the expected responses in each category rather than actual observed responses. See Appendix B for the methods used to calculate the expected response categories.

The benefits of providing novices with strong levels of both mentoring and other supports raises the question of what role induction programs should play in providing these services to new teachers. Yet participation alone does not seem to influence novices' teaching experience and intentions for future teaching. To the possible explanations for this finding we offered in Chapter 4, we can now add

FIGURE 5.4

Novice Elementary and High School Teachers Have Worse Outcomes When They Receive Weak Levels of Support



*~=p<.10 *=p<.05 **=p<.01*

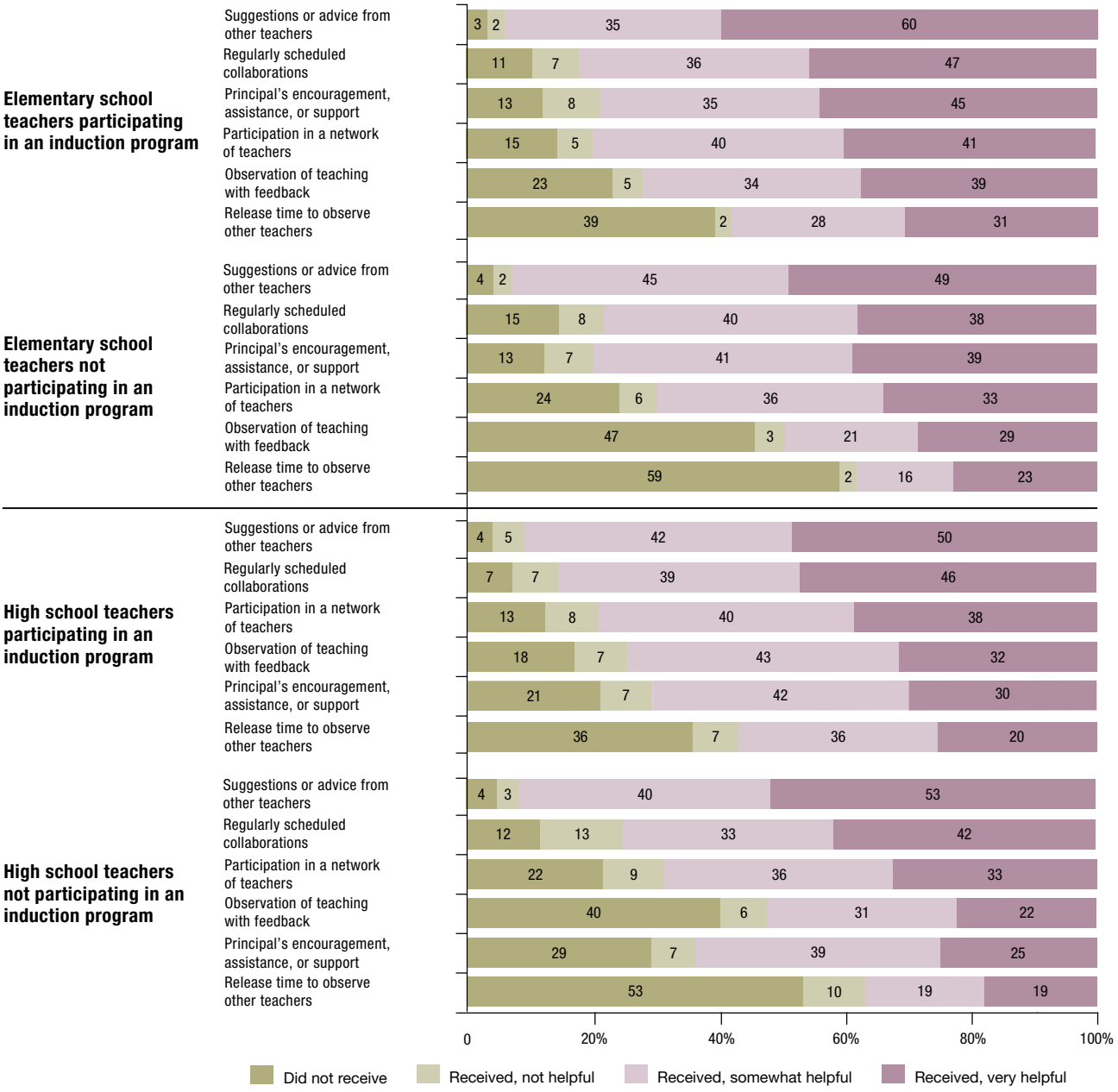
Note: These percentages come from hierarchical linear models with teachers nested in schools with dummy variables representing the various levels of support. These models adjust for teacher, class, and school level factors. For more information about our models, see Appendix C. See Appendix B for detailed definitions of the support categories.

Novices Receive Supports and Mentorship Regardless of Participation in Induction

In the figures below we see that teachers who reported that they were not participating in induction also reported receiving mentoring assistance and many supports. These data suggest that more teachers may actually be receiving induction assistance than program participation data indicate. Alternatively, it is possible that these supports are being provided through sources other than an induction program, for example through a schoolwide professional development initiative.

