

Outcomes for Early Career Teachers Prepared through a Pilot Residency Program in Louisiana

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Outcomes for Early Career Teachers Prepared through a Pilot Residency Program in Louisiana

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Louisiana’s Believe and Prepare pilot program, supported by grants from the Louisiana Department of Education, aimed to prepare teacher candidates or in-service teachers through a residency with a mentor and a competency-based curriculum. To improve teacher preparation and teacher residencies, state and teacher education leaders in Louisiana sought to better understand the early career outcomes for participants in the pilot program. This study analyzed data for the three cohorts that participated in the program between 2014/15 and 2016/17. A majority (76 percent) of pilot participants were enrolled in a university-based teacher preparation program. The study examined certification, employment, and retention outcomes for a subset of pilot participants who were teacher candidates or early career teachers (together referred to as early career Believe and Prepare pilot participants). About 30 percent of early career Believe and Prepare pilot participants who attained a Level 1 professional certificate in 2015/16–2017/18 were certified in a high-need subject, as defined by the Louisiana Department of Education (middle grades math and science, secondary math and science, or special education), and 28 percent of participants who entered teaching in 2015/16–2018/19 taught in a high-need subject in their first year of teaching. Early career pilot program participants who completed a residency in a primary school were more likely than those who completed a residency in a nonprimary school to attain a Level 1 professional certificate. Participants who completed a residency in a charter school were less likely than those who completed a residency in a noncharter school to attain a Level 1 professional certificate. (Louisiana does not require Level 1 certifications for charter schools.) Of early career Believe and Prepare teachers who entered teaching in 2015/16–2017/18, 89 percent were retained in the state for a second year, 76 percent were retained in the same district, and 71 percent were retained in the same school. Among these teachers the within-state retention rate was lowest for teachers in high-need subjects, and the within-school retention rate was lowest for secondary and middle grades math and science teachers.

Why this study?

Louisiana’s schools have staffing shortages and often struggle to retain teachers. Shortages are particularly acute in math, science, and special education (Louisiana Department of Education, 2015a; U.S. Department of Education, 2017). In 2014 the Louisiana Department of Education surveyed new teachers, district administrators, and teacher preparation faculty to learn about how prepared teachers felt for their first days in the classroom and to identify opportunities to strengthen the teacher preparation experience. Half the teachers with one to five years of experience who responded to the survey did not feel fully prepared for the realities of the classroom in their first year of teaching (Louisiana Department of Education, 2014). The survey results highlighted the need for greater alignment and collaboration between school districts and teacher preparation programs to improve preparation of teacher candidates, respond to district needs and teacher shortages, improve teacher hiring practices, select and train mentor teachers, and strategically pair new teachers with qualified mentors.

To address concerns about teacher shortages and to respond to the teacher preparation survey results, the Louisiana Department of Education launched the Believe and Prepare pilot program in 2014. The program provided grants to school districts (referred to by the Louisiana Department of Education as “school systems”), in partnership with teacher preparation providers, to offer teacher

For additional information, including background on the study, technical methods, supporting analyses, and other analyses, access the report appendixes at <https://go.usa.gov/xHnqJ>.

candidates a competency-based curriculum and a residency with a mentor as part of their teacher preparation experience (see appendix A for a more detailed description of the Believe and Prepare program). The pilot program was grounded in research that suggests that well designed and well implemented teacher residency models can improve teacher retention (Singh, 2017; Van Overschelde et al., 2017; Whipp & Geronime, 2017). Three cohorts of teacher candidates participated in the Believe and Prepare pilot program: cohort 1 in 2014/15, cohort 2 in 2015/16, and cohort 3 in 2015/16 and 2016/17.¹ In October 2016 the Louisiana Board of Elementary and Secondary Education, with support from the Louisiana Board of Regents, adopted regulations expanding the competency-based curricula and yearlong residency for teacher preparation programs statewide.

To support continuous improvement of the Believe and Prepare program statewide, state education leaders and leaders of teacher preparation programs in Louisiana sought to better understand the early career outcomes for participants in the pilot program (see box 1 for definitions of key terms). These stakeholders wanted to know how well the pilot program prepared and certified new teachers in different subjects, particularly in the high-need subjects identified by the Louisiana Department of Education; whether participants entered teaching in their schools and districts of residency or in other public schools in the state after completing their residency; whether teachers were retained in teaching positions beyond the first year; and how retention compared between Believe and Prepare participants and other new teachers.

The analysis in this study focused mainly on Believe and Prepare pilot participants whom the study team considered to be teacher candidates or early career teachers and whose certification and employment records indicated that they likely participated in the program to pursue initial certifications (early career Believe and Prepare pilot participants). The Believe and Prepare pilot program was targeted primarily at teacher candidates from undergraduate programs, but it also served some candidates from alternate programs and some certified or in-service teachers who pursued additional certifications. The analysis in this study focused on attainment of the Level 1 professional certificate, which is the initial certification to teach in noncharter public schools in Louisiana and typically the expected certification for candidates from undergraduate programs. State and teacher education leaders can use the study findings to inform decisions about programmatic improvements as Louisiana expands residency experiences for preservice teachers.

Box 1. Key terms

Alternate teacher preparation program (alternate program). A certification program for teacher candidates who have a four-year degree in a noneducation field. In 2017/18 there were 21 state-approved university-based alternate programs in Louisiana and six state-approved alternate programs that were not based in universities.

Believe and Prepare pilot participant. A teacher candidate or in-service teacher who participated in the Believe and Prepare pilot program: cohort 1 in 2014/15, cohort 2 in 2015/16, and cohort 3 in 2015/16 and 2016/17.¹ Participants were identified from records that teacher preparation programs and school districts provided to the Louisiana Department of Education.

Competency-based curriculum. Teacher preparation coursework, designed through a partnership between teacher preparation program faculty and district leaders, that emphasizes essential teaching knowledge and skills and school-based, practice-oriented experience.

