

Variation in Mentoring Practices and Retention across New Teacher Demographic Characteristics under a Large Urban District's New Teacher Mentoring Program

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Variation in Mentoring Practices and Retention across New Teacher Demographic Characteristics under a Large Urban District’s New Teacher Mentoring Program

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A large urban school district wanted to understand how its first-year teacher mentoring program might better support the district goals of increasing retention and maintaining a diverse workforce. This study investigated new teachers’ participation in that program; how participation varied across teacher characteristics, especially how participation varied by the racial/ethnic makeup of new teacher–mentor pairs; and how participation in various aspects of the program was related to new teacher retention after the first year. The study found that over 40 percent of new teachers spent at least 10 hours a month meeting with their mentor but that more than 25 percent spent less than half that much time in mentoring meetings. There were also large differences by race/ethnicity in the proportions of new teachers who reported spending time on specific topics: White new teachers were almost twice as likely as Black new teachers to report spending substantial time on classroom management. New teacher retention was related to the amount of time new teachers spent meeting with their mentor, to whether new teachers reported spending substantial time with their mentor addressing classroom management, and to the racial/ethnic alignment of new teacher–mentor pairs.

Why this study?

Recognizing the negative consequences of high teacher turnover for student achievement (Ronfeldt et al., 2013), leaders of a large urban school district sought assistance from the Regional Educational Laboratory Northeast & Islands to understand how the district’s first-year teacher mentoring program might better support the district goals of increasing retention and maintaining a diverse workforce. This study used survey and workforce data to investigate new teachers’ participation in the district’s New Teacher Mentoring (NTM) program; how participation varied across teacher characteristics; and the relationship between teacher retention and NTM participation dosage, topics discussed in mentoring, and the demographic alignment of new teacher–mentor pairs (see box 1 for definitions of key terms). The study was motivated by the district’s commitment to retaining novice teachers, especially teachers of color, and increasing the racial/ethnic diversity of its teacher workforce. To learn more about how the program could support broader district goals, the study team worked closely with the district administrators tasked with leading and monitoring the NTM program.

High-poverty and racially segregated schools, such as those in the study district, are especially burdened by high teacher turnover (Carver-Thomas et al., 2019; Ladd & Sorensen, 2017; Ronfeldt et al., 2013) and thus also disproportionately bear the high costs of replacing teachers, which depletes resources that are often needed elsewhere (Barnes et al., 2007). The study district serves more than 50,000 students, comprises more than 120 schools, and hires more than 300 new teachers each year, representing roughly 7 percent of its total teacher workforce (Communications Office, 2019). However, consistent with national trends (Ingersoll et al., 2018), the district retains only 51 percent of novice teachers after five years (Papay et al., 2012).

Teacher induction and mentoring programs are increasingly promoted as an effective mechanism for improving new teacher quality, new teacher retention,

For additional information, including supporting analyses, other analyses, and the New Teacher Mentoring program survey for new teachers, access the report appendixes at <https://go.usa.gov/xFzBK>.

Box 1. Key terms

Demographic alignment. When new teachers and their mentor are of the same race/ethnicity or gender.

Dosage. The frequency and length of new teachers' meetings with their mentor, as reported to the New Teacher Mentoring (NTM) program's survey of new teachers. The study team used responses to the relevant survey items to estimate the amount of time new teachers spent with their mentor each month. New teachers were then sorted into three categories: low dosage (spent less than 4 hours a month, or less than 1 hour a week, with their mentor), moderate dosage (spent 4–9 hours a month, or 1–2.5 hours a week with their mentor), and high dosage (spent at least 10 a month, or more than 2.5 hours a week with their mentor).

Mentoring. All new teachers in the district are assigned a mentor teacher to support them during their first year in the district. Mentors are identified in a variety of ways, including submitting an application and being selected by a school leader. Mentoring activities are generally flexible, except for the expectation that mentors will observe new teachers during the school year.

One-year retention. New teachers were coded as retained (that is, they stayed in the district) if they completed the NTM program's new teacher survey at the end of the 2018/19 school year and had district-level information in the staffing file in 2019/20.

Professional development. The NTM program's survey of new teachers specified a range of activities that constitute professional development. Therefore there might be variation in how respondents interpreted the question, "How much of your time with your NTM mentor is on the following areas: Participating in professional development (PD training, PLCs, grade-level or team meetings)?" For example, some respondents might have considered the amount of time they spent with their mentor in formal professional development trainings, whereas others might have considered time spent in team meetings with their mentor. This ambiguity must be acknowledged when interpreting the findings related to professional development.

Substantial time. A response of "quite a bit" or "a great deal/all of their time," the two highest categories on a five-point scale, to questions on the NTM program survey of new teachers asking how much time they spent with their mentor on a given topic.

Teachers of color. In the current study, all teachers who are not White, including Asian, Black, and Hispanic teachers.

and student outcomes. Mentoring programs "pair novice teachers with more experienced teachers who can ably explain school policies, regulations and procedures; share methods, materials and other resources; help solve problems in teaching and learning; provide personal and professional support; and guide the growth of the new teacher through [observation and] reflection, collaboration, and shared inquiry" (Feiman-Nemser & Parker, 1992 as cited in Koki, 1997, p. 2). Induction and mentoring programs vary across districts and states (Bullough, 2012; Long et al., 2012), and questions remain about what aspects of mentoring programs are most closely related to improved teacher outcomes, such as retention. Identifying the components of mentoring programs that are most strongly related to new teacher retention can guide policymakers and practitioners in program design and implementation (see box 2 for information on this study's data, sample, and methods, and appendix A for all analyses presented in this report).

Two aspects of new teacher mentoring show promise: program intensity and alignment in race/ethnicity and gender between new teachers and their mentor. A common measure of program intensity is dosage, and one study found that one additional coaching session each month for new teachers was related to improved student growth and teacher retention (Bastian & Marks, 2017). Other studies have measured program intensity more generally—for example, in terms of mentor selection criteria, compensation, and training, as well as the frequency with which mentors observe new teachers (Bartell, 2005). A 2004 study found that more intensive mentoring and induction programs were related to lower risk of leaving both the school and the profession (Smith & Ingersoll, 2004).

The alignment between new teachers and their mentor might also drive improved retention and pedagogical skills. Prior research suggests that new teachers who are aligned with their mentor on the basis of professional characteristics—the grade span or subject they teach—could derive specific instructional skills through

mentorship that are tailored to their teaching context. A 2011 study found that new teachers who were paired with a mentor in their field had better outcomes than new teachers paired with a mentor from a different subject area (Ingersoll and Strong, 2011). Similarly, new teachers with a mentor of the same race/ethnicity or gender might develop better skills or attachment to the profession through relational and identity-related processes (Dingus, 2008; Johnson-Bailey, 2012). Receiving support from other teachers of color might be related to higher retention of new teachers of color (Bristol, 2018; Dingus, 2008). See appendix B for a brief discussion of the literature on new teacher mentoring and induction.