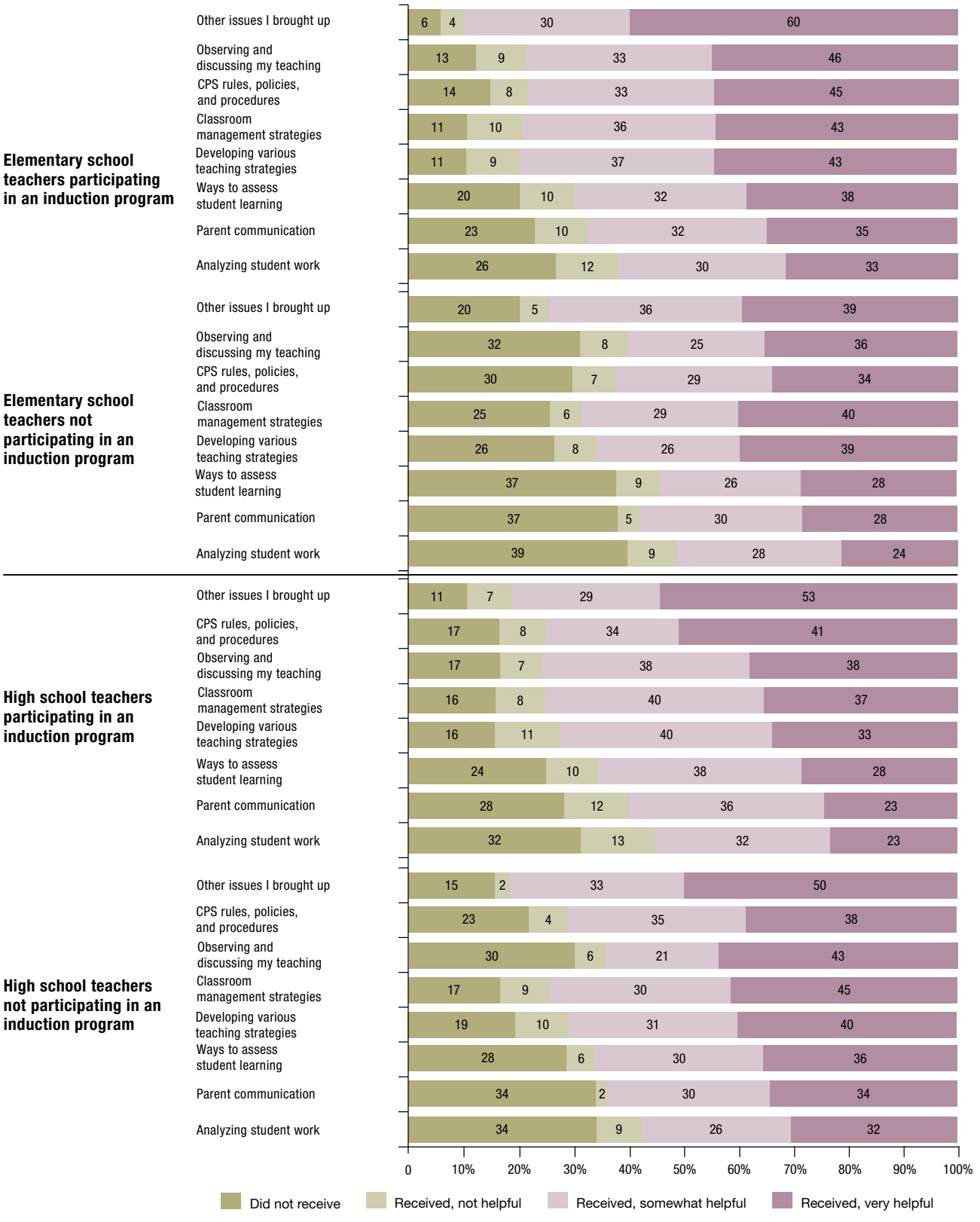
CPS Novices Receive Many Supports; Those in Induction Programs Receive More

How helpful did you find the following supports this year?



CPS Non-novice Receive Multiple Mentoring Activities; Those in Induction Programs Receive More

How helpful was your mentor/coach/master teacher in providing support related to the following issues and practices?



two more: (1) The supports novices receive through induction programs are not intense enough to counter classroom demands or school factors that inhibit professional satisfaction and intentions to continue in the profession, and (2) Novices might be receiving school-based mentoring and supports that they find more influential than what they receive through their induction programs.

Putting It All Together: Intensive Contextual Induction

Our final analysis looks at the need for a form of induction that we call "intensive contextual induction." As we define it, intensive contextual induction includes both strong mentorship and strong levels of other supports that address the individual, classroom, and school factors that influence novices. Our analysis compares the number of novices receiving intensive induction to novices receiving weak induction. In this way, we compare teachers receiving all mentoring activities and all supports and rating them very helpful to teachers receiving fewer mentoring activities or supports or receiving them and finding them less helpful. Table 5.6 displays the comparison and highlights that more new elementary school teachers appear to receive intensive induction than new high school teachers. This might be partially explained by the fact that more induction programs exist at the elementary school level.

When we examine the influence of intensive induction in light of the teacher, classroom, and school-level factors (as described in Chapter 3), the benefits are clear: Elementary school novices receiving intensive induction are far more likely than their peers receiving average induction to say they plan to remain in the same school. Patterns among novice high school teachers are similar: Those receiving intensive induction are much more likely to say they plan to remain in the same school as compared to novices receiving average induction. (See Figure 5.5.) These data unequivocally suggest that high-intensity induction matters for new teachers' experiences and future teaching intentions.

Having established the importance of intensity, we arrive at the second aspect of "intensive contextual induction": Its capacity to be responsive to the individual, classroom, and school-level factors that influence novices' experience and future teaching intentions. In Chapter 3, we showed a variety of factors that influence teachers. By better understanding these factors, induction providers and schools can join forces to offer intensive contextual induction that optimally targets novice teachers' needs. We believe that this combination of context-appropriate supports and sufficiently intensive induction activities will yield increased efficacy for induction programs and ultimately, better outcomes for teachers, and students.