Early career Believe and Prepare pilot participant. A Believe and Prepare pilot participant who was classified by the study team as being a teacher candidate or early career teacher while participating in the program. Identification was based on criteria defined by the study team in consultation with the Louisiana Department of Education (see criteria in appendix B). This group included all Believe and Prepare pilot participants except those whose certification and employment records indicated that they

1. The grant award period for cohort 3 covered 2015/16 through 2016/17. Some participants started in the spring of 2016 while others started in the fall of 2016. To apply for the Believe and Prepare pilot grants, a district and its collaborating teacher preparation provider(s) submitted an application that detailed their plan for school-based teacher preparation.

were experienced teachers or whose level of experience could not be conclusively determined from the certification and employment records available to the study team.

Early career Believe and Prepare teacher. An early career Believe and Prepare pilot participant (as defined above) who was employed as a teacher in Louisiana’s public schools between 2015/16 and 2018/19.

High-need subject. A subject identified by the Louisiana Department of Education as having a shortage of teachers. For the years included in the study, high-need subjects were middle grades math and science, secondary math and science, and special education.

In-service teacher. A teacher employed in a teaching position in a preK–12 school.

Nonprimary schools. Schools with grade levels of middle, high, and other, which were combined into one category in the regression analyses; see School grade level, below.

Other early career teacher. A teacher employed in a Louisiana public school who did not participate in the Believe and Prepare pilot program and who was classified as being an early career teacher using criteria defined by the study team in consultation with the Louisiana Department of Education (see criteria in appendix B). This group includes teachers prepared through either an undergraduate program or an alternate program.

Practitioner license. A certificate issued to applicants who are enrolled in a state-approved Practitioner Teacher Alternate Certification Program (PL1), who are pursuing certification only and not additional educational attainment (PL2) with a state-approved provider, or who are enrolled in a state-approved Master’s Degree Alternate Certification Program (PL3). The practitioner license allows the holder to teach full time while completing a certification program. While a teacher is completing the alternate certification program, PL1s and PL2s can be renewed annually for up to three years and PL3s can be renewed annually for up to four years. In Louisiana practitioner certificates are common for teacher candidates from state-approved alternate programs.

Professional certificates. A standard teaching certificate issued in Louisiana. A Level 1 professional certificate (L1) is the entry-level professional certificate typically held during the first three years of teaching. In Louisiana the Level 1 professional certificate is the typical expected certification for new teachers from state-approved undergraduate teacher preparation programs.

Residency. A school-based teacher preparation experience in which Believe and Prepare pilot participants co-taught in the classroom alongside experienced teacher mentors in a Louisiana public school, typically for a full school year. The goal of residency was to increase the time that Believe and Prepare pilot participants spent leading classroom instruction with support from a mentor teacher beyond the typical one semester of student teaching required for certification in Louisiana.

Retention. Teachers remaining in a teaching position for a second year in the same school, in the same district, or in Louisiana.

School grade level. A school’s instructional level as defined in the Common Core of Data based on the lowest and highest grade offered by the school (National Center for Education Statistics, 2016, 2017, 2018, 2019). The four levels are primary (lowest grade of prekindergarten–grade 3 to highest grade 8), middle (lowest grade 4–7 to highest grade 4–9), high (lowest grade 7 to highest grade 12), and other (all other configurations). The levels of middle, high, and other were combined into one category in the regression analyses and referred to as nonprimary schools.

School locale. The urban-centric locale designation for a school in the Common Core of Data, which is an indication of the school’s location relative to a populous area (National Center for Education Statistics, 2016, 2017, 2018, 2019). For this study, urban schools are those in categories 11 (city, large), 12 (city, midsize), and 13 (city, small); all others are classified as nonurban (suburb, town, rural).

Teacher candidate. An individual enrolled in a teacher preparation program who is preparing to become a certified teacher.

Teacher preparation program. A program that prepares students to become licensed teachers in a state.

Undergraduate teacher preparation program (undergraduate program). A program offered at a public or private university in Louisiana that provides certification to teacher candidates after completion of a four-year teaching program. In 2017/18 there were 18 state-approved undergraduate teacher preparation programs in Louisiana.

Note

1. The grant award period for cohort 3 covered 2015/16–2016/17. Some participants started in the spring of 2016 while others started in the fall of 2016.

Research questions

This study addressed the following research questions:

1. What types of teacher preparation programs did Believe and Prepare pilot participants attend? How did their residency districts and schools compare with other districts and schools in the state?
2. In what subjects did early career Believe and Prepare pilot participants attain Level 1 professional certificates between 2015/16 and 2017/18?
 - 2a. Was attainment of a Level 1 professional certificate associated with characteristics of the schools (enrollment, locale, type, charter school designation, and student demographics) in which participants taught during their residency?
3. In what subjects did early career Believe and Prepare pilot participants teach in their first year of employment in Louisiana public schools between 2015/16 and 2018/19?
 - 3a. Was entry into teaching associated with characteristics of the schools (enrollment, locale, type, charter school designation, and student demographics) in which participants taught during their residency?
4. What percentages of early career Believe and Prepare teachers overall and by subject were retained in teaching positions in the state, in the district, or in the school for a second year between 2016/17 and 2018/19?
 - 4a. Was retention associated with characteristics of teachers (gender, race/ethnicity, highest level of education, and whether they attained initial certification) and characteristics of schools (enrollment, locale, type, charter school designation, and student demographics) in which they were first employed?
 - 4a. How did the retention rates of early career Believe and Prepare teachers, teacher characteristics, and characteristics of the schools and districts in which they taught compare with those of other early career teachers in Louisiana?
5. What percentages of early career Believe and Prepare teachers entered teaching in the districts and in the schools in which they served their residency?
 - 5a. Did retention rates differ between participants who entered teaching at their school of residency and participants who entered teaching at another school?

Box 2 briefly describes the data sources, samples, and methods used in the study, and appendix B provides additional detail. The study findings are presented below in two sections: one for all participants in the Believe and Prepare pilot program (713 participants) and one for early career participants in the Believe and Prepare pilot program with certification or employment records (336 participants).

Box 2. Data sources, samples, and methods

Data sources. This study used a combination of administrative data provided by the Louisiana Department of Education and publicly available data. The Louisiana Department of Education provided unique common identifiers that allowed linking Believe and Prepare pilot participants' records across databases. Data obtained through a request with the Louisiana Department of Education included:

- **Believe and Prepare pilot program data**, which provided information on participant cohort, teacher preparation provider, teacher preparation subject, school, and district of residency for participants in the three pilot cohorts.
- **Teacher certification data** from the Louisiana Teacher Certification Management System for all teaching certificates issued between 2014/15 and 2017/18.
- **Teacher employment data** from the Profile of Educational Personnel System for all teachers working in Louisiana public schools between 2014/15 and 2018/19.

