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Teacher Preparation Experiences and Early Teaching Effectiveness EXECUTIVE SUMMARY

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Executive Summary

This report provides information about new teachers' preparation experiences and explores whether particular types of experiences are related to teachers' effectiveness in improving their students' test scores.

Prior research indicates that teaching effectiveness is the largest in-school factor affecting student achievement (Chetty, Friedman, and Rockoff 2014a, 2014b). Research also shows that new teachers are less effective than more experienced teachers (Clotfelter, Ladd, and Vigdor 2007) and frequently begin their careers in high-poverty schools (Bruno, Rabovsky, and Strunk 2019), where students are in greatest need of effective instruction. Improving the preparation that teachers receive is a potential strategy for increasing new teachers' effectiveness and for closing the student achievement gap, which is a primary goal of the Every Student Succeeds Act of 2015.¹

Understanding whether certain ways of preparing teachers are more effective than others is important, but very little is currently known about what teacher preparation emphasizes at a fine-grained level and how those experiences are related to teaching effectiveness. Research identifying which preparation experiences are related to improved student performance can generate hypotheses for improving teacher preparation.

About the Study

Through an online survey administered in spring 2015, this study collected information from new teachers about their preparation experiences. It also examined the relationship between the frequency of these experiences and teachers' effectiveness in improving student test scores.

Study Sample

The study recruited a sample of large districts/states that could provide student-teacher linked achievement data for the calculation of teacher value-added. The sample consisted of 242 districts in 18 states. These were primarily large, urban districts, located in the South, with high levels of students in poverty and high proportions of minority students and English learners.

Within these districts, 3,294 teachers in grades 4 through 6 completed the survey. This large, opportunistic teacher sample was similar to a nationally representative sample of novice upper elementary teachers from the 2011–12 Schools and Staffing Survey (SASS) in terms of sex, age, and certification route (alternative or traditional). Study teachers had participated in the preparation programs of 566 different providers.

To examine the relationships between preparation experiences and teaching effectiveness, the study collected student test score data for a subset of 2,533 of these teachers.²

¹ Every Student Succeeds Act of 2015. P.L. 114-95 § 114 Stat. 1177 (2015-2016).

² Because of considerations of cost and expected numbers of surveyed teachers in each district/state, we limited the collection of student-teacher linked achievement data to the 19 largest districts/states.

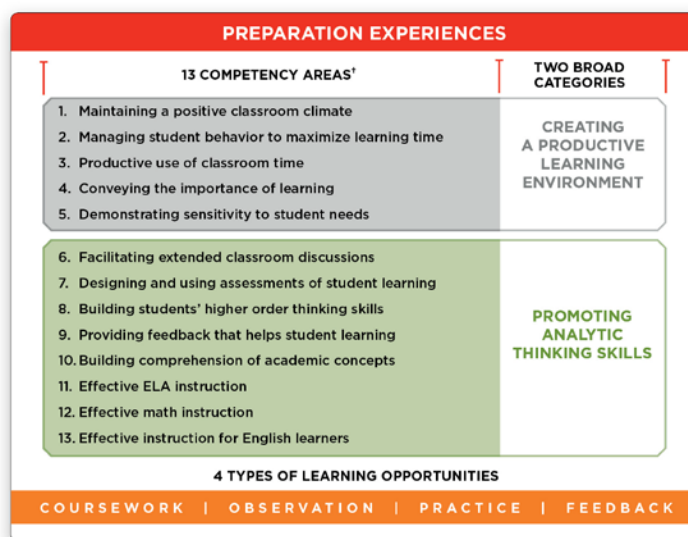
Preparation Experience Measures

The survey asked study teachers about the preparation experiences they received as part of their preparation program for initial certification. It asked teachers about their preparation experiences with instructional strategies across **13 competency areas**. Those areas fell into **two broad categories**: strategies for *creating a productive learning environment* and strategies for *promoting analytic thinking skills*. Figure ES.1 shows the study's taxonomy of competency areas and broad categories.

The teacher survey was developed based on prior research that linked classroom practices within each competency area with gains in student achievement and in consultation with national experts.³ It asked the study teachers to rate the *extent* to which, during their preparation program, they had experiences with each of the instructional strategies obtained through each of four types of learning experiences: (1) **Coursework**, (2) **Observation**, (3) **Practice**, and (4) **Feedback**.