Although less is known about whether demographic alignment with a mentor has an effect on new teachers' induction into the profession, the imperative to increase educator diversity has compelled districts to explore strategies for recruiting and retaining educators of color—and male teachers of color in particular (Dee, 2004; Egalite et al., 2015). This study aimed to illuminate whether pairing new teachers of color with a mentor of the same race/ethnicity might be an effective approach to improving educator diversity. The findings are intended to support school leaders tasked with pairing new teachers and mentors as they consider teaching competency areas, race/ethnicity, and other criteria to make beneficial matches.

Because structural discrimination creates racialized hierarchies that confer disproportionate power to White people in the workplace (Elliott & Smith, 2004; Roscigno, 2019; Wingfield & Chavez, 2020) and because new teacher–mentor relationships are also imbued with power dynamics, it is important to examine differences in mentoring experiences between new teacher–mentor pairs with different racial/ethnic compositions (Blake-Beard et al., 2011; McCoy et al., 2015; Thomas, 2001). For example, although a Black teacher with a White mentor and a White teacher with a Black mentor would both be identified as having a mentor of a different race/ethnicity, the two teachers might have different experiences of mentorship. So to fully understand how racial/ethnic matching affects new teachers' engagement with the NTM program, it is important to examine all types of racial/ethnic variation in new teacher–mentor pairs.

In line with research linking teacher induction and mentoring to improved retention and student outcomes, the study district requires new teachers to participate in a mentoring program. The NTM program pairs new teachers with a mentor, usually within the same school. Mentors are selected in a variety of ways, including using formal application and selection processes, volunteering for the position, and being appointed by school administrators. Nearly 40 percent of mentors indicated on the 2019 NTM program mentor survey that they were appointed to their roles, and 44 percent applied to be mentors. Mentors are expected to provide 10 hours of mentorship a month to new teachers through mentoring meetings, classroom observations, reviewing a new teacher's lesson plans, and selecting resources for new teachers. The district does not dictate the format and content of mentorship, but it would like to learn more about the topics that new teachers and mentors find most important and how they allocate their mentoring time. District leaders hope that by better understanding differences in mentoring experiences and how those differences relate to retention, they can better target supports to new teachers considering leaving by modifying the program to meet their needs. The school district hypothesizes that new teachers who have more intensive, higher quality mentoring experiences and a closer demographic alignment with their mentor will be more likely to stay in the district.

The methods used in this study could not establish whether there is a casual relationship between specific mentoring features and new teacher retention. But the findings provide evidence about what mentoring experiences might be included in an early warning system to predict new teacher attrition. The findings also point to promising mentoring features that might be worthy of more rigorous impact evaluation.

Research questions

The study addressed three research questions related to the district’s NTM program:

1. How much mentoring, or what mentoring dosage, did the district’s new teachers receive, and what content received substantial attention?
 - a. Did the amount of mentoring and the content that received substantial attention differ by new teachers’ race/ethnicity or gender?
2. Did the race/ethnicity and gender of new teachers align with those of their mentor?
 - a. Did the amount of mentoring or the content that received substantial attention differ by the degree to which the race/ethnicity or gender of new teachers and their mentor aligned, and did the differences depend on the race/ethnicity or gender of the new teacher?
 - b. Are new teachers’ perceptions of the effectiveness of mentoring related to their race/ethnicity or gender or the degree to which these characteristics aligned with those of their mentor?
3. What is the relationship between new teachers’ retention in the district the following year and the mentoring features they received (amount of mentoring, mentoring content, and alignment between the race/ethnicity or gender of new teachers and their mentor)?

Box 2. Data sources, sample, and methods

Data sources. The study used data from the New Teacher Mentoring (NTM) program survey completed by new teachers and their mentors at the end of the 2018/19 school year (see appendix C for the new teacher survey). The surveys collected information about dosage, mode of communication (that is, in-person, email, phone, text), content topics discussed, and program satisfaction. The study team also obtained NTM program rosters with demographic information and one-year retention data from the district. One limitation of the study is that one-year retention is a limited measure of retention. Additional analyses examining three- and five-year retention are warranted.

Sample. District program rosters indicated that 278 new teachers were assigned a mentor in the NTM program in the 2018/19 school year. Most of these new teachers were first-year educators, though a few were in their second year. Of the new teachers, 222 completed the NTM program survey, a response rate of 79.9 percent. This response rate is consistent with teacher survey response rates from other large urban districts (The Research Alliance for New York City Schools, 2017). The district provided demographic and workforce data for all new teachers who completed the survey as well as their mentors, allowing the study team to analyze new teacher–mentor alignment and one-year retention for 222 pairs. Mentors were asked to complete the survey for each new teacher they were assigned. Nearly 200 mentor surveys were completed, resulting in complete new teacher–mentor survey data for 194 pairs (28 new teachers lacked a corresponding mentor survey). Therefore, the analytic sample for the analysis of survey data consisted of 222 new teachers who completed the new teacher survey and 194 mentors who completed the mentor survey. Information on teachers’ grade span was from the mentor surveys, so data on this characteristic was available for only 194 new teachers. Teachers of color were underrepresented as mentors and overrepresented as mentees compared with the total teacher and school counselor population (box table 1).

Merging mentor and mentee surveys yielded a sample consisting of 192 matched pairs (two mentor surveys could not be matched to a mentee survey). These matched pairs were used in some of the statistical models (see appendix B).

Because survey results were analyzed by item, all submitted survey responses were analyzed (that is, cases with some missing data were not deleted).

Box table 1. Racial/ethnic composition of teacher workforce, new teachers, and mentors, 2018/19 (percent)

	All district teachers and guidance counselors	New teachers	Mentors
White	60	48	69
Black	22	24	17
Hispanic	11	15	8
Asian	6	10	4
Other or not specified	>1	3	1
Number	10,695	222	194

Note: Percentages might not sum to 100 because of rounding.

Source: Authors' compilation and district reports.

Methodology. Descriptive analyses (counts and percentages) were used to report the dosage, content, mode of mentoring practices, and demographic characteristics (research questions 1 and 2). To analyze the differences in responses by teacher demographics and new teacher–mentor demographic alignment (research questions 1a, 2a, and 3), the study team coded and contrasted responses by demographic group, pair characteristics, and retention status. Hypothesis testing was used to determine whether there were significant differences in responses by race/ethnicity, gender, pair characteristics, or retention status. The study team estimated statistical models that accounted for new teacher race/ethnicity, new teacher gender, dosage, mentoring content, demographic alignment with mentors, and mentors' perceptions of new teacher performance to estimate the relationship between NTM program features and retention to a second year. The study team also developed models that accounted for several variables (new teacher race/ethnicity, new teacher gender, mentoring dosage group, time spent on specific content areas, and demographic alignment between new teachers and mentors) to estimate the relationship between NTM program features and retention to a second year. Results that were statistically significant at $p < .05$ are reported for both sets of models. See appendix B for more information.

Several analyses considered variation in mentoring experiences and one-year retention outcomes by dosage group. Two questions from the survey were used to calculate the mentoring dosage new teachers received. One question asked about meeting length (30 minutes or less, 1 hour, 1.5 hours, 2 hours, and more than 2 hours). The other question asked about meeting frequency (daily, more than once a week, weekly, every other week, and monthly). The study team multiplied the meeting length by the meeting frequency (with assumptions about the specific length of meetings) to calculate the number of mentoring hours per month (box table 2).

