2015 Teacher Education Report – 2015

This report provides a data-driven snapshot of the five teacher education programs in the public university system (i.e., BHSU, DSU, NSU, SDSU, and USD). Data are shown for a variety of performance measures, including student enrollments, academic performance, degree completions, graduate placement, and labor force outcomes.

*** Special Data Analysis ***

Teacher Education Report

As the producer of the lion's share of teacher education graduates in the state of South Dakota, the public university system faces considerable pressure to ensure the availability of an adequate teacher workforce.[1] These pressures have intensified in recent years in light of escalating public concerns about teacher shortages in South Dakota and beyond. In this context, the current analysis compiles a range of candidate, graduate, and labor force data in an effort to size up the performance of the public university system's teacher education programs.

Data Notes

Data for this analysis are collected from a variety of sources. Data on student enrollments, academic performance, and degree completions are provided by Regents Information Systems (RIS). Graduate placement outcomes are derived from data gathered from the South Dakota Department of Labor and Regulation (SDDLR) and the National Student Clearinghouse (NSC) in support of SDBOR's annual graduate placement analysis.[2] School district-level employment records, which allow for the analysis of teacher placement and retention, are supplied by the South Dakota Department of Education (SDDOE). Finally, labor force data (e.g., employment rates, earnings) are generated using one-year American Community Survey (ACS) Public Use Microdata Sample (PUMS) files offered by the US Census Bureau.

Note that, for references to US Census Bureau data, reported figures are based on self-reported survey responses, and thus are subject to the same sources of sampling and non-sampling error associated with any other type of survey research. Accordingly, these figures should be understood as estimates, not hard counts.

[1] Data reported by SDDOE indicate that the public university system produces roughly three-quarters of the state's teacher education graduates in a typical year.

[2] For more information about these data, see https://sdbor.edu/theboard/agenda/2015/December/5_N_BOR1215.pdf

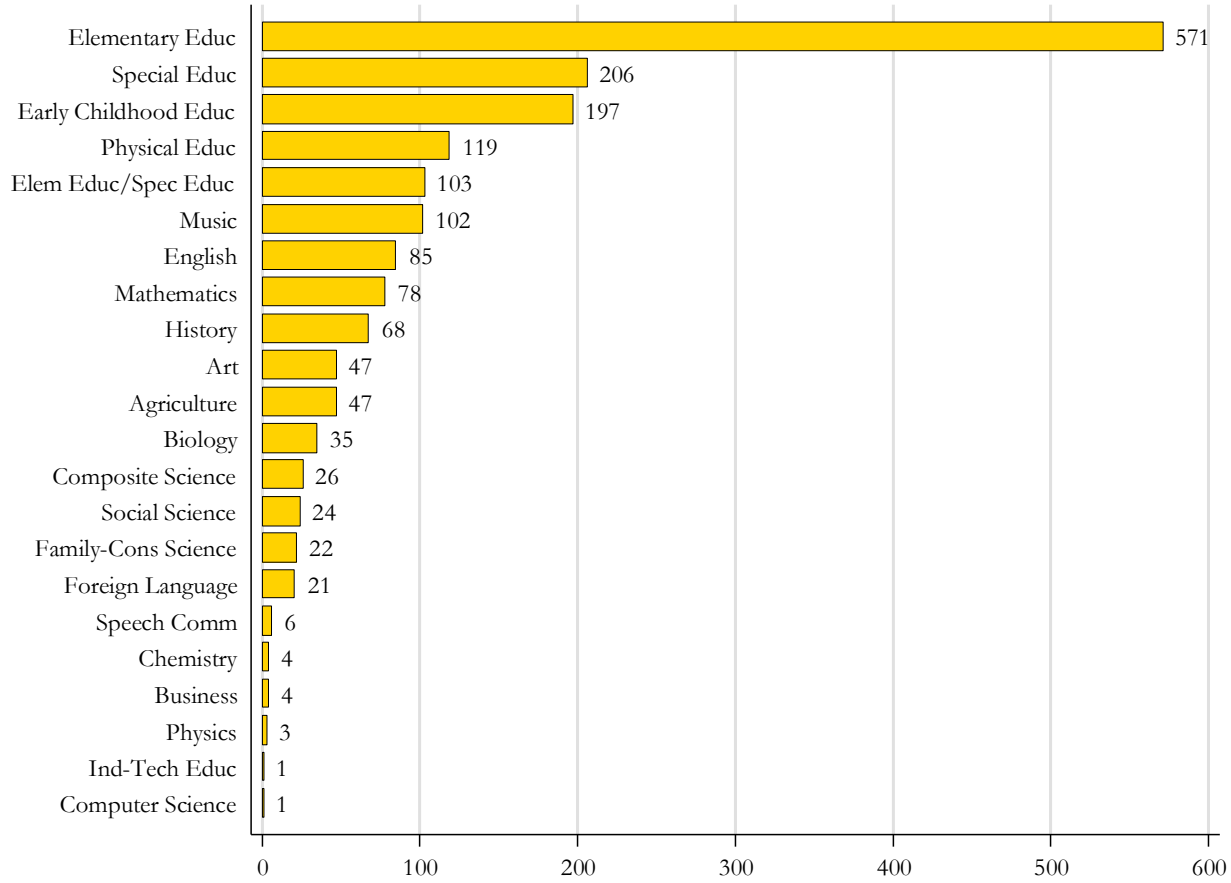
Analysis

Candidates

The teacher labor force begins with a pipeline. Accordingly, Figure 1 provides a summary of current teacher education candidates in the university system by field of study.[3] Teacher education "candidates" include those students who have been formally admitted to a teacher education program after meeting all institutional requirements.[4] For undergraduates, candidacy usually is not awarded until certain coursework prerequisites have been satisfied. Consequently, the annual candidate pool is populated mostly by upperclassmen whose entry to the workforce is imminent.