Publicly available data from the Louisiana Department of Education website included district- and school-level student demographic data between 2014/15 and 2017/18 (<https://www.louisianabelieves.com/resources/library/data-center>). Publicly available data from the National Center for Education Statistics' Common Core of Data included school locale and school grade level for Louisiana schools between 2014/15 and 2017/18 (National Center for Education Statistics, 2016, 2017, 2018, 2019).

Samples. The sample for research question 1 included 713 Believe and Prepare pilot participants drawn from program records submitted to the Louisiana Department of Education by teacher preparation providers or school districts participating in the pilot program. Of the 713 participants, the Louisiana Department of Education matched 468 participants (66 percent) to the data collected through the department's Profile of Educational Personnel System for 2014/15–2016/17. These participants were assigned a unique identifier by the Louisiana Department of Education. The remaining 245 participants (34 percent) were not assigned a random identifier because their program records could not be matched to the state's personnel data for 2014/15–2016/17. The study team had limited data on the characteristics of these participants and had no data on their certification or employment outcomes. These participants were not included in the main analyses examining certification or employment outcomes. This is a major limitation of the study (see more discussion of this issue in the limitations section).

Because the available data did not allow for systematic identification of teacher experience or their early career or new teacher status, the study team, in consultation with the Louisiana Department of Education, applied a set of criteria to exclude from the sample of 468 matched records the records of participants who were likely to have been experienced and certified teachers while they were participating in the Believe and Prepare pilot program and teachers with an inconclusive level of experience based on available certification and employment records. That left 336 participants in the sample of early career participants whom the study team considered likely to have been pursuing initial certification while they were participating in the program (see appendix B for inclusion and exclusion criteria). The sample of 336 participants served as the main analytic sample for the remaining research questions. Due to the differences in data availability and the nature of the research questions, the samples of early career Believe and Prepare pilot participants differed across the remaining research questions, ranging from 245 to 336. Research question 4b, comparing the retention and characteristics of early career Believe and Prepare teachers with those of other early career teachers in Louisiana, also included 10,275 other early career teachers in the state who did not participate in the Believe and Prepare pilot program. See appendix B for details on how each of the samples was constructed.

Methods. For research question 1 the study team examined the distribution of all participants, including those early in their career, across teacher preparation programs, districts, and schools. The study team compared the characteristics of the districts and schools that participated in the Believe and Prepare pilot with those of all districts and schools in the state. Group differences of 5 percentage points or greater were considered meaningful and are presented in the main report.

For research question 2 the study team first identified early career Believe and Prepare pilot program participants who attained a Level 1 professional certificate between 2015/16 and 2017/18 and calculated the distribution of certificates by subject. For research question 3 the study team identified early career Believe and Prepare pilot program participants who entered teaching for the first time between 2015/16 and 2018/19 and calculated the distribution of the courses they taught, by subject, in their first year of employment. For research questions 2a and 3a the study team used multilevel logistic regression models (with teachers nested in schools and schools nested in districts) to examine whether the probability of attaining a Level 1 professional

certificate and the probability of entering teaching were associated with characteristics of the schools (locale, type, charter school designation, and student demographics) in which participants served their residency.

For research question 4 the study team calculated the percentages of early career Believe and Prepare pilot participants who entered teaching between 2015/16 and 2017/18 and who were retained to teach for a second year in the state, in the same district, or in the same school. The study team also calculated retention rates for these teachers by subject or subjects taught. For research question 4a the study team used multilevel logistic regression models to examine whether the retention of Believe and Prepare teachers was associated with characteristics of the teachers (race/ethnicity, gender, highest level of education, whether they attained initial certification) and characteristics of the schools in which they were first employed. For research question 4b the study team compared early career Believe and Prepare teachers with other early career teachers in the state on rates of retention, teacher characteristics, and average demographic characteristics of districts and schools of employment. The study team applied chi-square tests for categorical school, district, and teacher characteristics and retention rates and applied *t*-tests for continuous variables to determine whether differences between the two groups of teachers were statistically significant.

For research question 5 the study team calculated the percentages of early career Believe and Prepare teachers who were employed in the districts and schools in which they served their residency. For research question 5a the study team compared the unadjusted retention rates of early career Believe and Prepare teachers who were employed in the schools in which they served their residency and of those who gained employment in other schools in Louisiana. The study team also examined whether retention in the first school of employment differed between the two groups by including a variable in the regression models for retention (see research question 4a) indicating whether the teacher was employed in the school of residency.

Findings for all Believe and Prepare pilot participants

This section summarizes the distribution of all 713 participants in the Believe and Prepare pilot program by their teacher preparation programs and districts and schools of residency.² Appendix C provides supporting analyses.

A majority of Believe and Prepare pilot participants were enrolled in a university-based teacher preparation program

Across the three pilot cohorts, 653 participants were enrolled in 27 distinct teacher preparation programs.³ Of these, 496 participants (76 percent) were enrolled in university-based programs (see figure C1 in appendix C).⁴ The five programs with the highest number of pilot participants were all university-based programs, which enrolled almost half of participants. The remaining half were distributed across 15 university-based programs and 7 alternate programs that were not based in universities, and 9 of these 22 programs had 10 or fewer participants.

Districts in which Believe and Prepare pilot participants served their residency had higher student enrollment and a higher percentage of economically disadvantaged students on average compared with all districts in the state

Across the three pilot cohorts, 703 participants served a residency in 45 school districts.⁵ These districts had higher student enrollment (9,914 students) and a higher percentage of economically disadvantaged students (74 percent) on average than the statewide district averages (8,922 students and 69 percent economically

2. The samples for specific analyses varied because of missing data.

3. Teacher preparation program data were missing for 60 (8 percent) of the 713 participants.

4. This includes both undergraduate programs and university-based alternate programs. Although the Louisiana Department of Education indicated that the Believe and Prepare pilot program was targeted primarily at candidates in undergraduate programs, the data provided to the study team did not distinguish between an undergraduate program and an alternate program based in the same college or university.