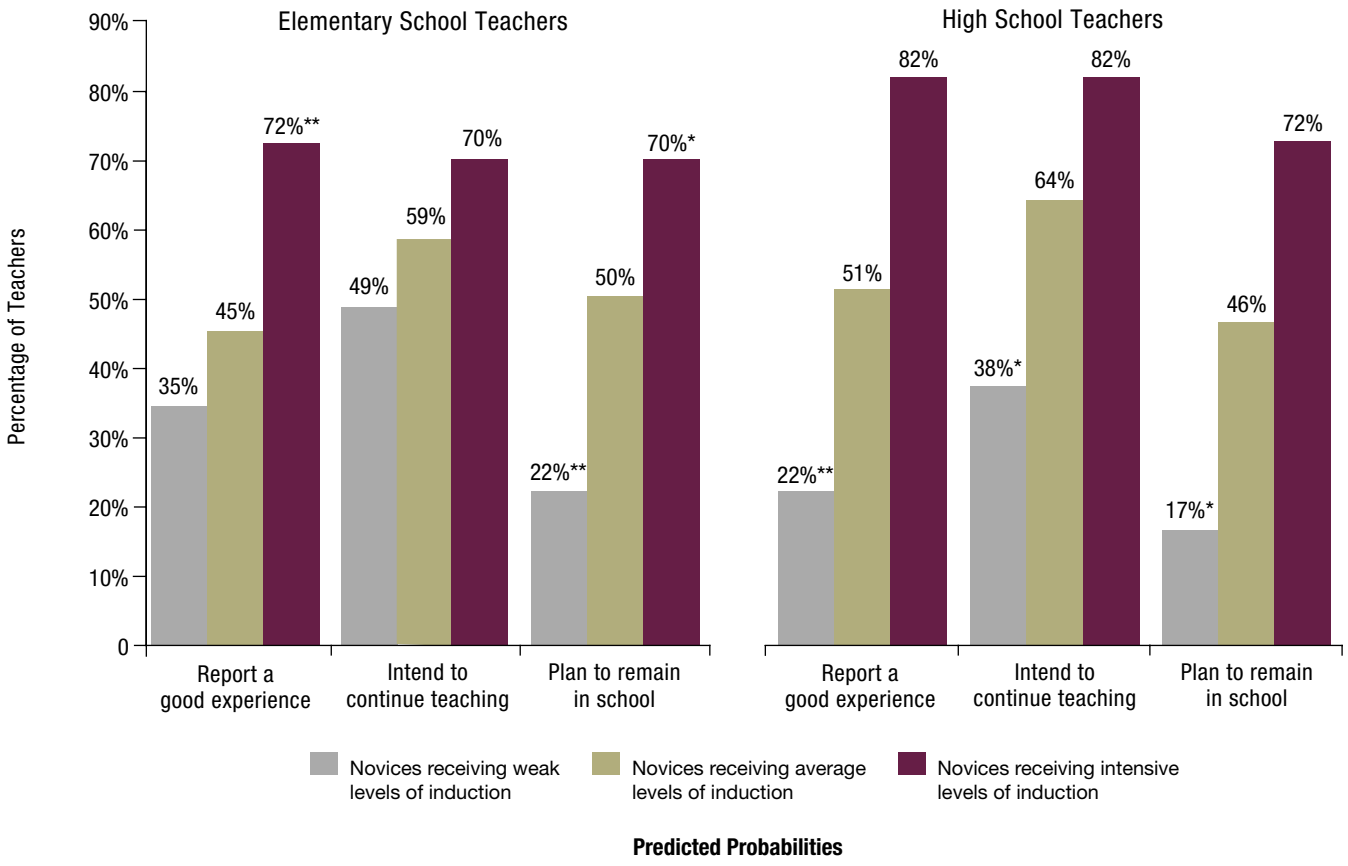
TABLE 5.6

Percentage of Novice Teachers with Various Levels of Induction

	Novices Receiving Weak Levels of Induction: Weak Mentorship and Weak Supports	Novices Receiving Average Levels of Induction	Novices Receiving Intensive Levels of Induction: Strong Mentorship and Strong Supports
Elementary School Teachers	17%	70%	13%
High School Teachers	22%	70%	8%

FIGURE 5.5

Novices Receiving Intensive Levels of Induction Are Much More Likely to Say They Plan to Remain in Their School Than Novices Receiving Weak Induction



*=p<.05 **=p<.01

Note: These percentages come from hierarchical linear models with teachers nested in schools with dummy variables representing the levels of induction. These models adjust for teacher, class, and school-level factors. For more information about our models, see Appendix C.

Endnotes

1 For more information about these measures, see Appendix B.

2 For more information about the models used in this analysis, see Appendix C.

3 An item about mentoring was also listed as a support for elementary school teachers.

Chapter 6

Interpretive Summary

This study provides an initial look at first- and second-year teachers in CPS, taking into account the contextual factors that influence their overall teaching experience, their intentions for future teaching, and the effects of participation in induction programs. At first glance novice teachers appear very satisfied. We find, however, that when teacher background and preparation, classroom demands, and school climate are taken into account a more complex set of responses emerge. We have seen that contextual factors have a substantial impact on novices' experience, as well as on their plans to continue teaching, in the same school or elsewhere. In addition, the mentoring and other supports novices receive, although not necessarily originating from the induction programs currently in place in Chicago, have a considerable influence on their early teaching experience and future teaching intentions.

The novices entering the teaching force are different from their more experienced colleagues. Novices tend to begin their careers with prior work experience, fewer novices are graduates from CPS, and more novices are coming into the profession with higher levels of education. These differences are important to note because we also found these characteristics to be influential on teachers' reports of good experiences and their future teaching intentions.

Teachers with prior work experience are more likely to report a good teaching experience, intend to continue in the profession, and plan to remain in the same school. We can speculate about the reasons for this: Prior work experience may provide tools to negotiate a new, unfamiliar work environment or the maturity to deal with the transition into a new field and career. Prior experience might also assist new teachers in establishing themselves as an authority figure in the classroom and better handling the challenges of classroom management—inevitable challenges for beginners. It is also possible that teachers who have made serious career changes are somehow qualitatively different from teachers with no work experience predating their teaching career. Perhaps novices with prior work experience are older than their peers entering the workforce—and since age has been cited as positively influencing teacher retention rates, perhaps the answer lies here. Although we cannot be sure about the actual mechanism that is operating, we do know that prior work experience for new elementary school teachers seems to decrease their risk for leaving their schools or the teaching profession.

Graduates of CPS who teach in elementary schools are also more likely to report good experiences, and they are more likely to plan to remain in the same school than their peers. We need to understand more about how being a former CPS student is related to intending to stay in the same school. This relationship might be a function of acquired knowledge about Chicago public schools or the students and communities they serve. It may also be the result of a heightened level of commitment that originated during their years as a student. A greater understanding of these areas may also be useful for novices who are entering CPS without experience with the system.

Efforts are taking place systemwide to recruit high-quality teachers into the workforce. If "high-quality teacher" is narrowly interpreted to refer to those with a master's degree or more, our data suggest that those teachers are less likely to remain in their schools or in CPS than novices with bachelor's degrees. We are not suggesting that efforts to recruit and retain teachers with high levels of education are misplaced, but rather that such teachers would benefit from different, more targeted forms of induction. Given the interest in teacher quality in Chicago, this raises questions about how we support and retain all well-prepared novices—those with bachelor's degrees as well as master's—once they enter the profession.

One of the most powerful factors influencing novices is the composition of their classroom. Our study provides a way of capturing the "classroom demands" on novice teachers. It is worth exploring more deeply our finding that classroom composition—and in particular the number of students with behavioral difficulties—is associated with novices' reports of good teaching experience, intentions to continue in the profession, and plans to remain at the same school. The difficulty that many new teachers have with creating productive classroom learning environments has been extensively documented. This challenge, coupled with the fact that novices in CPS tend to have slightly more academically disadvantaged students than other CPS teachers, seems to contribute to their overall experience and future teaching intentions. These findings have important implications for novices' initial classroom assignments and the manner in which they are supported.

New teachers are influenced by the strength of school leadership and the extent to which they are welcomed into the school community and helped by other teachers, even when we account for classroom demands. In particular, teachers at elementary schools with weak school leadership are less inclined to report a good teaching experience, plan to remain in their schools, and to intend to continue in the profession. School leaders have an essential part in acclimating new teachers by providing ongoing assistance and encouragement and facilitating welcoming and supportive school climates. They also have the capacity to create opportunities for grade- or subject-level collaboration or facilitate novices' participation in a network of new teachers. Our research confirms that these strategies have a strong influence on new teacher retention.

Collectively, mentoring and other supports have a much greater impact on novices' reports of teaching

experiences and future teaching plans than participation in an induction program on its own. Induction programming in CPS in its current state does not appear to result in measurable differences in novices' early experience and intentions for the future. We offer several explanations for this finding, but ultimately we are compelled to consider how to enrich the base of induction programming that has been established in Chicago so that mentoring and other supports are responsive to both novices' individual needs and those associated with their work environment. Our data confirm that when novices receive high levels of mentoring and high levels of support, the likelihood of their reporting a good teaching experience increases, as do the chances that they plan to remain in the same school. We therefore raise the possibility that an intensive contextual form of induction can bridge these two imperatives.