As seen in Figure 1, the five largest fields of study for candidates in 2014-2015 were elementary education (*n*=571 candidates), special education (*n*=206), early childhood education (*n*=197), physical education (*n*=119), and elementary education / special education (*n*=103). This "top five" group is similar to those recorded in past years. During the most recent year, candidates were most numerous at SDSU (*n*=479), followed by BHSU (*n*=460), USD (*n*=442), NSU (*n*=235), and DSU (*n*=154).

Figure 1
Undergraduate Candidates by Field of Study



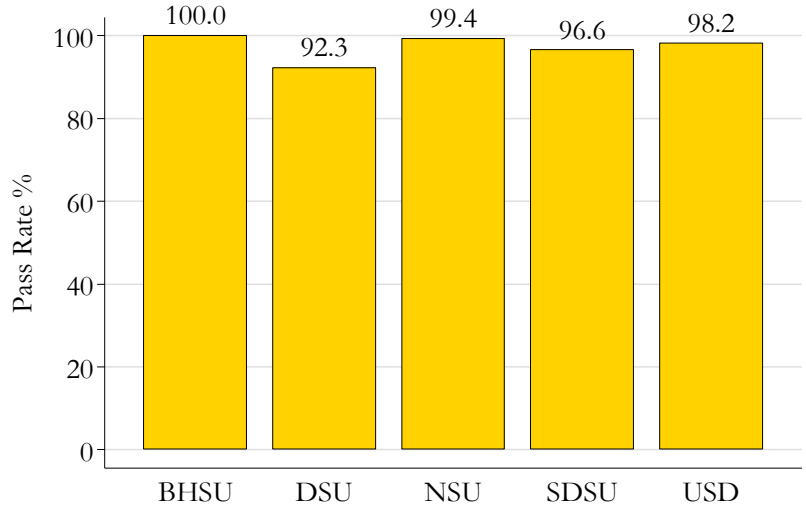
[3] Each student is counted once per institution per content area.
[4] Additional information about the curricular structure of teacher education programs in the university system is provided in Appendix A. Figure 1 includes candidates from all bachelor's degree types (e.g., B.A., B.S., B.S.Ed.).

Academic Performance

As one prerequisite for state certification, applicants in South Dakota must earn passing scores on certification exams for their certification area(s). Candidates applying for initial certification are required to meet qualifying scores on the appropriate Praxis II Subject Assessment(s) and Praxis II Principles of Learning and Teaching (PLT) test(s) that most closely correspond to their anticipated area(s) of instruction.[5] Scoring data from these examinations are useful in gauging student learning outcomes for teacher education candidates.[6]

Teacher education candidates' Praxis II outcomes for 2014-2015 are illustrated below.[7] Thirty-seven different Praxis II examinations were administered to university system students during the academic year, an assessment effort that produced 1,077 individual test scores. In Figure 2, institutional pass rates (i.e., the percentage of students meeting SDDOE-established cut scores) are shown for all Praxis II test takers. It can be seen that Praxis II pass rates ranged from 100.0 percent (BHSU) to 92.3 percent (DSU). The system-wide cumulative pass rate was 98.0 percent. In general, these pass rates have remained stable over the last five years.

Figure 2
Praxis II Pass Rates



[5] Praxis II exams are administered by the Educational Testing Service (ETS). ETS offers a wide variety of targeted Subject Assessments – which measure subject-specific teaching skills and knowledge – in a range of content areas (e.g., biology, geography, theatre). Principles of Learning and Teaching (PLT) tests measure general pedagogical knowledge at four different grade levels: Early childhood, K-6, 5-9, and 7-12.

[6] Praxis II exams are designed to measure learning that occurs during postsecondary study. However, the *entering* academic ability of teacher education candidates is also worth noting. For example, ACT data for all university system students indicate that teacher education candidates tend to score similarly to the general student population on all ACT measures. An analysis of data from the most recent year shows that the difference in average ACT composite scores between candidates (22.5) and the general population (22.9) was marginal.

[7] Analyzed data include all Praxis scores generated during the most recent year; for students with multiple records on a single test, the highest score was retained. It is important to note that students who are unsuccessful on an initial Praxis attempt often will pass on a subsequent attempt. Further, many candidates will – for a variety of reasons – attempt Praxis exams outside their major content areas. Overall then, these figures (high as they are) are sure to understate the rates of terminal success experienced by candidates taking Praxis exams in their primary preparation areas.

Graduates and Placement

Each year, a joint effort is undertaken by SDBOR and SDDOE to examine the extent to which graduates from regental undergraduate teacher education programs are hired by in-state school districts following graduation. A roster of all undergraduate teacher education degree completers since FY2002 is matched against SDDOE beginning-of-year employment records since FY2003. This process allows SDBOR research staff to analyze the in-state placement outcomes of university system graduates for every year following graduation. Because the dataset is cohort-based, incrementally more data are available for earlier graduates each year.