5. District of residency data were missing for 10 (1 percent) of the 713 participants. Louisiana had 78–81 school districts between 2014/15 and 2016/17.

disadvantaged students; see table C1 in appendix C). The number of pilot participants per district ranged from 1 to 60 (see figure C2 in appendix C). The five districts with the highest number of Believe and Prepare participants in a residency together accounted for 40 percent (273) of participants.

Schools in which Believe and Prepare pilot participants served their residency had higher student enrollment and a higher percentage of racial/ethnic minority students on average and were more likely to be urban schools and charter schools compared with all schools in the state

Across the three pilot cohorts, 642 participants served a residency in 217 schools.⁶ These schools had higher enrollment (643 students) and a higher percentage of racial/ethnic minority students (67 percent) on average than the average for all schools in the state (529 students and 59 percent racial/ethnic minority students; see table C2 in appendix C). Participants' schools of residency also included a higher percentage of city schools (40 percent), a lower percentage of rural schools (22 percent), and a higher percentage of charter schools (14 percent) than the statewide averages (25 percent urban, 32 percent rural, and 7 percent charter schools; see figure C3 in appendix C). The number of participants per school ranged from 1 to 24. A large majority of these schools (91 percent) had between one and five Believe and Prepare participants serving in a residency. Schools with just one Believe and Prepare participant were the most common (43 percent).

Findings for early career Believe and Prepare pilot participants with certification or employment records

This section presents findings related to certification, employment, and retention for the 336 Believe and Prepare pilot participants who met the study criteria to be designated as early career pilot participants (see box 2 and appendix B).⁷ Appendix C provides supporting analyses.

About 30 percent of early career Believe and Prepare pilot participants who attained a Level 1 professional certificate between 2015/16 and 2017/18 were certified in a high-need subject

Among early career Believe and Prepare pilot participants,⁸ 15 percent earned a Level 1 certificate in special education, 12 percent in secondary math or science, and 6 percent in middle grades math or science (figure 1).⁹ The most frequently attained Level 1 certificate among early career Believe and Prepare pilot participants was elementary education, which at 48 percent of the total was almost two and a half times greater than the next most frequent subject, English language arts/social studies for secondary grades (20 percent).

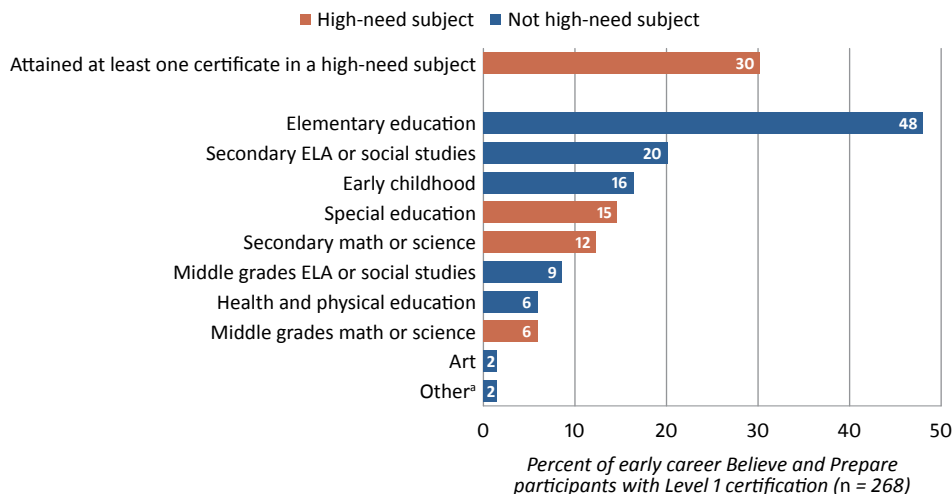
6. Identifiers for school of residency were missing for 71 (10 percent) of the 713 participants. Louisiana had 1,342–1344 schools between 2014/15 and 2016/17.

7. The samples for specific analyses differed due to differences in data availability and the nature of the research questions addressed.

8. The sample included 268 early career Believe and Prepare pilot participants with records of attaining a Level 1 professional certificate between 2015/16 and 2017/18. The sample excluded early career Believe and Prepare pilot participants who could not be matched to certification or employment records and therefore whose certification status could not be ascertained. Among the 268 participants, 127 (47 percent) were first awarded a practitioner license and subsequently earned a Level 1 professional certificate, and 141 (53 percent) attained the Level 1 professional certificate as their first certification.

9. According to a more recent statewide report (Louisiana Department of Education, n.d.), 17 percent of teachers in Louisiana public schools who completed an undergraduate teacher preparation program in the state from 2017/18 through 2019/20 obtained certification in a high-need subject, and 34 percent of teachers who completed an alternate teacher preparation program in Louisiana from 2017/18 through 2019/20 obtained certification in a high-need subject. The data available to the study team did not indicate whether candidates were from an undergraduate or an alternate program, so certification could not be examined using the same methods as those reported by the Louisiana Department of Education.

Figure 1. About 30 percent of early career Believe and Prepare pilot participants who attained a Level 1 professional certificate between 2015/16 and 2017/18 were certified in a high-need subject



ELA is English language arts.

Note: Percentages sum to more than 100 percent because teachers could earn certificates in multiple subjects. High-need subjects are those identified by the Louisiana Department of Education. Foreign languages and music are not displayed because of the small number of teachers.

a. Includes agriculture, computer science, family and consumer science, dance, business education, journalism, marketing, and technology education.

Source: Authors' analysis of data provided by the Louisiana Department of Education.

The probability of early career Believe and Prepare pilot participants attaining a Level 1 professional certificate was associated with two characteristics of the school in which participants served their residency

Grade level and charter school designation of early career Believe and Prepare pilot participants' school of residency were associated with the probability of participants attaining a Level 1 professional certificate. Participants who served a residency in a primary school had a greater probability (by 11 percentage points) of attaining a Level 1 certificate than participants who served a residency in a nonprimary school, after other school characteristics were adjusted for (see tables C3 and C4 in appendix C). Participants who served their residency in a charter school had a lower probability (by 24 percentage points) of attaining a Level 1 certificate than participants who served their residency in a noncharter school. Louisiana does not require teachers in charter schools to be certified (Louisiana Department of Education, 2015b).¹⁰ The different certification requirements for noncharter and charter schools could explain the association between charter school designation and certificate attainment.

