

Understanding the Teacher Pipeline for Indiana's K–12 Public Schools

Leaders at the Indiana Commission for Higher Education and the Indiana Department of Education are concerned about teacher shortages and want a better understanding of the teacher pipeline for the state's K–12 public schools. This study tracked 11,080 students who first enrolled in an Indiana public college or university in 2010/11, 2011/12, or 2012/13 and pursued a bachelor's degree in education at any point in college. Among those entrants 41 percent completed a bachelor's degree in education by 2017/18. Of those degree completers 55 percent earned an initial instructional license, and of those licensed, 69 percent entered teaching in an Indiana public school. Compared with the initial group of students entering education programs, students who completed a bachelor's degree, those who earned an initial instructional license, and those who entered teaching in an Indiana public school were less likely to be from a racial/ethnic minority group or to have been eligible for the national school lunch program in high school. Students who entered an education program in their third year of college or later were less likely to complete a bachelor's degree in education than students who entered in their first year, after other differences in student characteristics and the characteristics of the first college they attended were adjusted for. Students who received an Indiana 21st Century Scholarship in their first year of college or who received financial aid beyond their first year were more likely to complete a bachelor's degree in education, while students who received a Pell Grant were less likely. Finally, students who started at a two-year college and transferred to a four-year college were more likely to complete a bachelor's degree in education than students who started at a four-year college.

Why this study?

Leaders at the Indiana Commission for Higher Education and the Indiana Department of Education are concerned about teacher shortages and want a better understanding of the teacher pipeline for the state's K–12 public schools. Like many states, Indiana has had difficulty attracting college students to the teaching profession and retaining licensed teachers.¹ This study provides state education leaders with comprehensive information on the numbers and characteristics of students who enrolled in an education program in Indiana public colleges and universities, completed a bachelor's degree in education, earned an initial instructional license, and entered teaching in an Indiana public school. The study also enhances their understanding of factors related to completing a bachelor's degree in education (such as student demographic characteristics and characteristics of the college students attended). State and teacher education leaders in Indiana could use the findings to inform the design of policies and strategies to plug leaks in the teacher pipeline and alleviate teacher shortages.

Research questions

This study examined undergraduate students who first enrolled in an Indiana public college or university in 2010/11, 2011/12, or 2012/13 and pursued a bachelor's degree in education at any point in college (entrants). The

1. Aragon, S. (2016). *Teacher shortages: What we know*. Education Commission of the States. <https://eric.ed.gov/?id=ED565893>.

study followed the entrants who graduated from college with a bachelor's degree in education (degree completers), earned a license (completers with a license), and entered the teaching workforce in an Indiana K–12 public school. Students were followed to the 2017/18 school year for college enrollment and degree completion and to the 2018/19 school year for employment in Indiana's K–12 public schools. The study also analyzed students' demographic and background characteristics as well as their high school academic preparation.

The study addressed the following research questions:

1. In which year in college did students who first enrolled in an Indiana public college or university in 2010/11, 2011/12, or 2012/13 enroll in an education program? What were their characteristics?
2. What percentage of these entrants completed a bachelor's degree in education by 2017/18? What were their characteristics?
3. What percentage of degree completers earned an initial instructional license by 2017/18? What were their characteristics?
4. What percentage of degree completers with a license entered teaching in an Indiana K–12 public school by 2018/19? What were their characteristics?
5. What percentage of degree completers with a license who entered teaching remained teaching in an Indiana K–12 public school by 2018/19? How did they perform under their district's teacher evaluation system?
6. Did the proportion of degree completers with a license who entered teaching, their retention rates, or their evaluation results vary by the characteristics of the education program they attended?
7. How were the timing of first enrolling in an education program, individual characteristics, and institutional characteristics related to completing a bachelor's degree in education and completing a bachelor's degree in any field for undergraduate education students, after other student and institutional factors were adjusted for?

This study used longitudinal data for undergraduate education students in the 2010/11–2012/13 cohorts. Additional analysis for research question 1 also included undergraduate education students in the 2013/14–2017/18 cohorts. The study team calculated the percentage of undergraduate education students who completed a bachelor's degree in education, the percentage of degree completers who earned an initial instructional license, and the percentage of those with a license who entered teaching in an Indiana K–12 public school and described the characteristics of students who reached each milestone. For education students who entered teaching in an Indiana public school, the study team also described retention rates and evaluation ratings in their first three years of teaching. Statistical models examined the extent to which completing a bachelor's degree in education was related to individual or institutional characteristics.

Findings

About 84 percent of undergraduate education students in the 2010/11–2012/13 cohorts first enrolled in an education program in their first two years of college

Of the 11,080 students in the 2010/11–2012/13 cohorts who pursued a bachelor's degree in education, 67 percent enrolled for the first time in an education program in their first year of college, and 17 percent did so in their second year. Just 9 percent enrolled in their third year, and 7 percent did so in or after their fourth year.

Students pursuing an education degree were more likely than the population of all students pursuing a bachelor’s degree in any field to be White (88 percent versus 82 percent) and female (73 percent versus 54 percent) and less likely to have passed an Advanced Placement exam in high school (16 percent versus 22 percent).