The majority of novice teachers in Chicago are satisfied with the amount of contact they have with mentors, but they are not benefiting in the same way as those who receive strong mentoring. Given the direct links between the quality of mentoring and novices' teaching experience and intentions to remain in teaching, questions must be raised about how we are preparing our mentors to assist and develop new teachers and the extent to which mentors need training for this role.

Whether originating from induction programs or schools, supports in the form of teacher collaboration and principal assistance are the most influential factors for novices. One strategy for induction programs might be to mobilize resources not only around new teacher support, but also around principal supports. For example, New Teachers Network (now a part of the newly formed Chicago New Teacher Center) collaborated with CPS Instructional Area 15 to hold monthly professional-development meetings for principals. Although these meetings were focused on literacy content and strategies, they deliberately included conversations on strategies to support new teachers as they implemented literacy practices in their classrooms. Induction programs have created regular opportunities for teachers to collaborate on grade- or subject-level issues. If such opportunities are provided frequently through induction programs, then participation might have a stronger influence on all novices' teaching experience and intentions to stay in the system.

Across the nation, school systems like Chicago's are taking steps to support their novice teachers. Knowing who these teachers are and the context in which they work will help organizers to create induction programs that better deliver mentoring and other supports, which will enable this and future generations of teachers to have a good experience, continue in the profession, and stay in the same school. Given the vital role that principals and school faculties can play in helping new teachers remain in CPS, we must broaden our definition of induction programming to include school-based initiatives. Learning how to keep new teachers is only the first important step for large urban districts where a range of factors makes retention a high priority. We will then need to study how intensive contextual induction can be designed to improve new teachers' practice and, ultimately, the academic achievement of Chicago's children.

Appendix A

Variables Used in Analyses

Teacher Background and Preparation Variables

Where Used	Description	Source
Logistic Regressions and HLMs	**Gender** is indicated by a dummy variable.	CCSR 2005 teacher surveys
	Racial and/or cultural identification is indicated by a set of dummy variables. Categories included "white, non-Hispanic," "Hispanic," "African-American," and "other" (which combined "Asian," "Native American," "biracial/multi-ethnic" and "other").	CCSR 2005 teacher surveys
	Highest level of education is indicated by a set of dummy variables. "Bachelor's degree" includes those who said their highest level of formal education was a bachelor's degree, while "Master's degree" includes those who indicated their highest level of formal education was a master's degree. Those with a PhD or a master's degree plus 15 credits or more toward a doctorate were combined into a single category.	CCSR 2005 teacher surveys
	Alternative certification is indicated by a dummy variable, distinguishing teachers who said they entered teaching through an alternative certification program.	CCSR 2005 teacher surveys
	Prior work experience is indicated by a dummy variable, distinguishing teachers who said they had worked full time in a profession other than teaching.	CCSR 2005 teacher surveys
	CPS graduate is indicated by a dummy variable, distinguishing those who said they were a graduate of a CPS high school.	CCSR 2005 teacher surveys
	Missing background values were imputed at the sample mean and a dummy variable was assigned.	

Classroom Variables[1]

Where Used	Description	Source
Logistic Regressions and HLMs	**Class size** is indicated by a set of dummy variables. "Small class" indicates teachers who said they have "less than 15 students" or "15 to 20 students." "Medium class" indicates teachers who said they have "21 to 25 students" or "26 to 30 students." "Large class" indicates teachers who said they have "31 to 35 students" or "more than 35 students" in their target class.	CCSR 2005 teacher surveys
	Percentage of students who lack knowledge and skills is a set of dummy variables. *For elementary schools,* teachers who responded "none" to the prompt: How many students in your target class lack knowledge and skills to learn what you are trying to teach? were in one category. Other categories include "about 10%"; "about 33%"; and a combination the categories "about 50%," "about 67%," "about 80%," and "about 90%." *For high schools*, teachers who responded "none" to the above question were in one category. Other categories included "a few"; "some"; and a combination of "about half" and "most/all."	CCSR 2005 teacher surveys
	Percentage of students who are currently enrolled in a bilingual program is a set of dummy variables. *For elementary schools,* teachers who responded "none" to the prompt: How many students in your target class are currently enrolled in your school's bilingual program? were in one category. Other categories included "about 10%"; "about 33%"; and a combination of "about 50%", "about 67%", "about 80%", and "about 90%." *For high schools*, teachers who responded "none" to the above question were in one category. Other categories included "a few"; "some"; and a combination of "about half" and "most/all."	CCSR 2005 teacher surveys
	Percentage of students who create serious behavior problems is a set of dummy variables. *For elementary schools,* teachers who answered "none" to the prompt: How many students in your target class create serious behavior problems in your class? were in one category. Other categories included "about 10%"; "about 33%"; and a combination of "about 50%", "about 67%", "about 80%", and "about 90%." *For high schools*, teachers who answered "none" to the above question were in one category. Other included "a categories few"; "some"; and a combination of "about half" and "most/all."	CCSR 2005 teacher surveys
	Missing Classroom Values were imputed only for high school teachers at the sample mean and a dummy variable was assigned.	

1 Target class was defined differently for elementary school teachers and high school teachers. For high school teachers, their target class was defined as the second period class on Mondays. If the teacher did not teach a second period class, their target class was the next class taught in the day. Questions about elementary school teachers' target classes were asked only of teachers who taught reading or language arts. For elementary school teachers, if the teachers had a self-contained classroom, that was the target class. If the teacher taught reading/language arts as a departmental teacher, the first reading class during the week was the target class. If the teacher taught reading under another arrangement, the first reading group or class of students during the week was the target class.