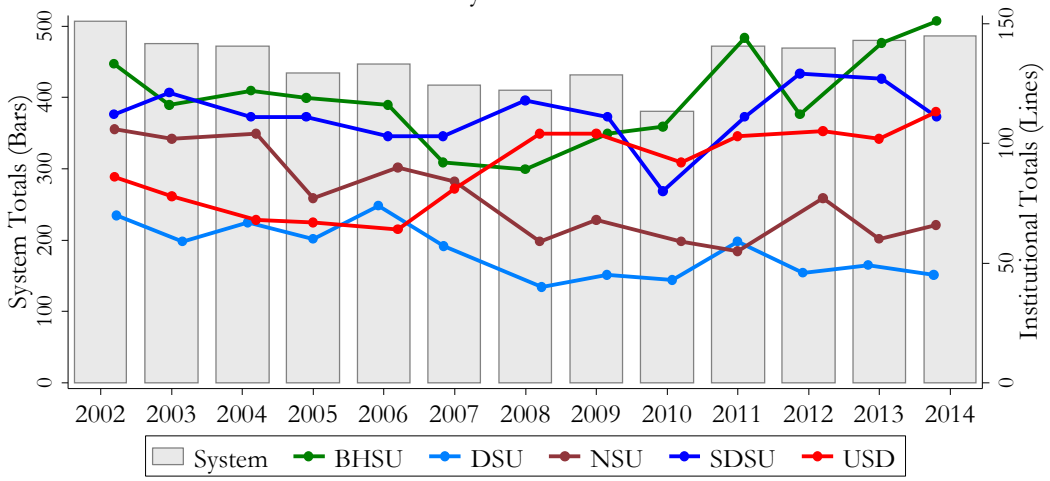
Graduates

A total of 5,883 students have completed an undergraduate degree at one of the five regental teacher education programs since FY2002.[8] Table 1 indicates that the university system produced 486 teacher education degree completers in FY2014, up slightly from 480 in FY2013. Figure 3 shows that while the total number of degree completers fell slowly during the first decade of the 2000s, the system has experienced a resurgence of graduates since FY2011.

Table 1
Graduates by Year and Institution

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
BHSU	133	116	122	119	116	92	89	104	107	144	112	142	151
DSU	70	59	67	60	74	57	40	45	43	59	46	49	45
NSU	106	102	104	77	90	84	59	68	59	55	77	60	66
SDSU	112	121	111	111	103	103	118	111	80	111	129	127	111
USD	86	78	68	67	64	81	104	104	92	103	105	102	113
System	507	476	472	434	447	417	410	432	381	472	469	480	486

Figure 3
Graduates by Year and Institution



[8] In a small number of cases, data used in this report are duplicated across multiple institutions. For example, a student completing separate teacher education degrees at BHSU and NSU (either in the same year or in different years) will be counted twice. For students completing multiple degrees at one institution, only the first record is analyzed. Data include undergraduate degree completers only.

Placement

Matched data from SDDOE indicate that approximately half (53.8 percent) of all undergraduate teacher education graduates since FY2002 have been placed in an in-state school district.[9] As seen in Figure 4 and Table 2, in-state placement rates are dramatically higher among graduates who originally matriculated from a South Dakota high school (i.e., 65.1 percent for in-state students versus 30.7 percent for out-of-state students). By institution, DSU has produced the highest placement rates for both in-state and out-of-state students alike since FY2002.

Figure 4
Placement Rates by High School State of Teacher

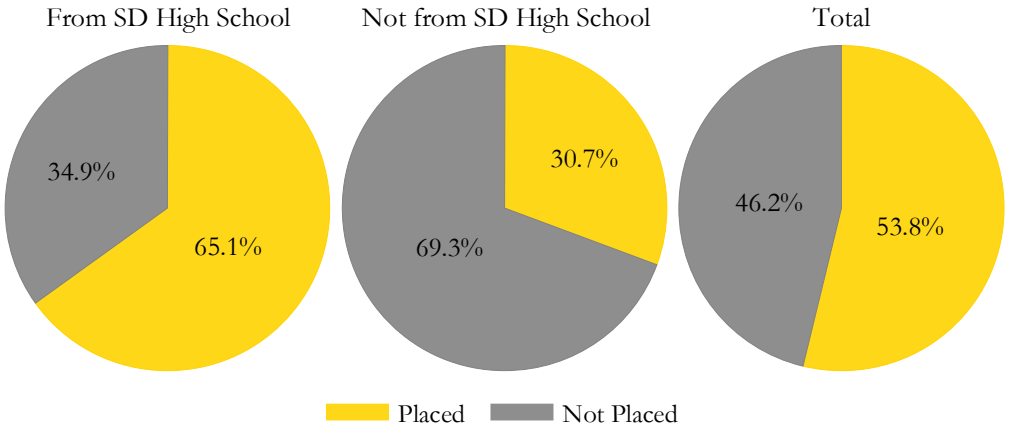


Table 2
Placement Rates by Institution and High School State of Teacher
(Percentages)