Specifically, the survey items asked teachers to rate on a five-point scale (from 1 = “Rarely/Never” experienced to 5 = “Very often” experienced) the extent to which they (1) read about, heard about, or saw a role play of the strategy (such as during coursework); (2) observed a teacher using the strategy in a K–12 classroom; (3) practiced the strategy in a K–12 classroom; or (4) received feedback on their use of the strategy. (See figure ES.2.) This taxonomy of types of learning opportunities aligns with qualitative research and theory that suggest that the four types form a continuum and that all are required for learning to take place (Grossman, Compton et al. 2009; McDonald, Kazemi, and Kavanagh 2013). Within each competency area and within each type of learning opportunity, teachers’ ratings were averaged and reported as *very few* ($1 \leq \text{avg} \leq 2$); *few* ($2 < \text{avg} \leq 3$); *some* ($3 < \text{avg} \leq 4$); or *many* ($4 < \text{avg} \leq 5$).

Figure ES.1: Taxonomy of Preparation Experiences for This Study



*Each competency area consisted of five exemplary instructional strategies.

³ Bill and Melinda Gates Foundation. Measures of Effective Teaching: 1 - Study Information. ICPSR34771-v2. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor], 2013-09-23. <https://doi.org/10.3886/ICPSR34771.v2>.

Figure ES.2: Example Survey Items for “Maintaining a Positive Classroom Climate” Competency Area

	As part of your preparation program for <i>initial certification</i> , how often did you:															How useful have your preparation experiences been for your classroom instruction?									
	Read about, hear about <u>or</u> see a role play of this strategy (such as during coursework)?					Observe a teacher using this strategy in a K-12 classroom (include videos and direct observations during your fieldwork or student teaching)?					Practice this strategy in a K-12 classroom prior to becoming a full-time teacher?										Receive feedback on your use of this strategy from program staff or a cooperating teacher that included information about what you did well/how you could improve?				
Instructional Strategies for “Maintaining a Positive Classroom Climate”	Rarely/	Never			Very often	Rarely/	Never			Very often	Rarely/	Never			Very often	Rarely/	Never			Very often	Have not used	Not useful	Somewhat useful	Useful	Very useful
Communicating respect and warmth both in words and non-verbally (making eye contact, being in physical proximity) when interacting with individual students and the class as a whole.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Demonstrating knowledge of and interest in students’ lives inside and outside of school.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Listening closely and with genuine interest when students talk and encouraging students to listen to each other.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Encouraging cooperation among students, such as working together and sharing materials.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Responding to students’ efforts and participation with positive comments (e.g., “What a great idea!,” “You guys are working together really well on that project.”).	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

SOURCE: Study’s teacher survey, 2015.

Given that the competency areas included on the survey cover aspects of teaching previously shown to be related to student outcomes, it is worthwhile to see whether those experiences were included in teachers’ preparation and to what extent. In addition, recent emphasis on increasing teachers’ clinical experiences leads to interest in the extent to which preparation included hands-on experiences with feedback. Finally, the relationship between preparation experiences and early teaching effectiveness might generate hypotheses for improving teacher preparation.