School-Level Variables

Where Used	Description	Source
Logistic Regressions and HLMs	**School size** is indicated by a set of dummy variables. *For elementary schools,* "smaller schools" have fewer than 350 students, "medium schools" have between 350 and 700 students, and "larger schools" have more than 700 students. *For high schools,* "smaller schools" have fewer than 1,200 students, "medium schools" have between 1,200 and 1,799 students, and "larger schools" have more than 1,800 students.	CPS administrative records
	Racial/cultural composition of the school is indicated by a set of dummy variables. *For elementary schools,* "integrated" schools have a population of more than 30 percent white students, "mixed" schools have a student population that is 15 to 30 percent white, "predominantly African-American" schools have a population of more than 85 percent black students, "predominantly Latino" schools have a population of more than 85 percent Latino students, and "predominantly minority" schools have a population of 85 percent black and Latino students. *For high schools,* "integrated" schools have 30 percent or more white students, "mixed" schools have less than 30 percent white students, "predominantly African-American" schools have populations of more than 70 percent black students, and "predominantly Latino" schools have populations of more than 70 percent Latino students.	CPS administrative records
	School-level concentration of poverty is a standardized indicator of the average concentration of poverty of all students in the school, based on the census block in which each lived. This data is based on 2000 U.S. Census information on the block group in which students lived. Students' home addresses were used to link each student to a particular block group within the city, which could then be linked to census data on the economic conditions of the students' neighborhood. Two indicators were used to construct this variable: (1) The log of the percentage of male residents over age 18 employed one or more weeks during the year and (2) The log of the percentage of families above the poverty line. These two indicators were reverse coded and combined into the variable called "Concentration of poverty." We divided this variable into quartiles: "High-poverty" schools are in the top quartile, while "low-poverty" schools are in the bottom quartile.	CPS administrative records and Census data
	Socioeconmic status of students' communities (SES)[2] is a standardized indicator of the average of the social status of all students in the school based on the census block in which each lived. This data is from 2000 U.S. Census information on the block group in which students lived. Students' home addresses were used to link each student to a particular block group within the city, which could then be linked to census data on the economic conditions of the students' neighborhood. Two indicators were used to construct this variable: (1) The log of the percentage of employed persons 16 years old or older who are managers or executives and (2) The mean level of education among people over 18. These two indicators were combined into the variable called "socioeconomic status" (SES).	CPS administrative records and Census data
	Percentage of new teachers on staff is an indicator of the percentage of new teachers in a school from the total teacher population in that school. This variable was created using CPS personnel data to find teachers in the 2004-05 academic year who were not present in the 2003-04 academic year. These teachers were coded as "new teachers" in each school. Using the CPS personnel file, we also found the total number of teachers in each school. We then divided the number of new teachers in a school by the number of teachers in the ethnic school to get the percentage of new teachers on staff. This variable was standardized.	CPS personnel data

2 We did not use the SES variable in the models that included high school teachers because SES was highly correlated with the racial/cultural composition of the school.

Where Used	Description	Source
Logistic Regressions and HLMs	**Teacher retention** is an indicator of the percentage of teachers who stayed in their school from the 2003-04 academic year to the 2004-05 academic year. This variable was standardized.	CPS personnel data
	School leadership: Inclusive process and strategic orientation is a composite of several teacher measures that account for multiple characteristics of school leadership. These individual teacher measures were aggregated to the school level. Once aggregated to the school level, all four school-level measures were then standardized, averaged, and put into quartiles. "Strong school leadership" indicates a school was in the top quartile, while "weak school leadership" indicates a school was in the bottom quartile. The measures that compose **School leadership** are: *Principal-Teacher Trust:* The extent to which teachers feel their principal respects and supports them. Survey questions ask teachers if the principal looks out for their welfare and has confidence in their expertise, and if they respect the principal as an educator. High levels indicate that teachers share deep mutual trust and respect with the principal. (Separation: 2.77; Reliability: 0.89) *Teacher Influence on Decision Making:* Shows the extent of teachers' involvement in school decision making. It assesses teachers' influence on the selection of instructional materials, setting of school policy, in-service program planning, spending of school discretionary fund, and hiring of professional staff. High levels indicate that teachers have influence on a broad range of issues at the school. (Separation: 2.34; Reliability: 0.85) *Principal Instructional Leadership:* Teachers' perception of their principal as an instructional leader with respect to the teaching and learning standards, communication of a clear vision for the school, and tracking of academic progress. High levels indicate that teachers view their principal as very involved in classroom instruction. (Separation: 2.53; Reliability: 0.86) *Coherence of Instructional Program:* The degree to which teachers feel the programs at their school are coordinated with each other and with the school's mission. Questions ask teachers if instructional materials are consistent within and across grades and if there is sustained attention to quality program implementation. High levels indicate that the school's programs are coordinated and consistent with its goals for student learning. (Separation: 1.72; Reliability: 0.75)	CCSR 2005 teacher surveys
	Socialization of new teachers measures of the extent to which teachers in the school welcome and support new teachers. (Separation: 1.04, Reliability: 0.52)	CCSR 2005 teacher surveys
	Missing school values were imputed only for high schools missing a value for teacher retention. Values were imputed at the sample mean and a dummy variable was assigned.	
Additional Logistic Regressions for High School Teachers	**School-level achievement** is indicated by a set of dummy variables. These variables were determined by computing the percentage of incoming freshmen students who were at or above the 50th percentile using their eighth-grade Iowa Tests of Basic Skills (ITBS) reading score from the spring of 2004. These percentages were then put into groups. "High achievement" schools had more than 50 percent of their incoming freshmen at or above ITBS norms in reading. "Low achievement" schools had 20 percent or fewer students entering the school with ITBS reading scores at or above norms.	ITBS test score data

Outcome Variables

Where Used	Description	Source
Logistic Regressions and HLMs	**Report a good teaching experience** is indicated by a dummy variable. We created this variable by using the following question from the elementary and high school teacher survey. Please mark the extent to which you disagree or agree with each of the following: Teaching this year has been a good experience for me. *(Strongly Disagree, Disagree, Agree, Strongly Agree)* We recoded this item as a dichotomous variable. If the teacher responded "strongly agree" to this question, we labeled them as reporting a good experience.	CCSR 2005 teacher surveys
	Intend to continue teaching is indicated by a dummy variable. We created this variable by using the following question from the elementary and high school teacher survey. Please mark the extent to which you disagree or agree with each of the following: I am looking forward to teaching next year. *(Strongly Disagree, Disagree, Agree, Strongly Agree)* We recoded this item as a dichotomous variable. If the teacher responded "strongly agree" to this question, we labeled them as intending to continue teaching.	CCSR 2005 teacher surveys
	Plan to remain in the same school is indicated by a dummy variable. We created this variable by using the following question from the elementary and high school teacher survey. Please mark the extent to which you disagree or agree with each of the following: I am looking forward to teaching in this school next year. *(Strongly Disagree, Disagree, Agree, Strongly Agree)* We recoded this item as a dichotomous variable. If the teacher responded "strongly agree" to this question, we labeled them as planning to remain in the same school.	CCSR 2005 teacher surveys