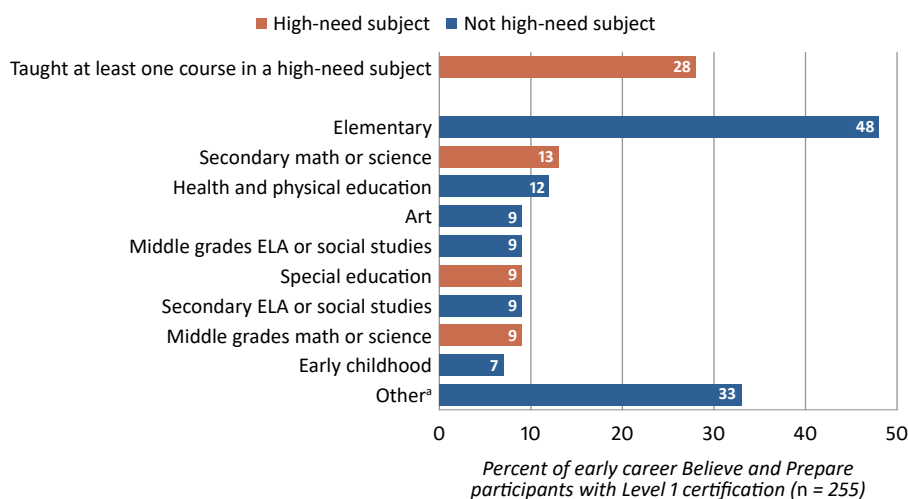
10. Of the 336 early career Believe and Prepare pilot participants in the sample, 60 (18 percent) served their residency in a charter school. Charter schools in Louisiana may allow teachers to continue to teach while holding a practitioner license or without any certificate. Most charter schools have minimum degree requirements and other rules for teachers of core subjects. In noncharter public schools the practitioner license provides a temporary certification of up to three or four years while teachers earn a professional certificate.

About 28 percent of early career Believe and Prepare pilot participants who entered teaching in Louisiana public schools between 2015/16 and 2018/19 taught at least one course in a high-need subject in their first year of teaching

Among these early career Believe and Prepare pilot participants,¹¹ 13 percent taught secondary math or science, 9 percent taught special education, and 9 percent taught middle grades math or science (figure 2).¹² About 48 percent of early career Believe and Prepare teachers taught an elementary course in their first year of teaching.

None of the characteristics of schools of residency examined in this study was related to the probability of early career Believe and Prepare pilot participants entering teaching in a Louisiana public school (see table C5 in appendix C).

Figure 2. A majority of early career Believe and Prepare pilot participants who entered teaching between 2015/16 and 2018/19 did not teach in a high-need subject in their first year of teaching



ELA is English language arts.

Note: Percentages sum to more than 100 percent because teachers could teach multiple subjects within a school year. Foreign languages; music; speech; elementary ELA; and all grades ELA, math, science, and social studies are not displayed in the figure because of the small number of teachers.

a. Includes business, health occupations, trade and industry, family and consumer science, technical, general career and technology education, and journalism.

Source: Authors' analysis of data provided by the Louisiana Department of Education.

11. The sample included 255 early career Believe and Prepare pilot participants with records of entering teaching in Louisiana public schools between 2015/16 and 2018/19. The sample excluded early career Believe and Prepare pilot participants who could not be matched to certification or employment records. Those who were excluded might or might not have entered teaching in Louisiana. This sample of 255 participants did not include 58 early career Believe and Prepare pilot participants who were already teaching in 2014/15. Among those 58 participants, 21 (36 percent) taught in a high-need subject, and 50 (86 percent) continued to teach in Louisiana public schools for at least one additional year between 2015/16 and 2017/18.

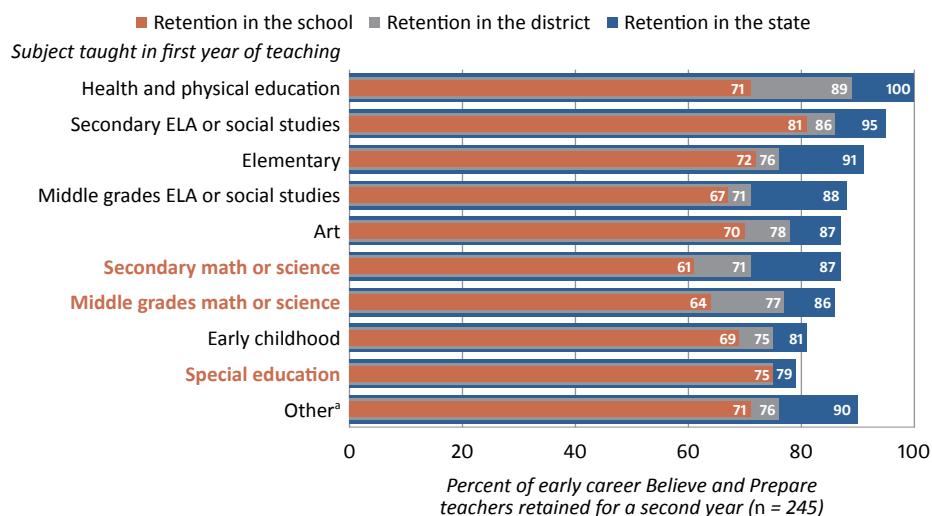
12. By comparison, 30 percent of early career teachers in the state who did not participate in the Believe and Prepare pilot program taught courses in high-need subjects in their first year of teaching.

About 89 percent of early career Believe and Prepare teachers who entered teaching between 2015/16 and 2017/18 were retained in the state for a second year of teaching

Of the 245 early career Believe and Prepare teachers who entered teaching in Louisiana public schools between 2015/16 and 2017/18, 186 (76 percent) were retained in the same district for a second year of teaching, and 174 (71 percent) in the same school (see figure 5 later in the report).¹³

The highest and lowest retention rates in the state, district, and school by subject varied by 18–20 percentage points. High-need subjects had among the lowest within-state retention rates, with special education having the lowest rate (79 percent), followed by middle grades math and science (86 percent) and secondary math and science (87 percent; figure 3). Math and science had among the lowest within-district and within-school retention rates as well. However, special education teachers, despite having the lowest within-state retention rate, had among the highest within-school retention rates. These findings suggest that special education early career Believe and Prepare teachers who remained teaching in Louisiana after their first year tended to stay in the same school.