	From SD High School			Not from SD High School			Total		
	Placed	Not Placed	Total	Placed	Not Placed	Total	Placed	Not Placed	Total
BHSU	66.1	33.9	100.0	30.8	69.2	100.0	51.7	48.4	100.0
DSU	76.6	23.4	100.0	44.6	55.4	100.0	69.2	30.8	100.0
NSU	69.1	30.9	100.0	30.5	69.6	100.0	60.7	39.3	100.0
SDSU	53.6	46.4	100.0	24.0	76.0	100.0	44.3	55.7	100.0
USD	66.5	33.5	100.0	32.5	67.6	100.0	53.3	46.7	100.0
System	65.1	34.9	100.0	30.7	69.3	100.0	53.8	46.2	100.0
(n)	2,575	1,381	3,956	5,92	1,335	1,927	3,167	2,716	5,883

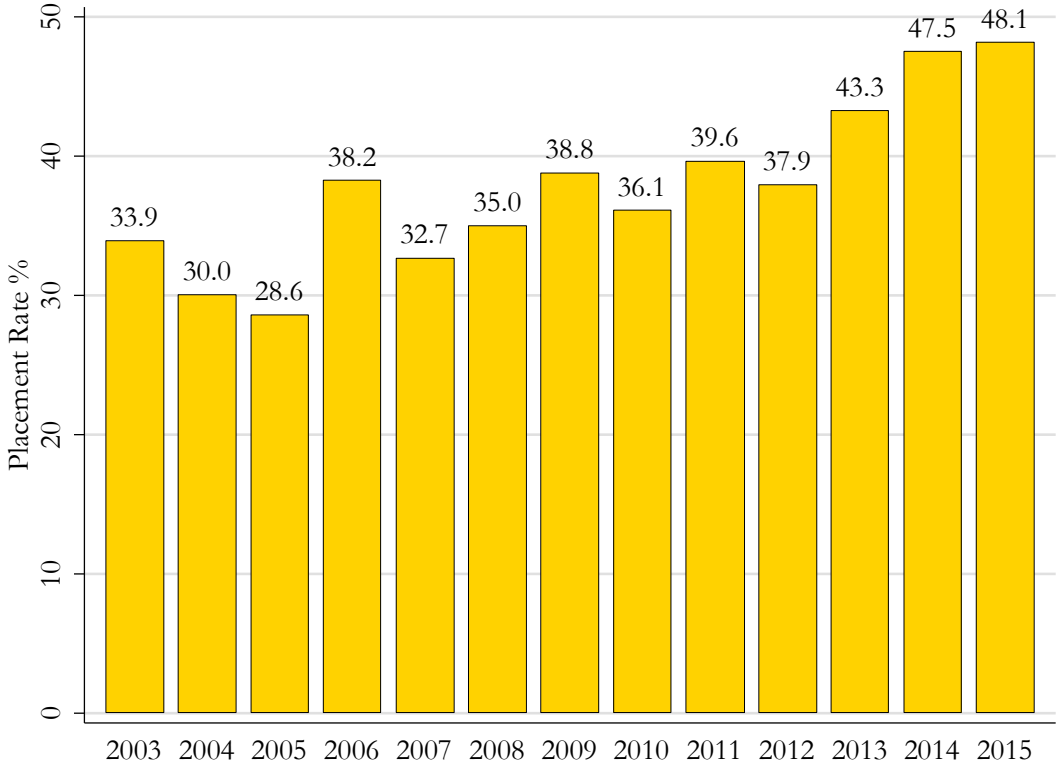
It is important to note that the placement rates cited here refer only to the proportion of teacher education graduates who are hired by in-state school districts. Placement rates do not include graduates who may have been hired by an out-of-state school district, hired by an educational organization other than a school district, hired outside the field of education, or entered graduate school. "Placement rate" should not be interpreted as an equivalent to "employment rate."

[9] This figure reflects the proportion of students who have been placed in an in-state school district in *any* year following graduation. See below for analysis of *first year* placements. It is important to keep in mind that cohorts have spent unequal amounts of time on the job market.

First-Year Placement

To what extent do regental teacher education graduates find work in South Dakota school districts *immediately* after college? Figure 5 below examines first-year placements by cohort, and indicates that graduates have been increasingly successful in securing in-state positions immediately following college graduation.[10] A decade ago, only about one third of university system graduates were placed in in-state districts one year after graduation. As of the most recent year, this rate stands at 48.1 percent. This trend is strongly suggestive of a changing K-12 teaching labor market in South Dakota.

Figure 5
First-Year Placement Rates by Cohort



Across all graduating cohorts in this analysis, 37.7 percent of university system graduates were placed in a South Dakota school district during the first school year following graduation. Over this time, DSU has recorded the highest first-year placement rate (49.2 percent), followed by NSU (42.3 percent), BHSU (37.9 percent), USD (36.8 percent), and SDSU (29.4 percent).