Induction Participation, Supports, and Mentoring Variables

Where Used	Description	Source
Logistic Regressions and HLMs	**Participation in induction** is indicated by a dummy variable, distinguishing teachers who said they participated in an induction program from those who did not. We created this variable by using the following question from the elementary and high school teacher survey. Are you participating in a formal induction program for new teachers (provides mentor, coach, training, and/or network)? (MARK ALL THAT APPLY.) • New Teacher Support Initiative (AREA 8) *(in elementary teacher survey only)* • Teach for America (TFA) • Academy of Urban School Leadership • New Teachers Network (University of Chicago) *(in elementary teacher survey only)* • GOLDEN Teachers • Other • New Math and Science High School Network *(in high school teacher survey only)* Teachers who indicated they were in any of the above programs were considered to have participated in induction, while those who did not indicate a program were considered not to have participated in induction.	CCSR 2005 teacher surveys
	Mentoring activities How helpful was your mentor/coach/master teacher in providing support related to the following issues or practices? *(Did not receive; Received, not helpful; Received, somewhat helpful; Received, very helpful)* • Developing various teaching strategies • Classroom management strategies • Observing and discussing my teaching with me • Analyzing student work • Ways to assess student learning • Parent communication • CPS rules, policies, and procedures • Other issues I brought up	CCSR 2005 teacher surveys
	Frequency of mentor interaction Please answer the following questions ONLY if you have a formally assigned mentor/coach/master teacher. My mentor/coach/master teacher and I interact on a formal basis: *(Never, Monthly or less, About every two weeks, Weekly, Daily)*	CCSR 2005 teacher surveys
	Sufficiency of mentor interaction *This frequency is (Too little, Sufficient, Too much)*	CCSR 2005 teacher surveys
	Other supports How helpful did you find the following supports this year? *(Did not receive; Received, not helpful; Received, somewhat helpful; Received, very helpful)* • Regularly scheduled collaborations with other teachers in your subject area or grade level • Participation in a network of teachers • Release time to observe other teacher teaching • Observation of your teaching with feedback from experienced teachers • Principal's encouragement, assistance, or support • Suggestions or advice from other teachers in my school	CCSR 2005 teacher surveys

Appendix B

Rasch Analysis

Using multiple items from the 2005 CCSR teacher survey, we created measures using Rasch analysis.[1] Measures are more comprehensive and reliable than individual items.

Using Rasch techniques, we developed two measures from the items related to supports and mentoring. Each measure is on a continuous scale developed through Rasch analysis. For some of our displays, we use three-category characterization of the same measure. The categorical measure creates a substantively meaningful interpretation of the underlying distribution of the responses in the measure. To create these categories, we looked for natural patterns in expected responses or logical distinctions between groups. Because the distributions of the measures were not smooth near the points at which we made categories, a small change in the locations of these cut-points for the categories could have a large effect on the percentage of respondents within each category. Thus, we decided to calculate the expected response in each category, rather than the observed responses, which allowed us to accumulate the probability of response in each category. The algorithm for calculating the expected probabilities in categories is below.

1 Wright and Masters (1982).

$$Q_0 = 1$$

$$Q_{nij} = Q_{j-1} e^{B_n - D_i - C_j}$$

$$P_{nij} = \frac{Q_{nij}}{\sum_{j=0}^{m} Q_{nij}}$$

Where B_n is the measure for person n
D_i is the difficulty of item i
$C_{j-1,}$ C_j define the m=1 boundaries for the m regions $j=1,...,m$
P_{nij} is the expected percent response by person n on the item i in region j
Ps are summed over people and items within categories and normalized to sum to 1.

Measures Used in the Analysis

Quantity and Quality of Mentor Activities

This measure gauges teachers' responses to the frequency and the helpfulness of the mentoring activities they experience. Mentoring activities address teaching strategies; classroom management; observation and discussion of teaching; analysis of student work; assessment of student learning; communication with parents; CPS rules, policies, and procedures; and other issues. (Separation: 2.48, Reliability: 0.86)

How helpful was your mentor/coach/master teacher in providing support related to the following issues or practices?
(Did not receive; Received, not helpful; Received, somewhat helpful; Received, very helpful)

- Developing various teaching strategies
- Classroom management strategies
- Observing and discussing my teaching with me
- Analyzing student work
- Ways to assess student learning
- Parent communication
- CPS rules, policies, and procedures
- Other issues I brought up

Category	
Strong level of mentorship	Teachers said they received *all* the mentoring activities and found them to be very helpful.
Average level of mentorship	Teachers said they received most of the mentoring activities and found them to be somewhat helpful or very helpful. A few teachers did not receive help with parent communication and analysis of student work from their mentors, or received these mentoring supports but did not find them helpful.

Weak level of mentorship	Teachers said they did not receive mentoring on analysis of student work and parent communication from their mentors, or received mentoring but did not find it helpful. Teachers did not receive, or at most received and found somewhat helpful the following mentoring activities: Assessment of student learning; development of teaching strategies; classroom management; CPS rules, policies, and strategies; observation and discussion of teaching; and other issues.

Quantity and Quality of Other Supports

This measure gauges teachers' responses to the frequency and the helpfulness of other supports they receive. Supports include regularly scheduled collaborations with other teachers; participation in a network of teachers; release time to observe other teachers; observation of teaching with feedback from experienced teachers; principal's encouragement, assistance, and support; and suggestions or advice from other teachers in my school. (Separation: 1.45, Reliability: 0.68)

How helpful did you find the following supports this year
(Did not receive; Received, not helpful; Received, somewhat helpful; Received, very helpful)

- Regularly scheduled collaborations with other teachers in your subject area or grade level
- Participation in a network of teachers
- Release time to observe other teacher teaching
- Observation of your teaching with feedback from experienced teachers
- Principal's encouragement, assistance, or support
- Suggestions or advice from other teachers in my school

Category

Strong level of support	Teachers said they received *all* the supports and found them to be very helpful.
Average level of support	Teachers said they received most of the supports and found them to be somewhat helpful or very helpful. A few teachers did not receive release time to observe other teachers, or received release time but did not find it helpful.
Weak level of support	Teachers said they did not receive release time to observe other teachers, or received it but did find it helpful. Teachers did not receive, or at most received and found somewhat helpful the following supports: Observation of teaching, principal's encouragement, participation in a network, regularly scheduled collaborations, and suggestions or advice from other teachers.


Comprehending - Fluency

Appendix C

Models Used in this Report

Chapter 3 and Chapter 4 Non-nested Models

We used logistic regression models to predict teachers' probability of reporting a good experience, intending to continue teaching, and planning to remain in the same school. These models predict the log-odds of our outcomes with a series of variables representing teacher, classroom, school factors or induction program participation. All of the models used the following equation:

Figure 4.1 and Appendix D

$$\Pr ob(outcome = 1) = \varphi$$

$$\eta = \log\left(\frac{\varphi}{1-\varphi}\right)$$

$$\eta = \beta_0 + \sum_{q=1}^{Q} \beta_q X_q + e$$

Chapter 3, 4, and 5 Nested Models

We used hierarchical generalized linear models in order to simultaneously control for teacher background and preparation characteristics, classroom characteristics, and school characteristics. These models allow us to nest teachers within schools. All models predicted the log-odds of reporting a good experience, intending to continue teaching, and planning to remain in the same school. We used Laplace estimates for these analyses. This method of estimation involves a somewhat more computationally intensive algorithm but provides accurate approximation to maximum likelihood (ML).[1]

At level one, all models include predictor variables representing teacher background and preparation characteristics as well as classroom data. Slopes for these variables were fixed at level two, meaning that the relationship between each variable and the outcome measure was assumed to be the same across schools. At level two, we adjusted for characteristics of the school. Each variable was grand-mean centered in order to allow the intercept to represent the value for an "average" CPS novice.