Fewer than half of undergraduate education students completed a bachelor’s degree in education, and slightly more than half of degree completers earned an initial instructional license by 2017/18

About 41 percent of undergraduate education students in the 2010/11–2012/13 cohorts completed a bachelor’s degree in education by 2017/18, and 55 percent of those degree completers earned an initial instructional license by 2017/18 (figure 1).

Degree completers and those who earned an initial instructional license were more likely than entrants to be female, were less likely to be from a racial/ethnic minority group or to have been eligible for the national school lunch program in high school, had better academic preparation in high school, and performed better in their first year of college.

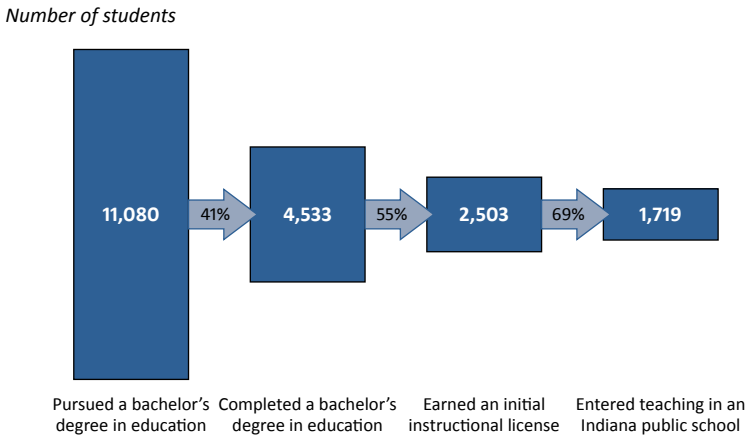
About 69 percent of completers with a license had taught in an Indiana public school for at least one year by 2018/19

About 69 percent of completers with a license had taught in an Indiana public school for at least one year by 2018/19 (see figure 1), and 91 percent of completers with a license who had entered teaching before 2018/19 remained teaching for a second year.

Among completers with a license, those who had completed an education program with a high percentage of racial/ethnic minority students were more likely to enter teaching in an Indiana public school than those who had completed a program with a low or medium percentage of racial/ethnic minority students.

Among completers with a license, those who had completed an education program that required 491–639 hours of student teaching were less likely to enter teaching in an Indiana public school than those who had completed a program that required more or fewer hours of student teaching.

Figure 1. Fewer than half of undergraduate education students in the 2010/11–2012/13 cohorts completed a bachelor’s degree in education by 2017/18



Note: The values shown in the arrows are percentages of the number in the box preceding the arrow.

Source: Authors’ analysis of data provided by the Indiana Department of Education and the Indiana Commission for Higher Education.

After other individual and institutional factors were adjusted for, students who entered an education program before their third year of college, students who did not enroll in remedial English language arts or math courses in college, students who received certain types of financial aid, and students who started at a two-year college were more likely to complete a bachelor's degree in education

Students who first enrolled in an education program in their third year of college or later were less likely to complete a bachelor's degree in education than students who did so in their first year of college.

Students who enrolled in remedial English language arts or math courses were less likely to complete a bachelor's degree in education than students who did not enroll in those courses.

Students who received any financial aid in the first year of college and students who received a Pell Grant were less likely to complete a bachelor's degree in education than students who did not. In contrast, students who received a 21st Century Scholarship in the first year of college and students who received financial aid after the first year of college were more likely to complete a bachelor's degree in education than students who did not.

Students who started at a two-year college and transferred to a four-year college were more likely to complete a bachelor's degree in education than students who started at a four-year college with an admissions competitiveness rating of highly competitive or very competitive.

Implications

To alleviate teacher shortages, state and teacher education leaders in Indiana might want to take measures to stop leaks in the teacher pipeline. Leaks occurred at each step in the pipeline for the 2010/11–2012/13 cohorts: 41 percent of entrants completed a bachelor's degree in education, 55 percent of degree completers earned an initial instructional license, and 69 percent of degree completers with a license entered teaching in an Indiana public school.

This study suggests areas where education leaders could focus their efforts. First, they could prioritize strategies that increase diversity in teacher pipelines. The study found decreasing diversity along the pipeline, which is concerning given an ever-diversifying student body in Indiana. State agencies and colleges and universities in Indiana might adjust existing programs (such as the Next Generation Hoosier Educators Scholarship or the Teacher Residency Grant Pilot Program) to attract more racial/ethnic minority students into education. Second, students from low-income backgrounds might need more support to succeed in education programs. Students who received a Pell Grant and those who started in an Indiana public college or university with a higher concentration of Pell Grant recipients had lower a probability of completing a bachelor's degree in education, other things being equal. Holistic support for students from low-income backgrounds could include increasing financial aid (beyond the Pell Grant and beyond the first year of college) and expanding other support resources, such as the college readiness supports provided by the 21st Century Scholarship program. Finally, colleges might want to encourage students to enroll in an education program early in their college years. Entering an education program in the third year or later was associated with a lower probability of completing a bachelor's degree in education. Colleges can support students early in making informed decisions about majors and advise undergraduate education students on how to balance their content-area coursework with their education coursework.

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