Box table 2. Calculation of mentoring hours per month

Meeting length	Meeting frequency				
	Daily	More than once a week	Weekly	Every other week	Monthly
30 minutes or less	10 hours per month	5 hours per month	2 hours per month	1 hour per month	0.5 hour per month
1 hour	20 hours per month	10 hours per month	4 hours per month	2 hours per month	1 hour per month
1.5 hours	30 hours per month	15 hours per month	6 hours per month	3 hours per month	1.5 hours per month
2 hours	40 hours per month	20 hours per month	8 hours per month	4 hours per month	2 hours per month
More than 2 hours	50 hours per month	25 hours per month	10 hours per month	5 hours per month	2.5 hours per month

Note: Months were assumed to have four weeks, meeting length of 30 minutes or less was assumed to be 30 minutes, meeting length of more than 2 hours was assumed to be 2.5 hours, and meeting more than once a week was assumed to be meeting 2.5 times a week.

Source: Authors' compilation.

Findings

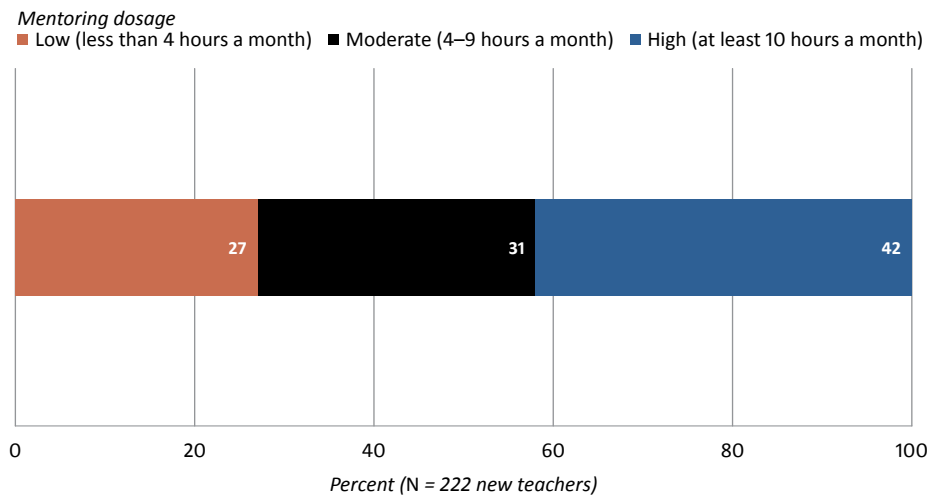
This section presents the study findings on the NTM program and differences in teacher experiences with it.

More than 40 percent of new teachers reported high dosages of meetings with their mentor, and discussion of instructional topics was prevalent across all new teacher–mentor pairs

About 42 percent of new teachers were in the high-dosage group, meeting with their mentor for at least 10 hours a month. About 31 percent of new teachers were in the moderate-dosage group, meeting with their mentor for 4–9 hours a month. And 27 percent of new teachers were in the low-dosage group, meeting with their mentor for less than 4 hours a month (figure 1; see also table A1 in appendix A). The median number of mentoring meeting hours each month across all new teachers was 5, and the average was 8. The difference between the median and the average number of mentoring meeting hours per month might reflect the small number of new teachers who co-teach with their mentor and thus report spending upwards of 20 hours a month in mentoring meetings.

New teachers most frequently reported spending substantial time with their mentor on instructional strategies (69 percent), differentiating instruction (60 percent), and supporting students with disabilities (59 percent; figure 2; see also table A2 in appendix A). Fewer new teachers reported spending substantial time with their mentor on noninstructional topics such as family engagement (39 percent), maintaining accurate records (28 percent), school community/extracurriculars (24 percent), and logistical issues (22 percent; see appendix B for more information on how topics were categorized). The most common noninstructional topic that new teachers reported spending substantial time on with their mentor was social-emotional support (54 percent), meaning they received direct social-emotional support from their mentor.¹ These findings suggest that mentors provide valuable support to new teachers in the areas most closely related to teaching and engaging students.

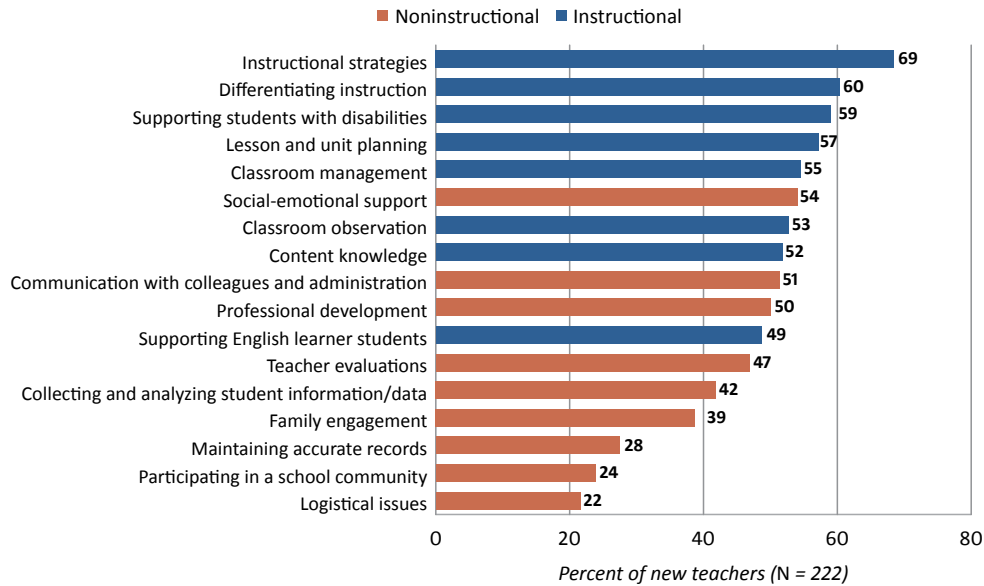
Figure 1. More than 40 percent of new teachers were in the high-dosage group, 2018/19



Source: Authors' analysis of data from the study district's 2019 New Teacher Mentoring program survey for new teachers.

1. The proportion of time new teachers reported spending with their mentor on a specific topic is complicated by the fact that new teachers spent varying amounts of time with their mentor. For example, teachers who spent one hour a week meeting with their mentor and reported spending substantial time on a topic might have spent the same amount of time addressing the topic as teachers who met for twice as long but reported spending only some time on that topic (see table B2 in appendix B).

Figure 2. New teachers most frequently reported spending substantial time with their mentor on topics directly related to instruction, 2018/19



Source: Authors' analysis of data from the study district's 2019 New Teacher Mentoring program survey for new teachers.