1 Raudenbush, Bryk, Cheong, and Congdon (2004).

Figure 3.1 and Appendix E

Level 1 Prob(Y=1|B) = P

log[P/(1-P)] = B0 + B1*(teacher gender) + B2*(teacher race/ethnicity) + B3*(highest level of education) + B4* (previous work experience) + B5*(traditional/alternative certification) + B6*(CPS graduate) + B7*(class size) + B8*(% in bilingual program) + B9*(% lacking basic skills) + B10* (% create behavior problems) + U0

Level 2 B0 = G00 + G01*(racial/ethnic composition of students) + G02*(school size) + G03*(socioeconomic status [elementary teachers only]) + G04*(percent of new teachers on staff) + G05* (concentration of poverty) + G06*(school leadership composite) + G07*(socialization rating) + G08*(teacher retention rate) + U0

Figure 4.2

In Chapter 4, we examined the influences of induction participation by using a dummy variable for participation at level one. In this model, the induction participation variable was left uncentered to allow the intercept to represent the value for an "average" CPS novice not participating in induction.

Level 1 Prob(Y=1|B) = P

log[P/(1-P)] = B0 + B1*(teacher gender) + B2*(teacher race/ethnicity) + B3*(highest level of education) + B4*(previous work experience) + B5*(traditional/alternative certification) + B6*(CPS graduate) + B7*(class size) + B8*(% in bilingual program) + B9*(% lacking basic skills) + B10* (% create behavior problems) + B11* (participation in an induction program) + U0

Level 2 B0 = G00 + G01*(racial/ethnic composition of students) + G02*(school size) + G03*(socioeconomic status [elementary teachers only]) + G04*(percent of new teachers on staff) + G05* (concentration of poverty in school) + G06*(school leadership composite) + G07*(socialization rating) + G08*(teacher retention rate) + U0

Tables 5.2 and 5.4

Several of the following models include dummy variables for each support received or mentoring activity to determine their individual influence on novices' experiences and future teaching intentions. We ran a separate model for each support or mentoring activity. In each model, we left the mentoring activity or support dummy uncentered to allow the intercept to represent the value for an "average" CPS novice not receiving or participating in the given mentoring activity or support.

Mentoring activities: Development of various teaching strategies; classroom management strategies; observing and discussing teaching; analyzing student work; ways to assess student learning; parent communication; CPS rules, policies and procedures; and other issues.

Other supports: Regularly scheduled collaborations with other teachers; participation in a network of teachers; release time to observe other teachers; observation of teaching with feedback from experienced teachers; principal's encouragement, assistance, and support; suggestions or advice from other teachers in my school.

Level 1 Prob(Y=1|B) = P

log[P/(1-P)] = B0 + B1*(teacher gender) + B2*(teacher race/ethnicity) + B3*(highest level of education) + B4*(previous work experience) + B5*(traditional/alternative certification) + B6*(CPS graduate) + B7*(class size) + B8*(% in bilingual program) + B9*(% lacking basic skills) + B10* (% create behavior problems) + B11*(***mentoring activity/other support***) + U0

Level 2 B0 = G00 + G01*(racial/ethnic composition of students) + G02*(school size) + G03*(socioeconomic status [elementary teachers only]) + G04*(percent of new teachers on staff) + G05*(concentration of poverty) + G06*(school leadership composite) + G07*(socialization rating) + G08*(teacher retention rate) + U0

Figure 5.2 and 5.4

The next models controlled for induction participation and our mentor or other support measure categories. In these models, we grand-mean centered the induction participation dummy and left the mentor or other support measure categories uncentered. This allows the intercept to represent the value for an "average" CPS novice receiving average levels of mentorship/support.

Level 1 Prob(Y=1|B) = P

log[P/(1-P)] = B0 + B1*(teacher gender) + B2*(teacher race/ethnicity) + B3*(highest level of education) + B4*(previous work experience) + B5*(traditional/alternative certification) + B6*(CPS graduate) + B7*(class size) + B8*(% in bilingual program) + B9*(% lacking basic skills) + B10* (% create behavior problems) + B11* (participation in an induction program) + B12* (mentoring/other support measure categories) + U0

Level 2 B0 = G00 + G01*(racial/ethnic composition of students) + G02*(school size) + G03* (socioeconomic status [elementary teachers only]) + G04*(percent of new teachers on staff) + G05*(concentration of poverty) + G06*(school leadership composite) + G07*(socialization rating) + G08*(teacher retention rate) + U0

Figure 5.5

The next model controlled for induction participation and our intensive induction variable. In this model, we grand-mean centered the induction participation dummy and left the categories for the intensity of induction uncentered. This allows the intercept to represent the value for an "average" CPS novice receiving average levels of induction.

Level 1 Prob(Y=1|B) = P

log[P/(1-P)] = B0 + B1*(teacher gender) + B2*(teacher race/ethnicity) + B3*(highest level of education) + B4*(previous work experience) + B5*(traditional/alternative certification) + B6*(CPS graduate) + B7*(class size) + B8*(% in bilingual program) + B9*(% lacking basic skills) + B10* (% create behavior problems) + B11* (participation in an induction program) + B12* (intensity of induction) + U0

Level 2 B0 = G00 + G01*(racial/ethnic composition of students) + G02*(school size) + G03* (socioeconomic status [elementary teachers only]) + G04*(percent of new teachers on staff) + G05*(concentration of poverty) + G06*(school leadership composite) + G07*(socialization rating) + G08*(teacher retention rate) + U0

Appendix D

Summary of Logistic Regression Analyses

	Elementary Teachers			High School Teachers		
	Report a Good Experience β	Intend to Continue Teaching β	Plan to Remain in the School β	Report a Good Experience β	Intend to Continue Teaching β	Plan to Remain in the School β
Controlling for Teacher Factors						
Intercept	-0.38	0.06	-0.47	-0.05	0.43	-0.12
Male	0.43*	-0.07	-0.09	-0.12	-0.17	-0.17
African-American	-0.22	-0.14	0.04	-0.16	-0.33	0.04
Latino	0.67**	0.65**	0.63**	0.11	0.09	0.57~
Other Race	-0.12	-0.32	0.04	0.34	0.47	0.50
Prior Work Experience in a Profession Other than Teaching	0.19	0.26~	0.26~	0.36~	0.19	0.08
Graduated from CPS	0.38*	0.42*	0.56**	-0.32	-0.22	-0.21
Alternative Certification	-0.31~	-0.25	-0.24	-0.41~	-0.59**	-0.53*
Master's Degree	-0.20	-0.21	-0.22	0.10	-0.01	-0.10
Education Level Higher than a Master's Degree	-0.15	-0.10	-0.07	-0.29	-0.65*	-0.45
Controlling for Classroom Factors						
Intercept	0.36	0.99	0.76	0.66	0.77	0.39
Small Class	0.34*	0.08	0.08	-0.11	-0.24	-0.50*
Large Class	0.24	0.00	-0.02	0.11	-0.20	0.15
33% of Students in Class Lack Skills	0.14	0.01	-0.07	-0.43~	-0.30	0.11
50% or More of Students in Class Lack Skills	-0.15	-0.19	-0.28	-0.38	-0.22	-0.20
10% of Students in Bilingual Program	0.69**	0.41*	0.51**	0.25	0.16	0.21
33% of Students in Bilingual Program	0.36	0.17	0.50	0.65	0.82~	0.68