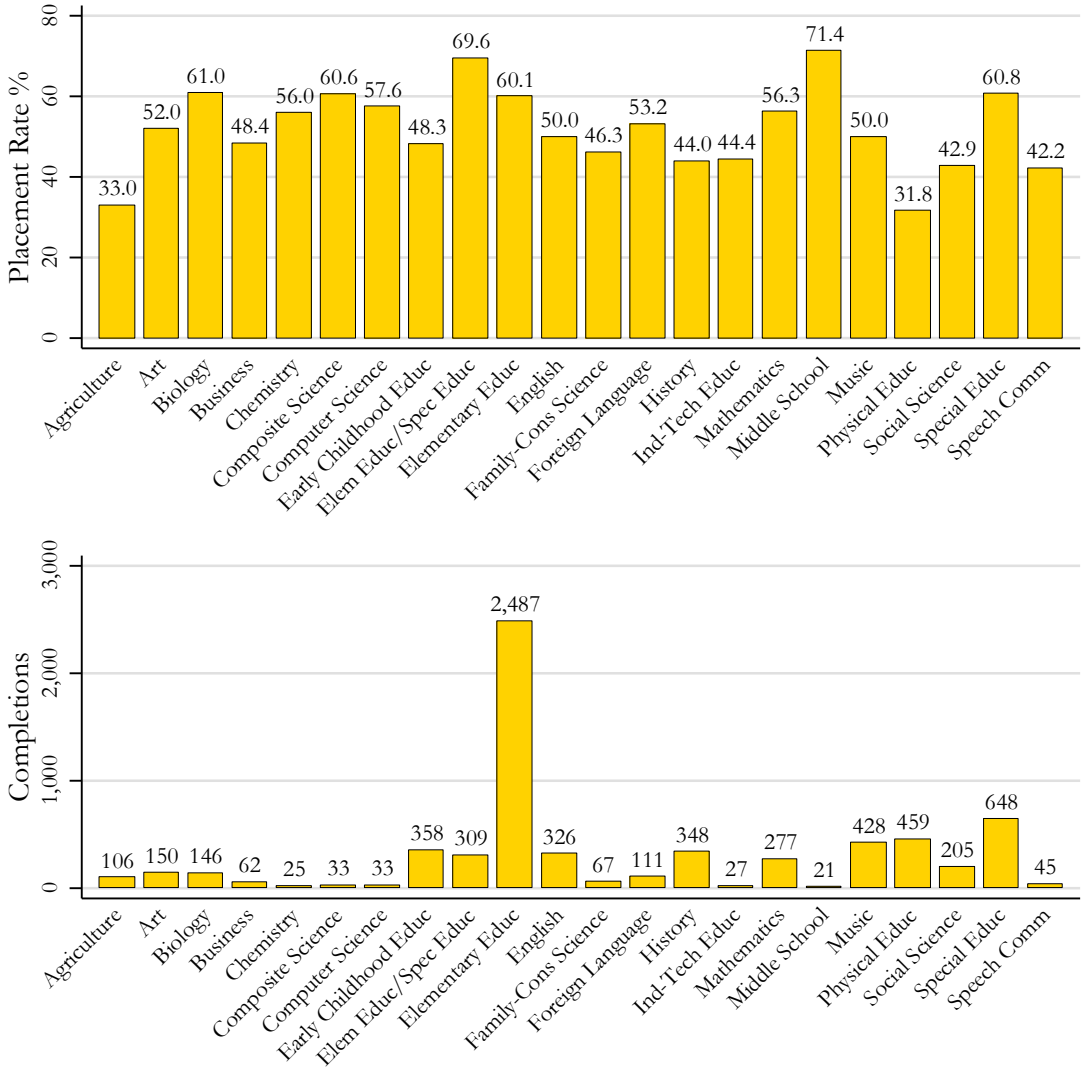
[10] Year values shown in graph refer to the school year of placement, not year of graduation (contrast with Figure 3).

Placement by Discipline

Figure 6 presents placement data by major field, and shows that several areas generated placement rates exceeding 60.0 percent.[11] These fields include middle school (71.4 percent), elementary education / special education (69.6 percent), biology (61.0 percent), special education (60.8 percent), composite science (60.6 percent), and elementary education (60.1 percent). Care must be taken when examining these data, since – as shown in the lower half of Figure 6 – these major areas have dissimilar numbers of completers over the analyzed timespan.

Figure 6
Placement Rates and Completions by Major Field

[11] Students with multiple majors are counted once per major. Only areas with at least ten graduates are shown. Placement rates reflect placements in any year following graduation.



Persistence to Entry

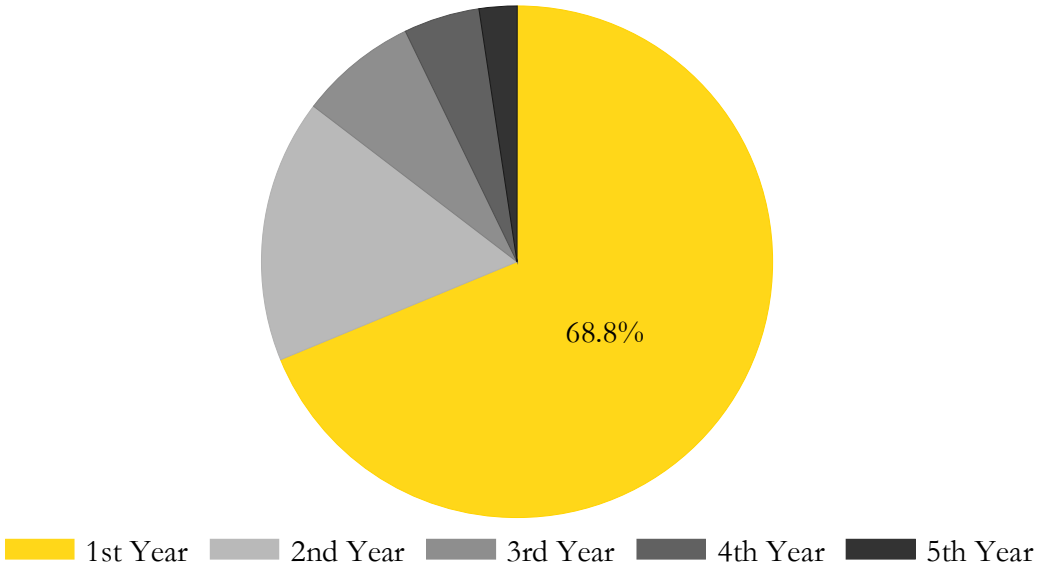
The placement rates presented above offer a snapshot of the placement outcomes of regental teacher education program completers. However, also of interest is the degree to which these graduates 1) persist in seeking entry into the education workforce and 2) remain in the workforce once hired. Accordingly, Figures 7, 8, and 9 explore persistence and retention data for nine cohorts (FY2002-FY2010) of degree completers.[12]