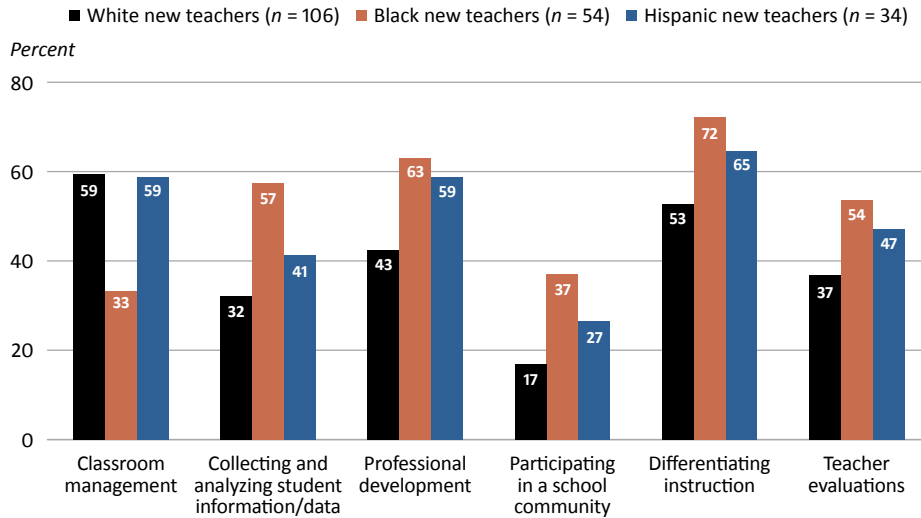
Mentoring dosage did not vary by race/ethnicity or gender, but the content that received substantial attention differed substantially by race/ethnicity and slightly by gender

There were no meaningful differences by race/ethnicity or gender in the dosage of mentoring that new teachers received. About 47 percent of White new teachers, 43 percent of Black new teachers, and 44 percent of Hispanic new teachers were in the high-dosage group (see table A3 in appendix A). The proportion of Asian new teachers in the high-dosage group was lower (19 percent), but this might be because there are few Asian new teachers, so the results are more sensitive to individual differences within the group. The differences in the distribution of new teachers in the three largest racial/ethnic groups (White, Black, and Hispanic) across dosage groups were not statistically significant. There was a statistically significant difference in dosage by gender: 42 percent of female new teachers were in the high-dosage group compared with 47 percent of male new teachers.

White new teachers reported spending substantial time with their mentor on classroom management more frequently than Black new teachers did and reported spending substantial time on professional development and on collecting and analyzing student information/data less frequently than Black new teachers did. For 6 of 17 topics there was a significant difference in the proportions of White and Black new teachers who reported spending substantial time with their mentor on the topic: classroom management, collecting and analyzing student information/data, teacher evaluations, professional development, participating in a school community, and differentiating instruction (figure 3; see also table A5 in appendix A).

Classroom management—which describes teachers' capacities to regulate students' behavior, maintain an orderly and respectful environment, and engage students in learning—was the second most common topic that White new teachers reported spending substantial time on with their mentor. About 59 percent of White new teachers reported spending substantial time with their mentor on it compared with only 33 percent of Black new teachers (see figure 3). This was the largest gap in the proportions of White and Black new teachers who reported spending substantial time with their mentor on an instructional topic. Black new teachers reported spending substantial

Figure 3. White and Black new teachers reported spending substantial time with their mentor on different topics, 2018/19



Note: The analysis excluded Asian new teachers and seven new teachers with unspecified race/ethnicity. The figure displays only the six topics with a significant difference in the proportions of White and Black new teachers.

Source: Authors' analysis of data from the study district's 2019 New Teacher Mentoring program survey for new teachers.

time with their mentor on professional development² (63 percent) more frequently than White new teachers did (43 percent). Similarly, a greater proportion of Black new teachers than of White new teachers reported spending substantial time with their mentor on collecting and analyzing student information/data (57 percent compared with 32 percent) and on teacher evaluations (54 percent compared with 37 percent).

There was no significant difference in the proportions of White and Hispanic new teachers who reported spending substantial time with their mentor on any topic, though this might be impacted by the relatively small number of Hispanic teachers in the sample ($N = 34$; see table A4 in appendix A).

More investigation is needed to understand the reasons behind the differences in mentoring activities across racial/ethnic groups. For example, the schools to which new teachers were assigned might vary systematically by teachers' racial/ethnic backgrounds. In this case White and Black new teachers might have spent time with their mentor on different topics because their school environments demanded different foci. This study found some differences in the characteristics of schools in which White and Black new teachers taught. There were no significant differences in the proportions of high need students, economically disadvantaged students, English learner students, and students with disabilities (see table A5 in appendix A). However, Black new teachers tended to teach in schools with higher concentrations of Black students than White new teachers do. On average, Black new teachers worked in schools where 41 percent of the students were Black, whereas White new teachers worked in schools where 32 percent of the students were Black. There are also statistically significant differences in the characteristics of schools in which White and Hispanic new teachers taught: Hispanic new teachers tended to teach in schools with higher proportions of English learner students and economically disadvantaged students than White new teachers did.

Another possible explanation for the differences by race/ethnicity in the proportions of new teachers who reported spending substantial time with their mentor on classroom management is real or perceived differences by

2. The survey asked how much time new teachers spent with their mentor on professional development but did not collect more specific information on what professional development entailed.

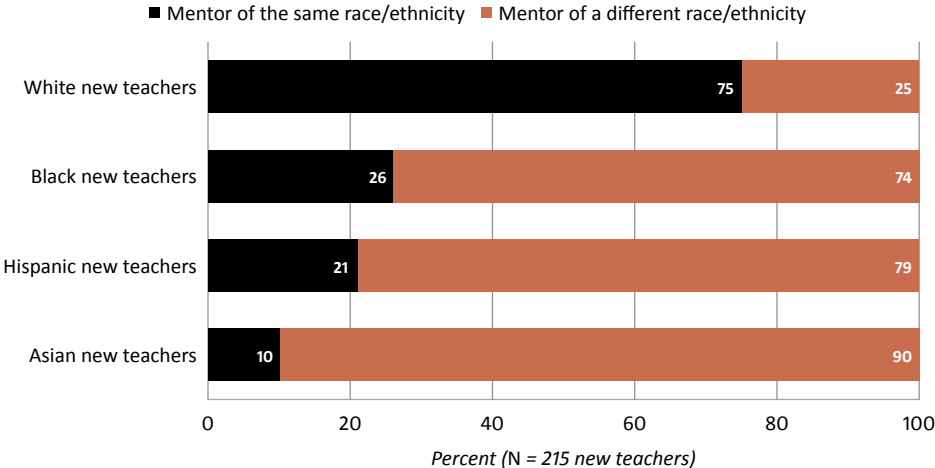
race/ethnicity in new teachers’ capacities to manage their classrooms. Because the NTM program does not require new teachers to spend mentoring time on predetermined topics, new teachers might spend more time with their mentor on areas in which they need more support. That a smaller proportion of Black new teachers than of White new teachers reported spending substantial time with their mentor on classroom management might indicate an area of strength or perceived strength among Black new teachers. Although testing this hypothesis was outside the scope of this study, this interpretation aligns with the literature on racial/ethnic variation in classroom management capacities and roles (Brockenbrough, 2015; Griffin & Tackie, 2016; Milner & Tenore, 2010).

Female new teachers were more likely than male new teachers to report spending substantial time with their mentor on social-emotional support. About 59 percent of female new teachers reported spending substantial time with their mentor on social-emotional support compared with 41 percent of male new teachers (see table A6 in appendix A). There were no other statistically significant differences between female and male teachers in the topics they reported spending substantial time on with their mentor.