Figure 3. Retention of early career Believe and Prepare teachers who entered teaching in 2015/16–2017/18 in the school, district, or state varied by subject taught



ELA is English language arts.

Note: High-need subjects are shown in red. Figure shows the percentage of teachers who taught a particular subject and returned to teach in the same school, district, or state in the second year, regardless of the subject taught in the second year. Percentages sum to more than 100 percent because teachers could teach more than one course in a school year. Foreign languages; music; speech; elementary ELA; and all grades ELA, math, science, and social studies are not displayed in the figure because of the small number of teachers.

a. Includes business, health occupations, trade and industry, family and consumer science, technical, general career and technology education, and journalism.

Source: Authors' analysis of data provided by the Louisiana Department of Education.

13. The sample included 245 early career Believe and Prepare pilot participants with records of entering teaching in Louisiana public schools between 2015/16 and 2017/18. The analytic sample for retention rates excluded 10 participants who entered teaching in 2018/19. Because the study team had access to employment records only through 2018/19, retention outcomes could not be calculated for these 10 participants.

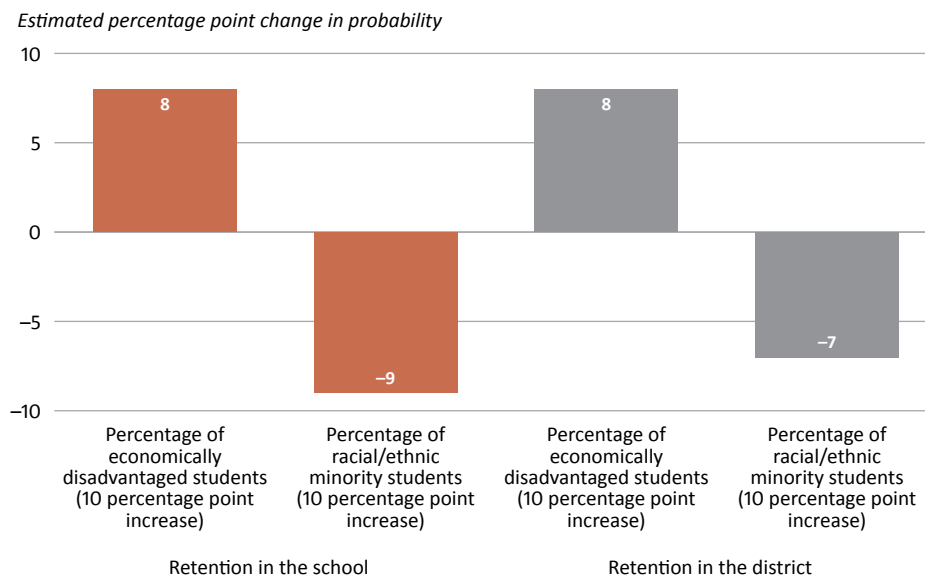
Retention of early career Believe and Prepare teachers within Louisiana was associated with attaining a Level 1 professional certificate

Teachers who attained a Level 1 professional certificate were more likely than teachers who had not attained one to return to teach in the state for a second year. The probability was 13 percentage points higher for early career Believe and Prepare teachers who attained a Level 1 professional certificate than for teachers who did not, after other teacher and school characteristics were adjusted for (table C3 in appendix C).¹⁴

Retention of early career Believe and Prepare teachers within their school or district was associated with school grade level and with the percentage of racial/ethnic minority students and the percentage of economically disadvantaged students in the school or district

Retention in the school or district was associated with three characteristics of the school or district in which a teacher was employed. Teachers employed at a primary school were less likely (by 11 percentage points) to return to the same district in the second year than teachers employed in a nonprimary school (see tables C3 and C6 in appendix C). Teachers employed in a school or district with a higher percentage of economically disadvantaged students were more likely to return to the school or district in the second year, whereas teachers employed in a school or district with a higher percentage of racial/ethnic minority students were less likely to return to the school or district, after other teacher and school characteristics were adjusted for (figure 4).

Figure 4. Retention of early career Believe and Prepare teachers who entered teaching in 2015/16–2017/18 was negatively associated with the percentage of racial/ethnic minority students and positively associated with the percentage of economically disadvantaged students in the school or district



Note: $n = 245$. The values shown indicate the percentage point increase or decrease in the probability of a teacher returning to teach in the second year if the characteristic increases by 10 percentage points. For example, the value of 8 for the percentage of economically disadvantaged students for retention in the school indicates that a teacher's probability of retention in the school increased by 8 percentage points, on average, for every 10 percentage point increase in the percentage of economically disadvantaged students at the school.

Source: Authors' analysis of data provided by the Louisiana Department of Education and publicly available data from the department's Data Center webpage (<https://www.louisianabelieves.com/resources/library/data-center>) and from National Center for Education Statistics (2016, 2017b, 2018, 2019).

14. Thirty-six teachers did not receive a Level 1 professional certificate but returned to teach for a second year; 20 of them (56 percent) taught in charter schools.

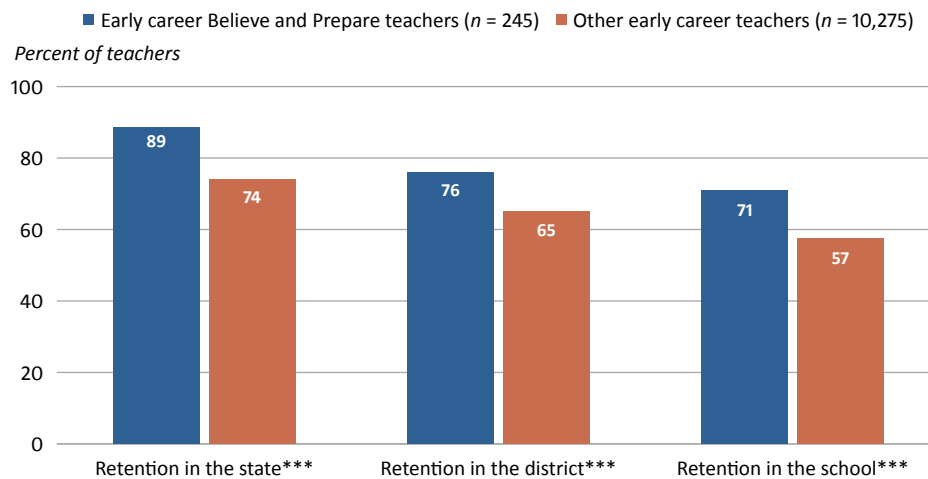
Overall, early career Believe and Prepare teachers had higher retention rates than other early career teachers; however, characteristics varied between the two groups. When only teachers with a Level 1 certificate were considered, retention rates between the two groups were similar

Retention into the second year of teaching in the school, district, and state was higher for the 245 early career Believe and Prepare teachers who entered teaching between 2015/16 and 2017/18 than for the 10,275 other early career teachers in Louisiana who entered teaching in the same years.¹⁵ The differences ranged from 11 percentage points for within-district retention to 15 percentage points for within-state retention (figure 5).