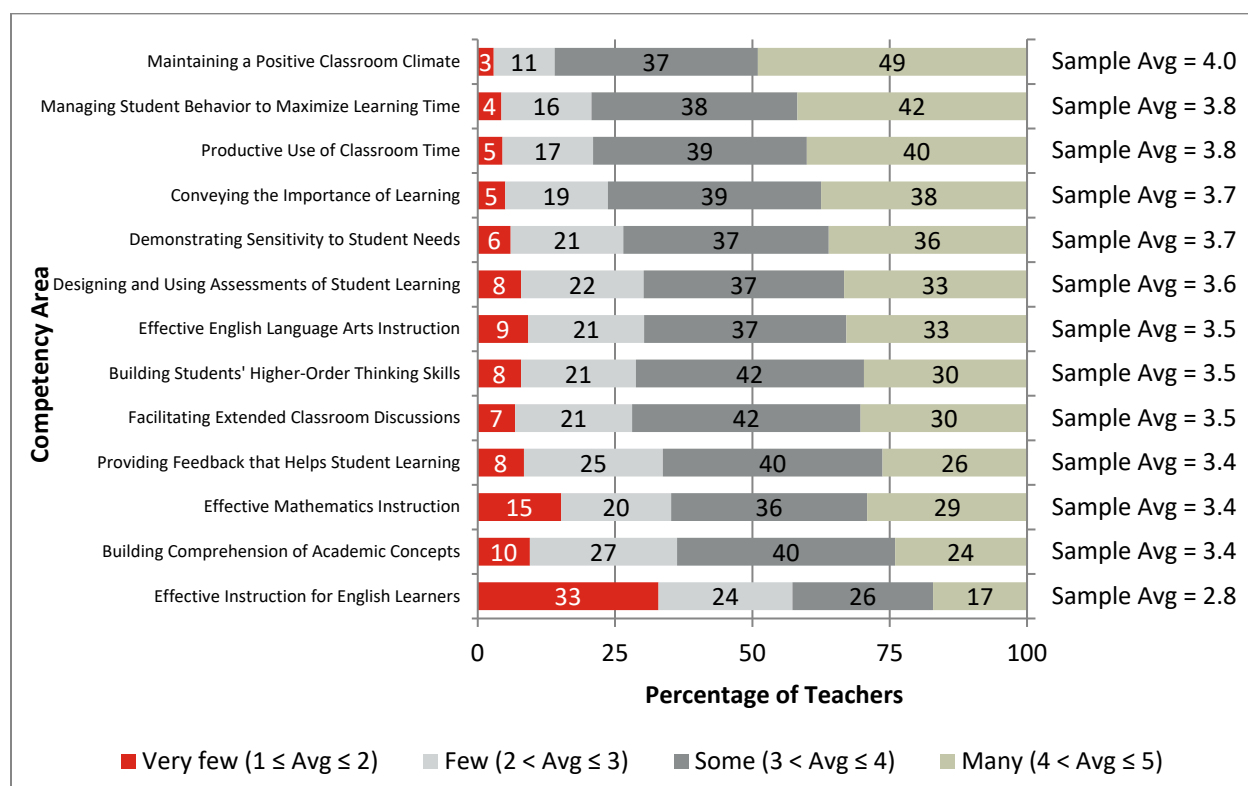
Key Findings

Average Frequencies and Variation of Preparation Experiences

Teachers’ preparation experiences included a broad array of competency areas, although teachers reported more frequent experiences in some competency areas than others.

The study examined the extent to which teachers reported experiences across the 13 competency areas in order to explore whether programs include the broad array of content believed to be important to preparing effective teachers. At least 64 percent of teachers reported *some* or *many* preparation experiences with teaching strategies in 12 of the 13 competency areas. Effective Instruction for English Learners was the one competency area in which less than half of teachers (43 percent) reported *at least some* experiences (figure ES.3).

Figure ES.3: Teachers' Preparation Experiences by Competency Area



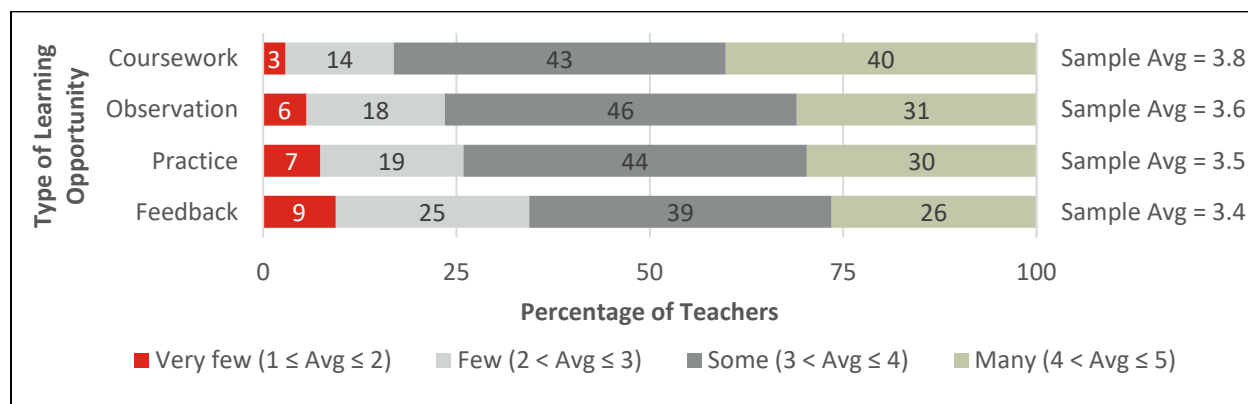
NOTE: Teachers' responses to the survey questions about preparation experiences ranged from 1 to 5, where 1 = "Rarely/Never" and 5 = "Very often." This figure shows the proportion of teachers in four groups based on teachers' average preparation experiences with each competency area. The 13 competency areas are listed in order of highest to lowest average score. Sample size varied between 3,249 and 3,289 due to nonresponse. All sample averages are statistically different from one another ($p < .05$) except these: (1) Effective English Language Arts Instruction, Building Students' Higher-Order Thinking Skills, and Facilitating Extended Classroom Discussions are not different from one another; and (2) Effective Mathematics Instructions and Building Comprehension of Academic Concepts are not different from each other.