Figure 7 examines the timing of graduates' in-state placements. Specifically, this figure arrays all placed teacher education graduates – from cohorts graduating in FY2002-FY2010 – by year of initial in-state placement. This graph indicates that 68.8 percent of placed teacher education graduates were initially hired in the first subsequent academic year, while an additional 8.4 percent were initially hired during the second year after graduation. These data suggest that while most graduates who

[12] These are the cohorts for which five years of placement data are available.

eventually will be hired by an in-state school district do so during the first year after graduation, a substantial segment do so in one of the following years. In fact, roughly 3 in 10 graduates placed within five years received their first placement during years two, three, four, or five.

Figure 7
Year of Initial Placement for Placed Graduates*



Retention

Figures 8 and 9 display retention data for the same cohorts described above (FY2002-FY2010), and more specifically, for those graduates from the above cohorts who were placed during the initial year of placement eligibility. [13] Figure 8 shows attrition trends for teachers during the first five years following initial placement. Across all cohorts examined, roughly 88.5 percent of teachers returned for a second year of teaching. By the fourth year after initial placement, nearly three-quarters of graduates still were employed in in-state school districts.

Figure 8
Retention of Graduates Placed in First Year

[13] In both figures, data refer to retention in *any* in-state school district, not necessarily the district of initial placement.

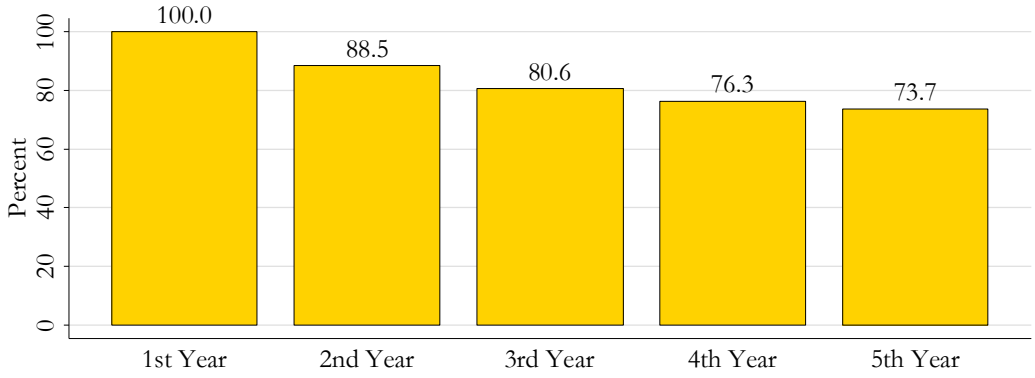
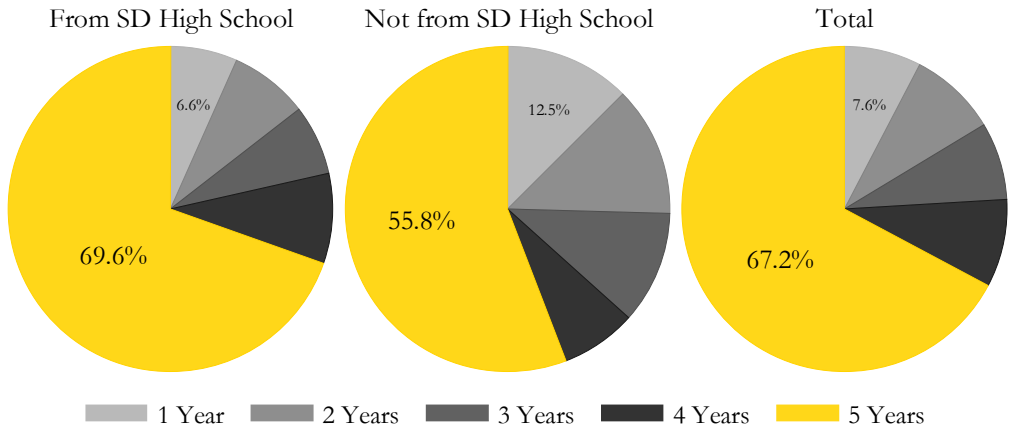


Figure 9 presents an alternate measure of retention: the total number of years taught within five years of initial placement. The right-most pie shows that, of teachers placed during the first year after graduation, the majority – 67.2 percent – remained in an in-state teaching position for all five of the subsequent five years. Less than ten percent of teachers placed in the first year remain in a teaching position in South Dakota for only one year. Data further suggest that retention tends to be higher for teachers who originally came from South Dakota.

