



# Educator Endorsements and Employment: A First Look



June 2023

**Education Research and Data Center**  
Forecasting and Research  
Office of Financial Management



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## About the ERDC

The research presented here uses data from the Education Research and Data Center, located in the Washington Office of Financial Management. ERDC works with partner agencies to conduct powerful analyses of learning that can help inform the decision-making of Washington legislators, parents and education providers. ERDC's data system is a statewide longitudinal data system that includes de-identified data about people's preschool, educational and workforce experiences. In Fiscal Year 2019, ERDC was awarded a five-year Statewide Longitudinal Data System ([SLDS](#)) Grant, which involves using our data system to examine educational equity issues in Washington's public educational systems. ERDC is one of 28 grantees across the country who are participating in the FY19 SLDS Grant Program.

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## Executive summary

Issues regarding educator supply and retention have come to the forefront as the short- and long-term effects of the COVID pandemic have become evident. A national survey conducted in 2021 found that one in four teachers were considering leaving their job by the end of the year—compared to one in six before the pandemic.<sup>1</sup> Pandemic or not, retention of educators is vital to student achievement, equitable education and school district fiscal health.<sup>2</sup>

This descriptive study focuses on Washington educators holding credentials in areas identified as high demand and addresses several questions:

- Does educator retention vary by endorsement (i.e. speciality area)?
- Are educator retention patterns related to educator characteristics and school characteristics?
- To what extent are educators in the public K-12 system employed in other industries, either during their public K-12 employment or after leaving public K-12?

## Key findings

Certain endorsements showed high turnover across all educator and school characteristics. Among educators under age 60:

- Educators with Special Education endorsements had low same-school and low same-district retention rates overall and for most subgroups based on educator and school characteristics. The exceptions were educators under age 40, Black, Indigenous and people of color (BIPOC) educators and educators with less than five years of experience.
- Educators with Bilingual Education endorsements had low same-school and low same-district retention rates overall. Those under age 40 had relatively high public K-12 exit rates. BIPOC educators had high same-district retention rates and low public K-12 exit rates compared with all BIPOC educators.
- Educators with Principal endorsements had low same-school and same-district retention rates overall and in all subgroups because the administrator career track often necessitates such changes. As expected, their exit rates from public K-12 were low for most subgroups. Exceptions to this were educators with Principal endorsements with 15 or more years of experience.

For most educators, public K-12 education employers were the primary source of earnings during calendar years 2016 through 2020. Outside of public K-12 education, top employers were in other education services (including private schools) and public administration (federal, state and local government).

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1. Elizabeth D. Steiner and Ashley Woo. (2021). Job-Related Stress Threatens the Teacher Supply; Key Findings from the 2021 State of the U.S. Teacher Survey. Retrieved from Rand Corporation." ([https://www.rand.org/pubs/research\\_reports/RRA1108-1.html](https://www.rand.org/pubs/research_reports/RRA1108-1.html))

2. Tuan D. Nguyen, Lam Pham, Matthew Springer, and Michael Crouch. (2019). The Factors of Teacher Attrition and Retention: An Updated and Expanded Meta-Analysis of the Literature. (EdWorkingPaper: 19-149). Retrieved from Annenberg Institute at Brown University (<https://doi.org/10.26300/cdf3-4555>)

In addition to these findings, this study establishes baseline measures that can be used to evaluate pandemic-related influences once additional data become available.

## Background

This analysis examines employment within and outside of public K-12 education by endorsement (specialty) area for educators employed in public K-12 education. One purpose of this study is to analyze the employment characteristics of educators – both within public K-12 education and in other employment – holding endorsements in several high-demand specialties. The other is to develop a framework that can be extended through the duration of the COVID pandemic, which impacted every aspect of educators' lives, starting with the first statewide stay-at-home order issued in March 2020.<sup>3</sup>

Public K-12 employment in a particular school year (the base year) defines a study group for that school year. Figure 1 shows the base and follow-up years for the 2016, 2017 and 2018 study groups.<sup>4</sup> The follow-up carries the most recent (2018) group through 2021, the last year for which employment data for public K-12 is available. There is a significant overlap in membership across the study groups. Of the approximately 68,000 individuals included in the three study groups, 64% were members of all three groups

Figure 1: Study group base and follow-up years

	2016	2017	2018	2019	2020	2021
2016 Study Group	base year	follow-up (years two through four)				
2017 Study Group		base year	follow-up (years two through four)			
2018 Study Group			base year	follow-up (years two through four)		

This analysis examines the employment and retention of educators with specific endorsements employed in public K-12 education, no matter what their role. All members of the study groups hold teacher or principal credentials. These individuals' actual roles (e.g., teacher, administrator, educational staff associate, paraprofessional) or employment level (full-time or part-time) are not addressed. Follow-up employment in public K-12 includes any role — including classified positions such as paraprofessionals.