FIGURE READS: Three percent of teachers reported having had very few preparation experiences with Maintaining a Positive Classroom Climate. The sample average rating for preparation experiences with Maintaining a Positive Classroom Climate was 4.0.
SOURCE: Study's teacher survey data, 2015.

Although teachers learned about competency areas through all four types of learning opportunities, Coursework was the most frequent and Feedback was the least frequent.

Teachers reported that they received preparation experiences most frequently through Coursework (average of 3.8 on the five-point scale), and least frequently through Feedback (average of 3.4). This pattern is also reflected in the proportion of teachers who reported *at least some* preparation experiences through each type of learning opportunity: 83 percent for Coursework versus 65 percent for Feedback (figure ES.4). However, nearly a quarter or more of teachers reported *few* or *very few* experiences with three of the four types of learning opportunities: 24 percent for Observation, 26 percent for Practice, and 34 percent for Feedback.

Figure ES.4: Teacher-Reported Frequency of Preparation Experiences by Learning Opportunity



NOTE: Teachers' responses to the survey questions about preparation experiences ranged from 1 to 5, where 1 = "Rarely/Never" and 5 = "Very often." This figure shows the proportion of teachers in four groups based on teachers' frequency of preparation experiences (averaged across the 13 competency areas) obtained through each type of learning opportunity. The four types of learning opportunities are listed in order of highest to lowest average score. Sample size varied between 3,286 and 3,288. All sample averages are statistically different from one another ($p < .05$).

FIGURE READS: The average frequency of preparation experiences obtained through Coursework was *very few* for 3 percent of teachers. The sample average rating for preparation experiences obtained through Coursework was 3.8.

SOURCE: Study's teacher survey data, 2015.

Within each type of learning opportunity, teachers reported more preparation experiences with strategies for *creating a productive learning environment* than with strategies for *promoting analytic thinking skills*.

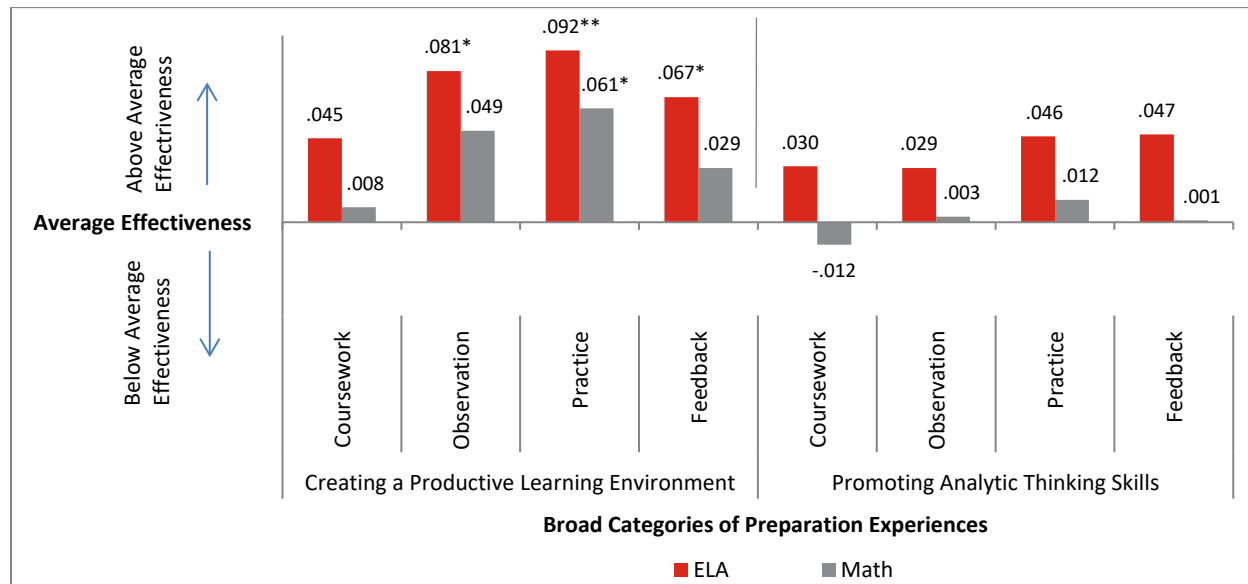
Using a statistical technique called factor analysis, the study categorized each of the 13 competency areas into two broad categories of preparation experiences--*creating a productive learning environment* and *promoting analytic thinking skills*. Regardless of type of learning opportunity examined, teachers reported more experiences with *creating a productive learning environment* than with *promoting analytic thinking skills*. For example, for Coursework, the average rating for strategies for *creating a productive learning environment* was 3.8, compared to the average rating of 3.6 for strategies for *promoting analytic thinking skills* (not shown).