However, the two groups of teachers differed in several ways that could be related to the observed differences in retention rates. Additional analyses suggested that the differences in retention rates between the two groups could be related to the large difference in the proportion of teachers with a Level 1 professional certificate. Some 80 percent of the sample of early career Believe and Prepare teachers attained a Level 1 professional certificate between 2015/16 and 2017/18 compared with 39 percent of other early career teachers in the state.¹⁶ In Louisiana, teacher candidates from alternate programs typically hold a practitioner license for two years (sometimes up to four years) before obtaining a Level 1 professional certificate. The Believe and Prepare pilot program was targeted primarily at undergraduate candidates, and it is likely that a higher percentage of other early career teachers were prepared through alternate programs. Moreover, a larger proportion of other early career teachers (26 percent) than of early career Believe and Prepare teachers (20 percent) in the sample taught in a charter school, and Level 1 certification is not required in charter schools. These differences in composition between the two groups of teachers could account for the difference between the groups in certification.

In both groups, teachers who attained a Level 1 professional certificate had higher within-state and within-district retention rates than those who did not (see figures C4 and C5 in appendix C). The differences in retention rates

Figure 5. Early career Believe and Prepare teachers who entered teaching in 2015/16–2017/18 had higher retention rates into the second year of teaching than other early career teachers in the state



*** indicates that the difference between early career Believe and Prepare teachers and other early career teachers is statistically significant at $p < .001$.

Source: Authors' analysis of data provided by the Louisiana Department of Education.

15. The comparisons of early career Believe and Prepare teachers and other early career teachers in the state are intended to provide descriptive statistics and not causal estimates of the effect of participating in the Believe and Prepare pilot program.

16. During the study period 9 percent of early career Believe and Prepare teachers and 14 percent of other early career teachers in the sample were teaching with a practitioner license and did not subsequently attain a Level 1 professional certificate between 2015/16 and 2017/18. More information on their certification status is provided in appendix C.

between the two groups were not statistically significant when the analysis was limited to either teachers who attained a Level 1 professional certificate or teachers who did not (see figures C6 and C7 in appendix C).

The samples of early career Believe and Prepare teachers and other early career teachers in the state also differed in their demographic and background characteristics and in the characteristics of the schools and districts in which they were first employed:

- Among early career Believe and Prepare teachers there were higher percentages of White teachers (10 percentage point difference) and female teachers (8 percentage point difference) and a lower percentage of teachers with an advanced degree (6 percentage point difference) than among other early career teachers in the state (see figure C8 in appendix C).
- The schools in which early career Believe and Prepare pilot teachers first taught had higher enrollment on average (by 93 students) and a higher percentage of racial/ethnic minority students (by 6 percentage points) than the schools in which other early career teachers taught (see table C8 in appendix C).
- The districts in which early career Believe and Prepare teachers first taught had a lower percentage of racial/ethnic minority students on average than districts in which other early career teachers taught (by 9 percentage points; see table C9 in appendix C). Average enrollment in districts in which early career Believe and Prepare teachers taught was more than twice that in districts in which other early career teachers taught.

A majority of early career Believe and Prepare teachers were first employed in the districts and in the schools in which they served their residency

Among the 245 early career Believe and Prepare teachers who entered teaching in a Louisiana public school between 2015/16 and 2017/18, 181 (74 percent) were first hired to teach in the district in which they served their residency, and 140 (58 percent) were first hired to teach in the school in which they served their residency.

Among the early career Believe and Prepare teachers who were first employed in the school in which they served their residency, 75 percent remained teaching in the same school for a second year, 78 percent remained teaching in the same district, and 88 percent remained teaching in the state (see table C10 in appendix C). Among the early career Believe and Prepare teachers who were not first employed at the school in which they served their residency, 66 percent remained teaching in the same school for a second year, 74 percent remained teaching in the same district, and 90 percent remained teaching in the state. After other teacher and school characteristics were adjusted for, the differences in within-school, within-district, and within-state retention rates between these two groups were not statistically significant (see table C6 in appendix C).¹⁷

Implications

The findings from this study have several implications that the Louisiana Department of Education, district leaders, and teacher preparation providers might want to consider going forward.

Strengthening recruitment and encouraging candidate preparation in high-need subjects and supporting retention once teachers have entered the teaching workforce

Early career Believe and Prepare teachers who taught high-need subjects had the lowest within-state retention rates, and those who taught secondary and middle grades math or science had the lowest within-school retention rates. These findings indicate a continuing challenge for Louisiana in ending chronic teacher shortages in

17. Supplemental analysis found no differences in observed characteristics between schools for Believe and Prepare pilot participants whose school in their first year of teaching differed from their school of residency (see table C11 in appendix C).

these areas, despite the priority that the Louisiana Department of Education has assigned to preparing teachers in high-need subjects (U.S. Department of Education, 2017).

State and district leaders could use prior research on effective strategies for improving teacher recruitment and retention to guide efforts that address school and district needs. For example, prior research has found improved recruitment and retention responses to financial incentives offered to teachers who committed to teaching science, technology, engineering, math, and special education or to teaching in a high-need school (Feng & Sass, 2018; Springer et al., 2016). Research also suggests that strong induction and mentoring support are essential for retaining early career teachers (Donley et al., 2019; Podolsky et al., 2016; Stickney et al., 2019). As another promising strategy for addressing local staffing needs, states and districts are increasingly using “grow-your-own” programs, which leverage partnerships among school districts, teacher preparation programs, and community organizations to recruit local high school students into teaching, and providing high-quality training and supports (Hanover Research, 2019). States and districts could use Every Student Succeeds Act Title II funds and competitive grant funds, such as the Supporting Effective Educator Development program, to boost the recruitment and retention of effective teachers who teach in high-need subjects and grades.