Less than half of new teachers had a mentor of the same race/ethnicity, but most had a mentor of the same gender

About 46 percent of new teachers reported having a mentor of the same race/ethnicity, but having a mentor of the same race/ethnicity was most common among White new teachers. Roughly 75 percent of White new teachers had a White mentor, but the rate of racial/ethnic alignment between new teachers and mentors was much lower for other racial/ethnic groups (figure 4; see also tables A7 and A8 in appendix A). Nearly a quarter of participants in the NTM program were Black (see table A9 in appendix A), but only 26 percent of Black new teachers had a Black mentor. About 15 percent of participants in the program were Hispanic, but only 21 percent of Hispanic new teachers had a Hispanic mentor. Lastly, about 10 percent of participants in the program were Asian, but only 10 percent of Asian new teachers had an Asian mentor. About 71 percent of Asian new teachers, 65 percent of Hispanic new teachers, and 57 percent of Black teachers had a White mentor. This pattern partly reflects the fact that most mentors were White.

Figure 4. White new teachers were more likely than new teachers of color to have a mentor of the same race/ethnicity, 2018/19



Note: The analysis excluded seven new teachers with unspecified race/ethnicity.
 Source: Authors’ analysis of administrative data provided by the study district and data from the study district’s 2019 New Teacher Mentoring program survey for new teachers.

Expanding the analysis of racial/ethnic alignment to include instances in which a new teacher of color was matched with a mentor of color increased the rate of alignment. Black new teachers were matched with a mentor of color at the highest rate (39 percent), followed by Hispanic new teachers (35 percent) and Asian new teachers (29 percent; see table A10 in appendix A). These are substantially higher than the proportion of White teachers matched to a mentor of color, which was roughly 24 percent.

About 73 percent of new teachers were paired with a mentor of the same gender. Of the new teachers and mentors who disclosed their gender identities, 67 percent of pairs consisted of two women, and 9 percent consisted of two men. About 67 percent of male new teachers had a female mentor, whereas only about 8 percent of female new teachers had a male mentor. This is partly because of the smaller number of male mentors available. However, male new teachers were more likely than female new teachers to have one of the few male mentors who could be assigned to a new teacher (see table A11 in appendix A).

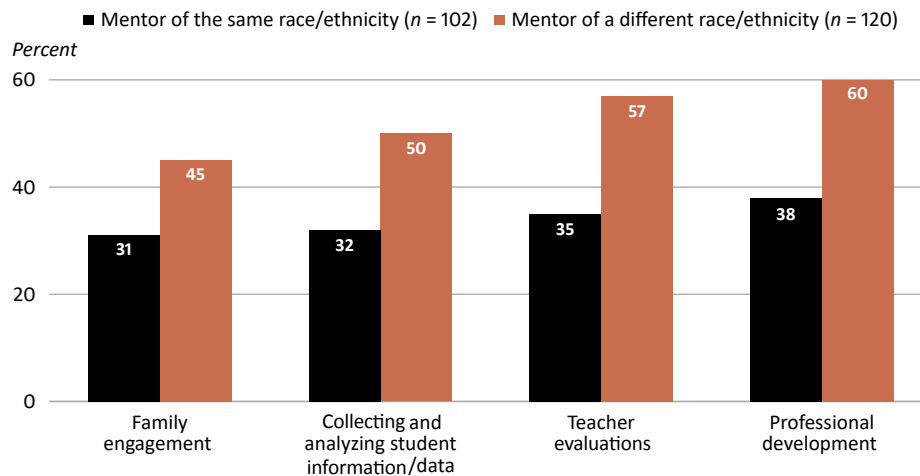
Demographic alignment of new teacher–mentor pairs was not related to the amount of mentoring that new teachers received but was related to mentoring content

Having a mentor of the same race/ethnicity or gender was not related to dosage. About 43 percent of new teachers with a mentor of the same race/ethnicity were in the high-dosage group compared with 42 percent of new teachers with a mentor of a different race/ethnicity (see table A3 in appendix A). New teacher–mentor racial/ethnic alignment was not related to dosage for White new teachers, Black new teachers, or Hispanic new teachers, though the number of pairs in some categories is small, so the results might be more sensitive to the idiosyncrasies of this cohort. Similarly, 42 percent of new teachers with a mentor of the same gender were in the high-dosage group compared with 44 percent of new teachers with a mentor of a different gender. New teacher–mentor gender alignment was not related to dosage for female and male new teachers.

There were large differences in the frequency with which new teachers with a mentor of the same race/ethnicity and new teachers with a mentor of a different race/ethnicity reported spending substantial time with their mentor on noninstructional topics. New teachers with a mentor of a different race/ethnicity were more likely than new teachers with a mentor of the same race/ethnicity to report spending substantial time with their mentor on family engagement, collecting and analyzing student information/data, teacher evaluations, and professional development (figure 5; see also table A12 in appendix A). About 31 percent of new teachers with a mentor of the same race/ethnicity reported spending substantial time with their mentor on family engagement compared with 45 percent of new teachers with a mentor of a different race/ethnicity. About 32 percent of new teachers with a mentor of the same race/ethnicity reported spending substantial time with their mentor on collecting and analyzing student information/data compared with 50 percent of new teachers with a mentor of a different race/ethnicity. Similarly, 35 percent of new teachers with a mentor of the same race/ethnicity reported spending substantial time with their mentor on teacher evaluations compared with 57 percent of new teachers with a mentor of a different race/ethnicity, and 38 percent of new teachers with a mentor of the same race/ethnicity reported spending substantial time with their mentor on professional development compared with 60 percent of new teachers with a mentor of a different race/ethnicity. There was no meaningful difference in the proportions of new teachers with a mentor of the same race/ethnicity and new teachers with a mentor of a different race/ethnicity who reported spending substantial time with their mentor on instructional topics.

Because there is no prescribed set of topics that mentors must cover, these differences might reflect variation in new teachers' needs and interests or their perceptions of their mentor's skills and resources. Alternatively, the differences could reflect the priorities or preferences of the mentors and their ability to engage their mentees around specific topic areas. Topics of discussion might also be influenced by the racial/ethnic alignment of the mentor and mentee. Differences in the proportions of racially/ethnically aligned pairs that address family engagement might indicate White teachers' reliance on mentors of color for support engaging families of color

Figure 5. New teachers with a mentor of a different race/ethnicity were more likely than new teachers with a mentor of the same race/ethnicity to report spending substantial time with their mentor on family engagement, collecting and analyzing student information/data, teacher evaluations, and professional development, 2018/19



Note: The figure displays only the four topics with a significant difference in the proportions of teachers with a mentor of the same race/ethnicity and teachers with a mentor of a different race/ethnicity.

Source: Authors' analysis of data from the study district's 2019 New Teacher Mentoring program survey for new teachers.