## Study group definition

Study group development began with employment in public K-12 derived from the Retention-Mobility files provided by the Office of Superintendent of Public Instruction (OSPI). The Retention-Mobility files have the OSPI S-275 School Personnel file as their root. They are enhanced by incorporating teaching staff information from OSPI's student information system – Comprehensive Education Data and Research System (CEDARS). Retention-Mobility file records derived from the S-275 data include each employee's assignment(s) for a school year, including the school(s), specific role and full-time equivalent (FTE) of each assignment. All roles requiring educator certification are candidates for inclusion.

3. Proclamation 20-09: Statewide K-12 School Closures, March 13, 2020. (<https://www.governor.wa.gov/node/481616>)

4. School year is the four-digit year in which the school year ends. For example, school year 2016 represents school year 2015-2016.

This study aims to determine discretionary moves within public K-12 employment and exits from public K-12 employment. Some situations — specifically, school closures and administrative coding changes — can artificially influence the determination of retention rates and rates at which teachers leave public K-12 employment for reasons other than retirement. Appendix A provides a complete description of the development of potential study groups from the Retention-Mobility files, including accommodation for school closures and administrative school coding changes.

We used educator credential data from OSPI to identify educators endorsed in specialties of interest. This file contains each educator's endorsement and effective and expiration dates.<sup>5</sup> Subjects for a particular year are teachers having endorsements as of Oct. 1 of that school year, corresponding to areas designated as high demand by the Professional Educator Standards Board (PESB). These specialties align with teacher shortage areas defined in 2019 and 2021 PESB reports and Goldhaber and Gratz's recent assessment based on job listings posted on school district websites.<sup>6</sup>

Educator specialties of interest are the following:

- Bilingual Education
- Special Education
- Mathematics
- Science
- Career & Technical Education (CTE) Agriculture
- CTE Business & Marketing
- CTE Health Sciences
- CTE Family & Consumer
- CTE Skilled & Technical Sciences
- Principal
- Elementary Education
- English
- Health/Fitness
- History
- Reading
- Spanish

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5. Approximately one percent of the 2016 study group members held limited certificates, a category that includes Conditional Teacher, Intern Substitute Teacher, and Emergency Substitute Teacher certifications. For information regarding types of teaching certificates, see OSPI, "Teacher Certificate" (<https://www.k12.wa.us/certification/teacher-certificate>).

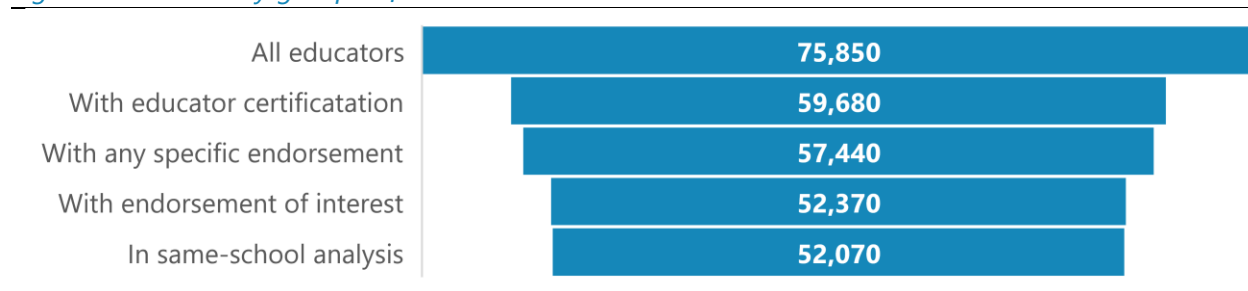
6. For the PESB reports, see Washington Professional Educator Standards Board, *The Data and the Story: Educator Shortage in Washington State*, 2019 and *Addressing Washington's Educator Shortage*, 2021 (<https://www.pesb.wa.gov/resources-and-reports/reports/shortage-report/>). Also, Goldhaber, D. & Gratz, T. (2022). *School District Staffing Challenges in a Rapidly Recovering Economy* (CALDER Flash Brief No. 29-0122). Arlington, VA: National Center for Analysis of Longitudinal Data in Education Research. (<https://caldercenter.org/sites/default/files/CALDER%20Policy%20Brief%2029-0122.pdf>)