Using residency placement as a tool for increasing the supply of new teachers in high-need schools and districts

Believe and Prepare pilot participants were likely to remain teaching in the same district and school in which they served their residency. These findings were consistent with prior research showing that the location of student teaching is predictive of a teacher’s first teaching job (Krieg et al., 2016). The Louisiana Department of Education could consider supporting high-need district and school efforts to recruit and select candidates for residency who might be likely to remain teaching in the same district or school after completing their residency. For example, the state could offer candidates incentives to serve their residency in a high-need school, guaranteeing them a teaching position if they receive a rating of effective or higher by the end of their residency year.

Learning more about the residency experiences of some groups of early career teachers and developing strategies to support their progress toward certification

The probability of attaining a Level 1 professional certificate was lower for teachers who served a residency in a charter school or nonprimary school. State and district teacher preparation program partnerships could examine the experience of participants who served a residency in different types of schools, such as charter schools and nonprimary schools, and identify factors that might have contributed to their challenges in attaining certification. For instance, some schools might need additional support from the state in choosing and training as mentors teachers who have demonstrated impact on student learning and can model effective practice.

Dedicating resources for data collection to support the use of data for program improvement and accountability

The Louisiana Department of Education could work with teacher preparation providers and school districts to design strategies to collect and validate data on Believe and Prepare program participants at all teacher preparation stages: selection, progression, program completion, and postcompletion. The system of data collection should aim to provide longitudinal data that track participants’ involvement in various teacher preparation experiences (for example, mentoring) and their experience as a new teacher in Louisiana schools. The Louisiana Department of Education and teacher preparation providers could use these data to better understand and evaluate how variations in program design and participant experience affect teacher and student learning outcomes.

Develop strategies to improve teacher retention in schools with a high percentage of racial/minority students and in primary schools

Early career teachers employed in a school with a high percentage of racial/ethnic minority students or those employed in a primary school had a lower probability of retention, after other teacher and school characteristics were adjusted for. Prior research has identified several key factors that contribute to teacher turnover, including lack of administrative support, low salaries, dissatisfaction with testing and accountability pressures, lack of opportunities for advancement, and dissatisfaction with working conditions (Carver-Thomas & Darling-Hammond, 2017). State and district leaders might want to conduct additional investigations to determine the root causes of turnover in those schools and pursue strategies to address the causes.

Limitations

This study has five primary limitations due to data availability and the dynamic nature of pilot programs.

First, data provided by the Louisiana Department of Education did not include random unique identifiers for approximately 34 percent of Believe and Prepare pilot participants. There are several possible reasons. Some records were unmatched because data submitted to the Louisiana Department of Education by the teacher preparation provider or school system did not include a Social Security number or other data necessary to match to the state's personnel records. It is also possible that program records and personnel records did not match because of name changes or errors in data reporting. The matching used only personnel data from 2014/15 and 2016/17, which means that any participants who entered teaching in Louisiana after 2016/17 were not matched.¹⁸ The study had limited data on the characteristics of participants who lacked identifiers and no data on their certification and employment outcomes. These participants were not included in the main analyses of certification or employment outcomes (see tables C12–C15 and figure C1 in appendix C for a comparison of pilot participants with identifiers and those without). Because the 34 percent of participants without unique identifiers were excluded from the analytic samples for certification, employment, and retention, the findings for those outcomes might not reflect outcomes for the full population of early career Believe and Prepare pilot participants and should be interpreted with caution. It is likely that some of the participants who lacked identifiers did not attain certification or did not teach in Louisiana.¹⁹ However, any of these participants who eventually became a teacher in Louisiana would have been misclassified as an early career teacher who did not participate in the Believe and Prepare pilot program. Such misclassification could have affected the observed differences between the groups.

Second, during the Believe and Prepare pilot years the program was not limited to teacher candidates who were pursuing initial certification. It served a diverse group that varied in years of experience and certification background. The Louisiana Department of Education wanted to focus the research on new and early career teachers, but the study team and the Louisiana Department of Education did not consider the years of experience variable in the employment data to be reliable. Instead, the study team used data from the certification and employment data files to identify participants who were early in their career. The study team did not apply sampling criteria relative to participants' starting or completion dates of a residency because these data were not available. The sample of early career Believe and Prepare participants therefore may include participants who were teaching or who had attained a Level 1 professional certificate prior to or concurrent with participation in the Believe and Prepare pilot program.

18. This suggests that the subset of cohort 3 participants who completed residency in 2016/17 were matched and assigned an identifier only if they were also employed as a teacher of record in the state during their residency year. This may explain why a relatively larger proportion of cohort 3 participants were not assigned an identifier (see table C12 in appendix C).

19. For context, publicly available data indicate that 30 percent of completers of Louisiana's undergraduate teacher preparation programs in 2015/16 did not enter teaching in Louisiana public schools in 2016/17 (Louisiana Board of Regents, 2019).

Third, the sample sizes for the regression analyses were small, possibly reducing the study's ability to detect an association between a predictor and an outcome. Similarly, the sample sizes for the analyses of retention by subject were also small, so the observed patterns might not hold up in future cohorts.

Fourth, pilot program design and implementation varied across school districts and teacher preparation programs and might have varied across cohorts within the same partnership (teacher preparation providers typically worked with district partners to tailor coursework for preservice teachers to address specific district needs). The study team did not have systematic data on program implementation, such as which local program features participants were exposed to or whether teacher participants had served the full year residency. As such, the findings reflect the average outcomes for participants across pilot cohorts and partnerships. The findings do not provide insights into local program elements or relationships between program design or implementation and outcomes.

Finally, the residency programs implemented by teacher preparation programs in Louisiana after 2016/17 might differ in meaningful ways from the pilot cohorts and sites, as pilot programs have ended or evolved and the residency program has expanded. The findings from this study might not directly apply to current conditions for teacher preparation programs and residency programs in Louisiana.

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