Relationships Between Preparation Experiences and Teaching Effectiveness

Teachers who reported more frequent preparation experiences with strategies for *creating a productive learning environment* were more effective in the classroom than were teachers who received fewer such experiences.

For ELA, the relationships between preparation experiences for *creating a productive learning environment* and teaching effectiveness were positive (i.e., more frequent preparation experiences were related to greater effectiveness) and statistically significant for three of the four types of learning opportunities: Observation, Practice, and Feedback. For math, the relationships between preparation experiences for *creating a productive learning environment* and teaching effectiveness were positive for all four types of learning opportunities and statistically significant for Practice (figure ES.5).

Figure ES.5: Relationships Between Preparation Experiences and Teaching Effectiveness in ELA and Math



* Coefficient for relationship of experience to effectiveness is significantly different from zero, with $p < .05$.

** Coefficient for relationship of experience to effectiveness is significantly different from zero, with $p < .01$.

NOTE: Coefficients for the relationship of preparation experiences to ELA teaching effectiveness were estimated using data from $n = 2,032$ ELA teachers. Coefficients for the relationship of preparation experiences to math teaching effectiveness were estimated using data from $n = 1,894$ math teachers.

FIGURE READS: The horizontal line represents average teaching effectiveness for teachers in the sample. Bars above the line indicate that the preparation experience is related to greater effectiveness, while bars below the line indicate that the preparation experience is related to lesser effectiveness. The regression coefficient for the relationship of preparation experiences with *creating a productive learning environment* obtained through Coursework to ELA teaching effectiveness is 0.045, meaning a one-unit increase in preparation experiences is related to an increase of 0.045 standard deviation units above average effectiveness. This estimate is not statistically different from zero.

SOURCE: Study's teacher survey data, 2015. Effectiveness measures: study's teacher-student linked data, 2012–15.

To give a sense of the magnitudes of the statistically significant relationships between preparation experiences and teaching effectiveness, we compared the sizes of those relationships to the sizes of the average differences in teaching effectiveness between first- and second-year teachers in ELA and math. The difference in ELA effectiveness that was associated with a one-point difference in preparation experiences for *creating a productive learning environment* through Observation, Practice, or Feedback was about half the size of the average difference in ELA effectiveness between first-year and second-year teachers. The association between preparation experiences for *creating a productive learning environment* through Feedback and math effectiveness was about one fifth of the size of the difference between first- and second-year teachers in math effectiveness.

Teacher preparation experiences with strategies for promoting analytic thinking skills were not related to teachers' effectiveness in the classroom.

The relationships between preparation experiences for *promoting analytic thinking skills* and teaching effectiveness were not statistically significant for either ELA or math. This finding was consistent across all four of the types of learning opportunities (Coursework, Observation, Practice, Feedback).

Concluding Thoughts

There are some limitations to this study, which provides information about the preparation experiences reported by a large, but purposive sample of elementary-level teachers in general-education classrooms. The study examined effectiveness only for teachers in upper elementary grades for which test scores were available. In addition, preparation experiences were self-reported by teachers and may have been subject to measurement error. Despite these limitations, the detailed nature of these data provides more information about teacher preparation than typically provided in the literature.

The study found variation across teachers in the extent of the preparation experiences they reported both for competency areas and types of learning opportunities. This variation allowed the study to explore relationships between preparation experiences and classroom effectiveness during teachers' first few years of teaching. These types of analyses are a useful first step in generating hypotheses for improving teacher preparation, a primary objective of this study.

The study found significant relationships between strategies for *creating a productive learning environment* and teaching effectiveness. Practice was the only type of learning opportunity that showed a statistically significant relationship to teaching effectiveness in *both* ELA and math. Having obtained preparation experiences through Coursework was not significantly related to effectiveness for either subject area. These analyses suggest that there might be promise in preparation programs emphasizing strategies for *creating a productive learning environment*, particularly using more hands-on methods for learning these strategies. This finding is not causal and more rigorous research is needed to reinforce it.

Regardless of the type of learning opportunity, there were no statistically significant relationships between preparation experiences with *promoting analytic thinking skills* and teaching effectiveness. The lack of relationships is concerning, since research suggests that students' ability to employ higher-order thinking skills about academic material is a predictor of overall academic success (Allen et al., 2011; Hamre and Pianta, 2005). However, it would be premature to conclude that experiences focused on *promoting analytic thinking skills* are not an important component of effective preparation programs. It could be that the particular strategies within *promoting analytic thinking skills* that this study focused on may not be the most essential ones, and that other strategies not measured but aimed at improving students' analytic thinking may be effective. More exploratory research is needed to better understand this relationship.

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