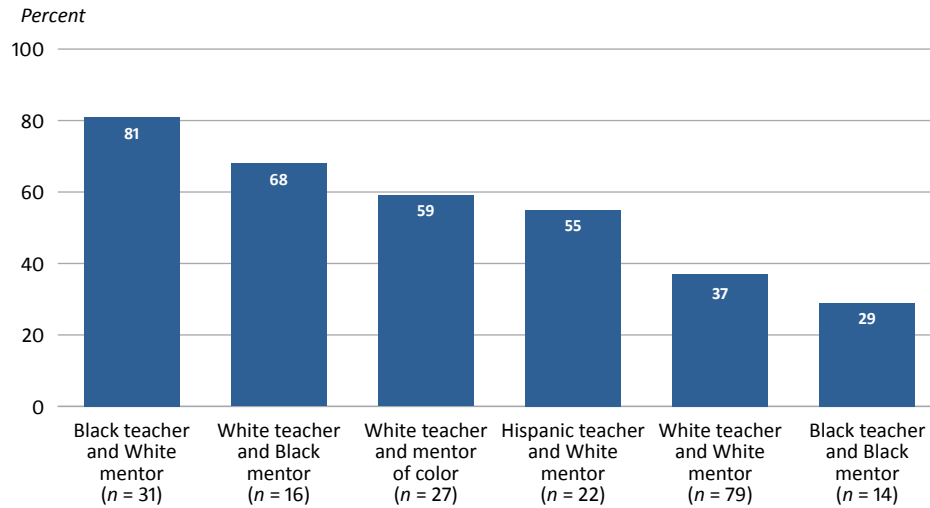
or differing perspectives on family engagement between teachers of different racial/ethnic backgrounds. Indeed, 52 percent of White new teachers with a mentor of color reported spending substantial time with their mentor on family engagement compared with 29 percent of White new teachers with a White mentor (see table A12 in appendix A). The proportion of Black new teachers who reported spending substantial time with their mentor on family engagement was consistent regardless of the race/ethnicity of their mentor (43–45 percent).

Black new teachers with a White mentor reported spending substantial time with their mentor on professional development more often than any other type of racial/ethnic alignment pair did. The difference in the content of mentoring between new teachers with a mentor of the same race/ethnicity and new teachers with a mentor of a different race/ethnicity was larger when new teachers' race/ethnicity and new teacher–mentor racial/ethnic alignment were considered simultaneously. About 37 percent of White teachers with a White mentor reported spending substantial time with their mentor on professional development compared with 81 percent of Black teachers with a White mentor (figure 6; see also table A13 in appendix A). This might suggest that White mentors have different perceptions of White and Black teachers' professional capacities. By comparison, Black teachers with a Black mentor rarely reported spending substantial time with their mentor on professional development (29 percent). The difference between pairs of the same race/ethnicity and pairs of different race/ethnicities is smaller for White new teachers than for Black new teachers.

There was no meaningful difference between the percentage of Hispanic new teachers with a White mentor and the percentage of White teachers with a mentor of color who reported spending substantial time with their mentor on professional development. This suggests that there might be something unique about the experiences of Black new teachers with a White mentor (see figure 6 and table A13 in appendix A).

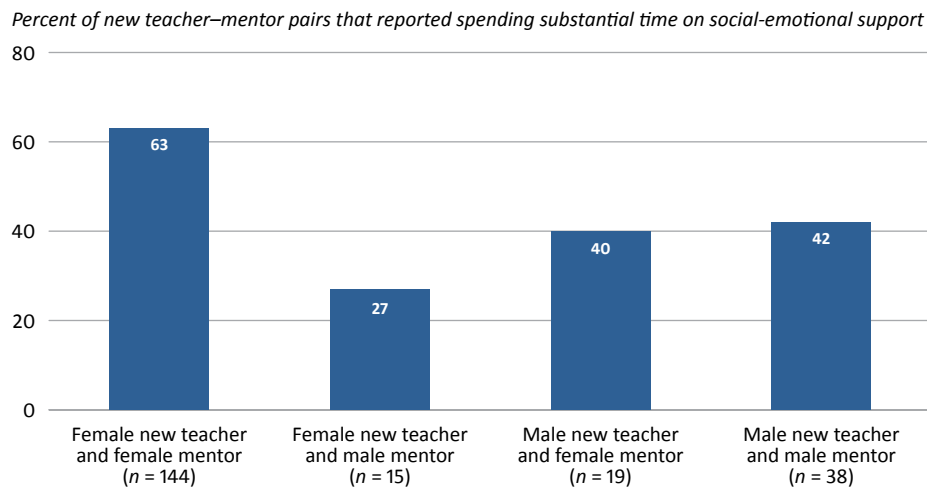
Female new teachers with a female mentor were more likely than teachers in other types of gender alignment pairs to report spending substantial time with their mentor on social-emotional support. About 63 percent of female new teachers with a female mentor reported spending substantial time with their mentor on social-emotional support compared with only 27 percent of female teachers with a male mentor, 40 percent of male teachers with a female mentor, and 42 percent of male new teachers with a male mentor (figure 7; see also table A14 in appendix A).

Figure 6. Black teachers with a White mentor reported spending substantial time with their mentor on professional development more often than any other type of racial/ethnic alignment pair did, 2018/19



Source: Authors' analysis of data from the study district's 2019 New Teacher Mentoring program survey for new teachers.

Figure 7. Female new teachers with a female mentor were more likely than new teachers in other types of gender alignment pairs to report spending substantial time with their mentor on social-emotional support, 2018/19



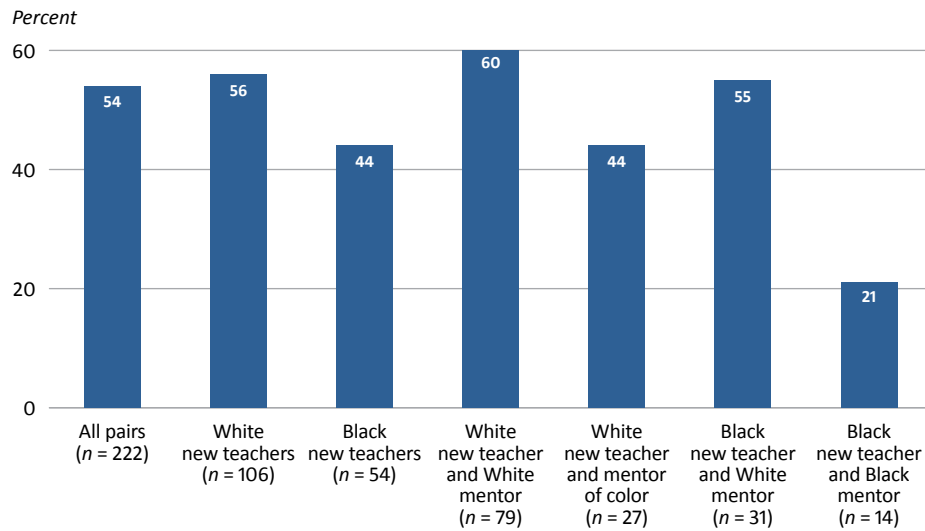
Note: The analysis excluded six new teachers with unspecified gender.

Source: Authors' analysis of data from the study district's 2019 New Teacher Mentoring program survey for new teachers.