Figure 9
Years Taught Within Five Years of Initial Placement, by High School State of Teacher



Geographic Distribution

The following maps summarize the geographic distribution of undergraduate teacher education program completers. Figure 10a shows the distribution of South Dakota counties from which teacher education graduates matriculated, and Figure 10b shows the distribution of South Dakota counties in which teacher education graduates received their first in-state placements.

Figure 10a
Teacher Education Graduates (SD Residents) by County of High School Graduation

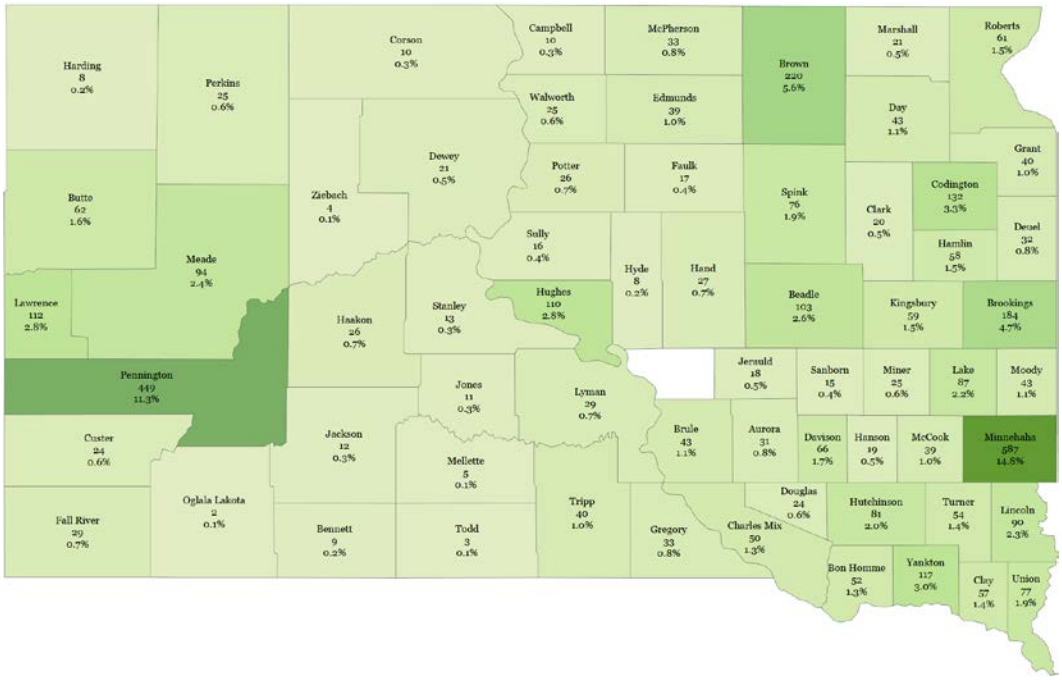
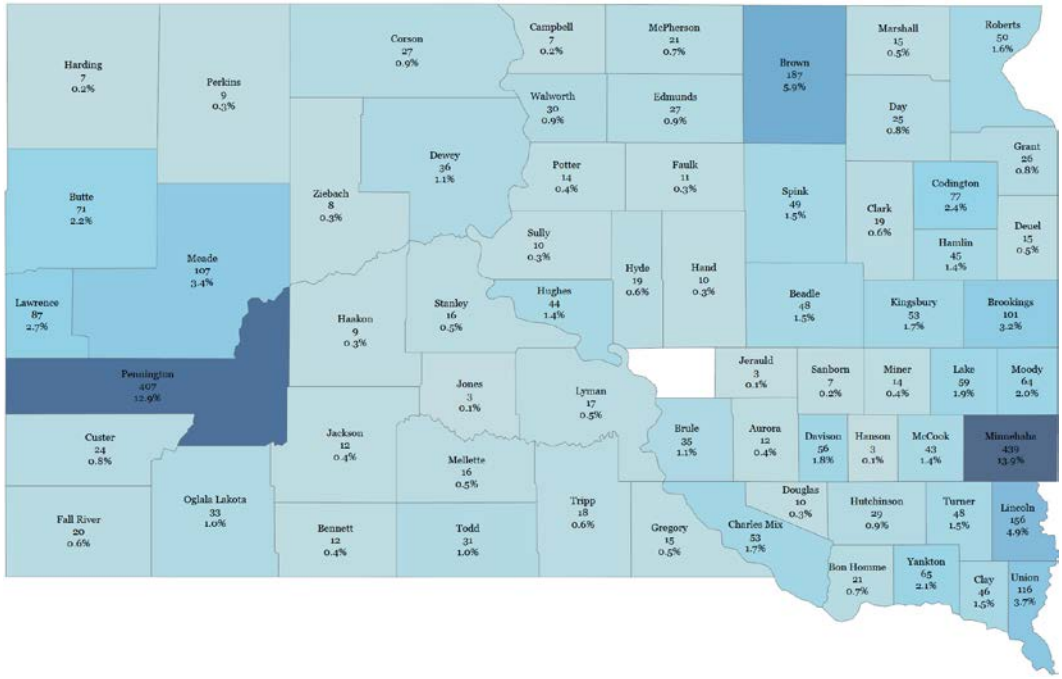