	Elementary Teachers			High School Teachers		
	Report a Good Experience β	Intend to Continue Teaching β	Plan to Remain in the School β	Report a Good Experience β	Intend to Continue Teaching β	Plan to Remain in the School β
Controlling Classroom Factors, Continued						
50% or More of Students in Bilingual Program	0.93**	0.50*	0.56*	-0.51	0.70	0.30
10% of Students in Class Create Behavior Problems	-0.63**	-0.67**	-0.86**	-0.80**	-0.40~	-0.79**
33% of Students in Class Create Behavior Problems	-1.45**	-1.32**	-1.75**	-1.03**	-0.76**	-1.16**
50% or More of Students in Class Create Behavior Problems	-1.68**	-1.42**	-1.69**	-1.06**	-1.37**	-1.60**
Controlling for Classroom Factors						
Intercept	-0.24	0.02	-0.26	-0.14	0.02	-0.35
Predominantly Latino	0.08	0.42~	0.48*	0.29	0.48	0.26
Integrated	0.51~	-0.06	0.34	0.38	0.34	-0.03
Mixed	0.07	-0.28	-0.09	0.17	0.48	-0.06
Socioeconomic Status	-0.14	-0.07	0.02			
High Poverty	-0.50**	-0.24	-0.47*	-0.47	-0.16	-0.20
Low Poverty	0.48**	0.60**	0.54**	0.38	0.39	0.81**
Strong School Leadership	0.01	-0.04	0.32~	-0.08	-0.31	-0.11
Weak School Leadership	-0.51**	-0.31*	-0.53**	-0.60**	-0.34	-0.48*
New Teachers on Staff	0.04	0.03	-0.01	0.10	0.06	-0.01
Teacher Retention	0.20**	0.08	0.12	-0.13	-0.10	-0.11
Socialization of New Teachers	0.27**	0.20*	0.31**	0.26~	0.17	0.47**
Smaller School	0.15	0.37	-0.13	0.00	-0.03	-0.34
Larger School	0.20	0.16	-0.01	0.46~	0.20	0.32

***=p<.01, *=p<.05, ~=p<.10*

Appendix E

Summary of HLM Analyses for Chapter 3

	Elementary Teachers			High School Teachers		
	Report a Good Experience β	Intend to Continue Teaching β	Plan to Remain in the School β	Report a Good Experience β	Intend to Continue Teaching β	Plan to Remain in the School β
Intercept	-0.13	0.32	-0.15	-0.15	0.25	-0.46
Teacher Factors						
Male	0.60*	-0.04	-0.01	-0.08	-0.18	-0.14
African-American	0.15	0.17	0.47	-0.06	-0.19	0.34
Latino	0.19	0.46	0.16	-0.03	-0.03	0.58
Other Race	0.05	-0.19	0.08	0.07	0.26	0.03
Some Work Experience in a Profession Other than Teaching	0.32~	0.55**	0.58**	0.49	0.19	0.16
Graduated from CPS	0.39~	0.21	0.59*	-0.37	-0.25	-0.18
Alternative Certification	-0.14	-0.22	-0.08	-0.18	-0.48	-0.29
Master's Degree	-0.19	-0.34~	-0.43~	0.00	-0.06	-0.30
Education Level Higher than a Master's Degree	-0.28	-0.19	-0.26	-0.40	-0.71~	-0.66
Classroom Factors						
Small Class	0.50*	0.14	0.25	-0.10	-0.24	-0.49
Large Class	0.01	-0.14	-0.37	0.03	-0.39	-0.07
33% of Students in Class Lack Skills	0.16	0.02	-0.01	-0.62	-0.37	0.04
50% or More of Students in Class Lack Skills	-0.21	-0.17	-0.31	-0.49	-0.30	-0.21
10% of Students in Bilingual Program	0.45*	0.17	0.23			

	Elementary Teachers			High School Teachers		
	Report a Good Experience β	Intend to Continue Teaching β	Plan to Remain in the School β	Report a Good Experience β	Intend to Continue Teaching β	Plan to Remain in the School β
Classroom Factors, Continued						
33% of Students in Bilingual Program	0.02	-0.18	0.04	0.38	0.57	0.48
50% or More of Students in Bilingual Program	0.70*	0.11	0.16	-0.70	0.46	-0.16
10% of Students in Class Create Behavior Problems	-0.47*	-0.56*	-0.74**	-0.67~	-0.18	-0.58~
33% of Students in Class Create Behavior Problems	-1.24**	-1.19**	-1.53**	-0.73	-0.41	-0.77~
50% or More of Students in Class Create Behavior Problems	-1.35**	-1.19**	-1.31**	-0.70	-0.97	-1.19~
School Factors						
Predominantly Latino	-0.05	0.25	0.44	0.21	0.35	0.20
Integrated	0.40	-0.18	0.36	-0.04	0.04	-0.30
Mixed	-0.03	-0.10	0.17	0.09	0.38	-0.16
Socioeconomic Status	-0.06	0.01	0.05			
High Poverty	-0.31	-0.10	-0.38	-0.44	-0.09	-0.12
Low Poverty	0.20	0.33	0.28	0.35	0.41	0.93
Strong School Leadership	0.01	-0.19	0.31	-0.11	-0.31	-0.09
Weak School Leadership	-0.44~	-0.43~	-0.84**	-0.67	-0.32	-0.51
New Teachers on Staff	0.05	0.07	0.09	0.11	0.06	-0.06
Teacher Retention	0.10	0.06	0.10	-0.11	-0.08	-0.13
Socialization of New Teachers	0.35*	0.25*	0.32*	0.27	0.18	0.46~
Smaller School	-0.17	0.27	-0.12	-0.02	0.07	-0.30
Larger School	0.12	0.12	0.05	0.38	0.23	0.22

***=p<.01, *=p<.05, ~=p<.10*

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Latino Youth Alternative High School

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The Consortium on Chicago School Research (CCSR) at the University of Chicago aims to conduct research of high technical quality that can inform and assess policy and practice in the Chicago Public Schools. By broadly engaging local leadership in our work, and presenting our findings to diverse audiences, we seek to expand communication among researchers, policy makers, and practitioners. CCSR encourages the use of research in policy action, but does not argue for particular policies or programs. Rather, we believe that good policy is most likely to result from a genuine competition of ideas, informed by the best evidence that can be obtained.

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