White new teachers were more likely than Black new teachers to report that support through the program influenced their decision to stay in the district, but Black new teachers with a White mentor were more likely than Black new teachers with a Black mentor to report that support through the program influenced their decision

About 54 percent of all new teachers agreed or strongly agreed with the statement, “The support I have received through the NTM mentoring program has influenced whether or not I plan to stay at the district next year” (figure 8; see also table A15 in appendix A). Black new teachers (44 percent) had a lower rate of agreement than White new teachers (56 percent). The rates of agreement among White and Black new teachers differed more when new teacher–mentor racial/ethnic alignment was accounted for. A higher percentage of White new teachers with a White mentor (60 percent) than of Black new teachers with a Black mentor (21 percent) reported

Figure 8. Black new teachers with a Black mentor were less likely than any other type of racial/ethnic alignment pair to report that support through the New Teacher Mentoring program influenced their decision to stay in the district, 2018/19



Source: Authors' analysis of data from the study district's 2019 New Teacher Mentoring program survey for new teachers.

agreeing with the statement, a 38 percentage point difference.³ There were no significant differences by new teachers' gender or new teacher–mentor gender alignment in the extent to which the program influenced new teachers' decision to stay in the district.

The dosage and content of mentoring reported by new teachers and new teacher–mentor racial alignment were related to retention after one year

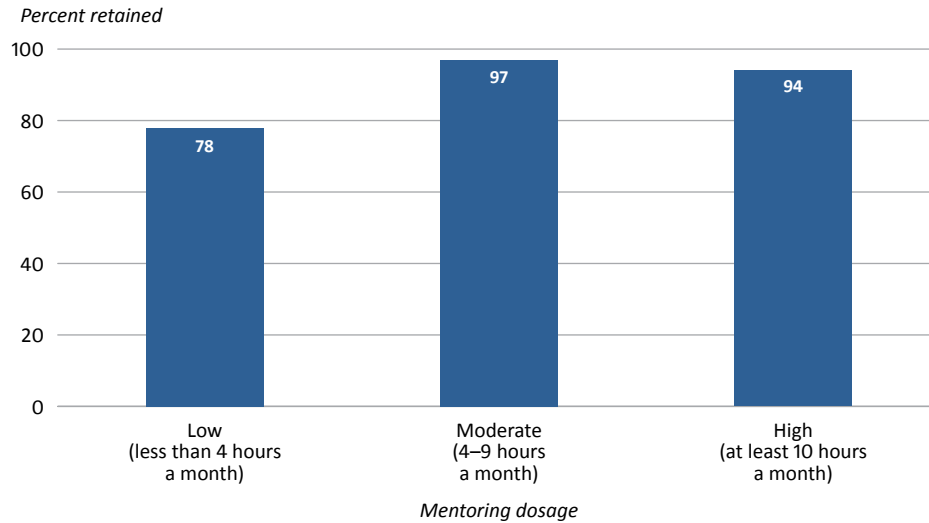
Because new teachers receive different dosages of mentoring, address different topics with their mentor, and have different access to professionally or demographically aligned mentors, it is important to examine whether dosage, content, or alignment is related to one-year retention among new teachers. The relationships might not be causal but might identify predictors of retention and point to promising mentoring features that could be more rigorously evaluated.

New teachers in the moderate- and high-dosage groups were more likely than new teachers in the low-dosage group to be retained in the district in 2019/20. Roughly 91 percent of new teachers were retained between 2018/19 and 2019/20 (see table A16 in appendix A). About 97 percent of new teachers in the moderate-dosage group and 94 percent of new teachers in the high-dosage group were retained compared with only 78 percent of new teachers in the low-dosage group (figure 9; see also table A17 in appendix A). This implies that new teachers who received a larger dosage of mentoring were significantly more likely to be retained in the district than teachers whose mentoring was brief and rare. However, additional monthly meeting hours beyond the 4–9 hours received by the moderate dosage group was not related to higher odds of one-year retention.

New teachers in the moderate-dosage group had a higher likelihood of one-year retention than new teachers in the low-dosage group, even after differences in teachers' demographic characteristics and mentoring experiences were accounted for (see table A18 in appendix A). There was no difference in the likelihood of retention between

3. The perspectives of Hispanic new teachers with a Hispanic mentor are not included in this report because there were fewer than 10 teachers in this group.

Figure 9. New teachers in the low-dosage group were less likely than teachers in the moderate- or high-dosage group to stay in the district, 2019/20



Note: n = 222 new teachers (201 retained teachers and 21 nonretained teachers).

Source: Authors' analysis of administrative data provided by the study district and data from the study district's 2019 New Teacher Mentoring program survey for new teachers.

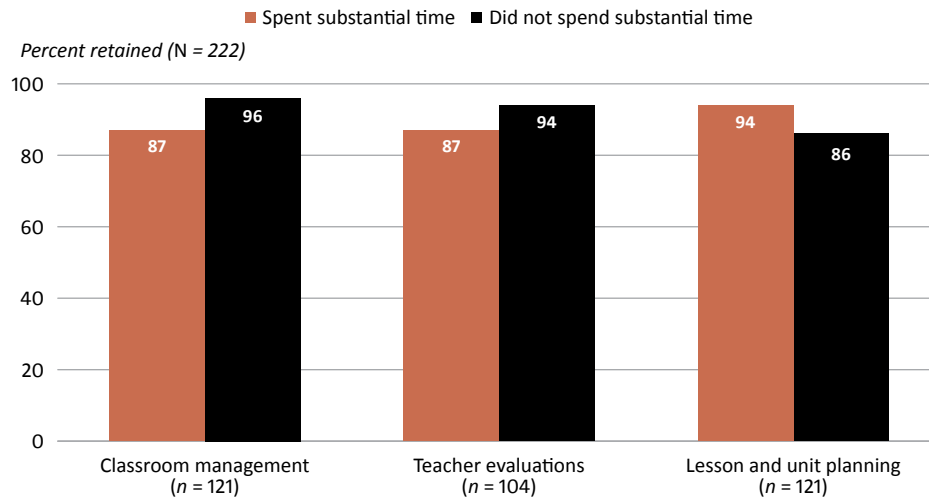
new teachers in the moderate-dosage group and new teachers in the high-dosage group, after differences in teachers' demographic characteristics were accounted for.

The one-year retention rate was lower among new teachers who reported spending substantial time with their mentor on classroom management than among new teachers who had not spent substantial time on this topic. About 87 percent of new teachers who reported spending substantial time with their mentor on classroom management were retained in the district the following year compared with 96 percent of new teachers who did not report spending substantial time with their mentor on classroom management (figure 10; see also table A17 in appendix A). The same pattern holds for teacher evaluations: the one-year retention rate among new teachers who reported spending substantial time with their mentor on the topic was 87 percent compared with 94 percent among new teachers who did not. The pattern is reversed for lesson and unit planning: 94 percent of new teachers who reported spending substantial time with their mentor on the topic were retained compared with 86 percent of new teachers who did not. These patterns persisted even after race/ethnicity, gender, and dosage were accounted for. The relationship is strongest for lesson and unit planning (see models 2–4 in table A18).