Figure 10b
Teacher Education Graduates by County of First Placement



Appendix A
Background Information

Regental Teacher Education Program Frameworks

Teacher education programs are structured under several different curricular frameworks (i.e., degree-major combinations) across the university system. For example, a candidate seeking to teach high school mathematics may – depending on the campus he or she attends – major in mathematics, education, mathematics education, or some combination of multiple majors. Further, this same student may receive a Bachelor of Arts degree, a Bachelor of Science degree, or a Bachelor of Science in Education degree. In other cases, the student may already hold a degree and is returning to complete a post-baccalaureate teacher certification program. In general, most teacher education candidates fall under one of the following degree-major approaches:[14]

B.A. or B.S. Degree with Discipline Major: In this approach, teacher education candidates are viewed as majors in a chosen substantive discipline. Students complete a substantive major (e.g., mathematics, biology) vis-à-vis the requirements of a B.A. or B.S. degree. Beyond the coursework associated with a substantive major, students also complete a limited sequence of courses required for state teaching certification. This approach is used primarily at SDSU for secondary education preparation programs.

B.S.Ed. Degree with Discipline Major: The second approach also involves the full completion of an undergraduate substantive major (e.g., mathematics, biology). However, rather than completing the requirements for a B.A. or B.S. degree, students complete the requirements for a teaching baccalaureate degree, the Bachelor of Science in Education. This approach is used commonly at BHSU, DSU, and NSU, particularly in secondary education tracks. A related approach involves the completion of a distinct major that combines courses from a substantive discipline with teacher preparation courses. Such majors (e.g., Mathematics Education, Biology Education) usually are paired with a B.S.Ed. degree. This approach is used by USD for secondary teacher education programs and by all institutions for elementary education programs.

Alternative Certification: Academic certificate programs provide an option for those who have already completed a baccalaureate degree (or higher) in a teachable area from an accredited institution. These programs are designed for professional practitioners who wish to become teachers but lack instruction in the area of pedagogy.

Appendix B
ACS Data Supplement

[14] The following approaches generally do not apply to teacher education candidates in the field of music. These students typically complete the requirements for a discipline-specific degree, such as the Bachelor of Fine Arts, Bachelor of Music, or Bachelor of Music Education.

Labor Market Analysis

American Community Survey (ACS) data help to shed additional light on the teacher labor force in the upper Midwest. Using the newest available ACS PUMS datasets, additional analysis was conducted on the employment rates, earnings, and professional placements of educators in 2014.[15]

Table B1 shows two key labor market outcomes for teachers in 2014. The first column gives the unemployment rates of the teaching labor force, while the second column shows median earnings of employed teachers.[16] The exceptionally low unemployment rates seen in this table – for South Dakota and the larger region alike – are suggestive of a labor shortage.[17] One possible driver of such a shortage is implicated by a second observation from this table: that workers employed as teachers earned less in 2014 in South Dakota than did those in any other neighboring state.

Table B1

Unemployment Rates and Mean Earnings of Teachers by State, 2014

	Unemployment rate	Mean earnings
Iowa	1.4%	$47,552
Minnesota	1.1%	$49,639
Montana	1.5%	$40,932
Nebraska	0.6%	$47,102
North Dakota	0.0%	$41,700
South Dakota	0.8%	$38,647
Wyoming	3.2%	$50,210
Region	1.2%	$47,036

Table B2 provides information about the industrial and occupational placements of employed workers with an undergraduate degree in education. Only about half of such workers in South Dakota work in the field of K12 education in some capacity. Similarly, under half of all South Dakota workers with a teaching credential actually work in a K12 teaching occupation. Both of these rates are slightly lower than those of the region overall, and may hint at a systemic disinclination of teacher education graduates to enter and/or remain in the K12 teaching profession in South Dakota. It remains to be seen whether these figures will rise as a result of new laws enacted during the 2016 legislative session to enhance teacher pay in South Dakota.

Table B2

[15] Data presented in this section were generated from the 2014 American Community Survey Public Use Microdata Sample from the US Census Bureau. Figures are based on survey responses, and should be interpreted as estimates only.
[16] The "teaching labor force" group includes workers employed as teachers as well as unemployed members of the labor force who most recently worked as teachers.
[17] By comparison, overall unemployment for South Dakota and the region were 3.6 percent and 4.5 percent, respectively.

Professional Placements of Teacher Education Degree Holders, 2014[18]

	Percent of employed workers with an undergraduate degree in education **who work in the field of K12 education**	Percent of employed workers with an undergraduate degree in education **who work as teachers**
Iowa	59.1%	54.1%
Minnesota	50.0%	45.3%
Montana	48.1%	44.0%
Nebraska	55.7%	49.0%
North Dakota	54.0%	48.9%
South Dakota	51.1%	48.2%
Wyoming	60.5%	53.7%
Region	53.6%	48.5%

[18] The category "who work in the field of education" include those whose self-reported industry was *Elementary and Secondary Schools*. The category "who work as teachers" includes those whose self-reported occupation was *Preschool and Kindergarten Teachers*, *Elementary and Middle School Teachers*, *Secondary School Teachers*, or *Special Education Teachers*.