Rather than causing lower retention, spending time with the mentor on classroom management might signal a greater challenge faced by some new teachers that in turn leads to teacher turnover. The topics that new teachers reported spending substantial time on with their mentor provide direction for further investigation that focuses on understanding whether intensive mentoring needs in particular topics signal a greater likelihood of new teachers leaving the district. These possibilities are explored further in appendix B.

Teachers were equally likely to be retained in the district regardless of race/ethnicity or gender. About 93 percent of White new teachers, 93 percent of Black new teachers, and 91 percent of Hispanic new teachers were retained in the district in their second year (see table A16 in appendix A). Only 81 percent of Asian new teachers were retained, but this racial/ethnic group's small size (21) makes it more sensitive to idiosyncrasy. Similarly, 93 percent of female new teachers and 90 percent of male new teachers were retained in the district. None of these differences was statistically significant.

Figure 10. One-year retention was lower among new teachers who reported spending substantial time with their mentor on classroom management and teacher evaluations than among new teachers who did not report spending substantial time with their mentor on those topics, 2018/19–2019/20



Note: The figure displays only the three topics with a significant difference in one-year retention.

Source: Authors' analysis of administrative data provided by the study district and data from the study district's 2019 New Teacher Mentoring program survey for new teachers.

New teachers with a mentor of the same race/ethnicity were retained at a higher rate than new teachers with a mentor of a different race/ethnicity, but the difference was driven by the high one-year retention rate among White new teachers with a White mentor. About 94 percent of new teachers with a mentor of the same race/ethnicity were retained in the district in the 2019/20 school year compared with only 88 percent of new teachers with a mentor of a different race/ethnicity (see table A16 in appendix A). This pattern was driven by the high one-year retention rate among White teachers with a White mentor: 95 percent compared with 85 percent among White teachers with a mentor of a different race/ethnicity. This disparity might be related to differences in the racial/ethnic composition of the schools in which different types of racial/ethnic alignment pairs are employed (see table A5). White new teachers with a White mentor taught in schools where, on average, 30 percent of students were Black, whereas all other types of racial/ethnic alignment pairs taught in schools with higher concentrations of Black students. There were no differences in the concentrations of high-need students, economically disadvantaged students, or English learner students between the schools in which different types of racial/ethnic alignment pairs worked. There was no significant difference in the one-year retention rate between new teachers of color with a mentor of the same race/ethnicity (91 percent) and new teachers of color with a mentor of a different race/ethnicity (90 percent; see table A16).

Limitations

This study has four main limitations.

First, the relationships and patterns uncovered through the analyses should not be interpreted as having a causal relationship. For example, spending time with a mentor on classroom management does not make a new teacher more likely to leave the district. More likely, spending time on classroom management is an indicator of an underlying area of weakness in a teacher's practice. This weakness, and not the time spent working with the mentor to resolve it, might make a new teacher disproportionately likely to leave the district after the first year.

Second, the analyses could not yield strong conclusions about the relationships between how new teachers spent time across mentoring topics and the new teachers' characteristics and retention outcomes. The study's content measure was self-reported, with teachers subjectively reporting the amount of time spent on various topic areas. The NTM program survey asked new teachers how they spent mentoring time in two distinct ways—the length and frequency of mentoring meetings and the proportion of time spent on topics. Questions about the length and frequency of mentoring meetings allow for a reasonably precise measurement of time spent with mentors overall. But questions related to the topics new teachers spent time on with their mentor use a proportional scale, ranging from no time to almost all the time. Interpreting patterns in time spent by topic from the proportional scale is difficult because new teachers who met with their mentor for 10 hours a week and reported spending very little time on content knowledge might spend the same amount of time on content knowledge as teachers who met with their mentor for only 2 hours a week and reported spending almost all their time on that topic. Caution is also urged in interpreting responses about time spent discussing professional development because there is ambiguity in how mentees interpreted the meaning of professional development in this question.

Third, the analysis focused on retention after one year, while the district's main concern was new teacher retention after five years. So this study does not address the gradual attrition that takes place over the course of new teachers' early careers. High one-year retention rates might make it harder to detect significant differences in retention across mentoring experiences. And because the analysis was conducted with one cohort, some findings might be the result of characteristics idiosyncratic to the time period or group of teachers. A longitudinal study that includes multiple cohorts and multiple years could make stronger claims about the longer-term retention impacts and the systematic effects of the NTM program across new teachers.

Fourth, teacher survey nonresponse, a small group size, and the even smaller numbers of teachers of color could have resulted in biased estimates. A nonresponse analysis could not be executed because the study team could not obtain data on new teachers who did not submit survey responses. The study team was, therefore, unable to address whether survey respondents differed substantively from nonrespondents. Small group sizes are also problematic. For example, the number of new teachers of color who have a mentor of the same race/ethnicity was small. Of 54 Black new teachers, only 14 had a Black mentor. Similarly, only 7 of 27 Hispanic new teachers had a Hispanic mentor, and only 2 of 21 Asian new teachers had an Asian mentor. Caution must be taken when drawing conclusions from patterns based on these small sample sizes.

Implications

The study findings have implications for three aspects of the NTM program's efforts to reduce teacher turnover: content, dosage, and demographic alignment of new teacher–mentor pairs.

The district that administers the NTM program could use the findings on the relationship among mentoring dosage, content, demographic alignment of new teacher–mentor pairs, and one-year retention to develop early, or leading indicators of new teacher attrition. Mentors' monthly reports to the district on time spent with new teachers and a weekly or monthly time-use diary could be used to track the dosage and the content discussed by new teachers and their mentor. This information could then be used to inform the design of targeted intervention plans. Teachers participating in fewer than 4 hours of mentoring meetings a month might need additional support. Additionally, topics frequently covered in mentoring meetings might suggest areas for more formal professional development.

It might also be useful for mentors to meet with new teachers for at least 4 hours a month to retain them. However, a more rigorous impact study is needed to confirm this conclusion because this study was unable to detect causal relationships. Future research could employ a more precise approach to document how time spent on mentoring activities is related to retention and other outcomes.

More information is also needed to understand the relationships between characteristics of mentoring and one-year retention and to design appropriate supports. For instance, one possible explanation for the negative relationship between spending substantial time on classroom management and one-year retention is that new teachers struggling with classroom management are more likely to leave their position. Building mentors' capacity to help new teachers improve their classroom management practices might thus support new teacher retention.

Future research could also pursue a deeper understanding of the ways in which teachers of different racial/ethnic backgrounds and genders experience the NTM program. The findings do not suggest that pairing Black new teachers with a Black mentor or Hispanic new teachers with a Hispanic mentor is an effective way to increase retention among teachers of color. And for Asian new teachers the relationship between new teacher–mentor racial/ethnic alignment and retention is less clear. More research is needed to understand how purposive racial/ethnic matching influences the experiences of new teachers of color in the NTM program. In-depth interviews with new teachers of different racial/ethnic backgrounds, different demographic alignment with mentors, and different retention statuses could shed light on the divergent mentoring experiences of teachers of different racial/ethnic backgrounds. In particular, additional research might help explain why White teachers with a White mentor appeared disproportionately likely to be retained in the district compared with White teachers with a mentor of a different race/ethnicity and why teachers of color reported that the NTM program has a weak influence over their employment plans.

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