Several CTE VCODES – Diversified Occupations, Work-Based Learning Coordinator, Career Choices and Worksite Learning Coordinator – overlap other, more specific CTE VCODES and are excluded from this analysis.<sup>7</sup>

Appendix B shows the assignment of endorsement codes to these endorsement categories. The PESB assignment tool, which relates state course codes used by CEDARS to specific endorsements, was used to create these groupings.<sup>8</sup> CTE specialties are grouped by Program of Study.<sup>9</sup>

Figure 2 depicts the selection of an educator study group, using the 2016 study group as an example. All counts of individuals contained in this report are rounded to the nearest 10. The 2016 Retention-Mobility file included 75,850 educators. Of these educators, 59,680 were associated with a valid certification as of Oct. 1, 2015. Not all certificated teachers hold specific endorsements. Some have licenses that allow them to teach any subject approved by the district that employs them. Of the teachers with valid certificates, 57,440 are associated with endorsements. The endorsements might be for teaching specialties, administrative roles, or educational staff associate roles (counselor, school nurse, speech-language pathologist, for example). A total of 52,370 educators hold specific endorsements that are the focus of this study. Of these, 52,070 were employed in schools included in same-school retention calculations.

Figure 2: 2016 Study group definition



## The educator study groups

The final study groups for 2016 through 2018 represent the intersection of potential educators based on the Retention-Mobility data with those holding endorsements in the educator specialties of interest.

Age and race/ethnicity for study group members come first from the certification files and the Retention-Mobility file if not available in the certification data. Educator experience comes from the Retention-Mobility files. Black, Indigenous and people of color (BIPOC) is a category that includes anyone of

7. VCODES are associated with courses that a CTE teacher is allowed to teach. For a complete list of VCODES and related teaching subjects see OSPI, "Career and Technical Applicants," (<https://www.k12.wa.us/certification/teacher-certificate/career-and-technical-education-applicants>)

8. Professional Educator Standards Board, "Teacher," (<https://www.pesb.wa.gov/current-educators/assignment/teacher/>)

9. Office of Superintendent of Public Instruction, "CTE Program of Study and Career Clusters," (<https://www.k12.wa.us/student-success/career-technical-education-cte/cte-program-study-and-career-clusters>). Also Office of Superintendent of Public Instruction, "Find Your Pathway," (<https://www.k12.wa.us/sites/default/files/public/careertech/pubdocs/FindYourPathway-October2021.pdf>).

Hispanic ethnicity or race other than white. The count of BIPOC educators plus the count of white alone educators equals the total number of educators for whom race/ethnicity is available.

Table 1 shows educator characteristics for the 2016, 2017, and 2018 study groups.

*Table 1: Educator characteristics*

Educator characteristic	Educators in study group		
	2016	2017	2018
<b>Total</b>	52,370	55,880	59,730
<b>Age Group</b>			
Age 60+	3,540	4,000	4,440
Age 50-59	10,420	11,610	12,940
Age 40-49	16,190	17,280	18,470
Age 30-39	15,320	15,570	16,020
Age <30	6,890	7,420	7,860
<b>Gender</b>			
Female	37,990	40,780	43,870
Male	14,370	15,090	15,850
Not reported	20	10	10
<b>Race/Ethnicity*</b>			
Hispanic (any race)	2,120	2,360	2,570
American Indian or Alaska Native, alone or in combination	940	990	1,070
Asian, alone or in combination	1,810	1,960	2,150
Black, alone or in combination	960	1,040	1,120
Native Hawaiian and Other Pacific Islander, alone or in combination	310	340	400
Black, Indigenous and people of color (BIPOC) – unduplicated count of categories above)	5,540	6,070	6,620
White alone, not Hispanic	46,680	49,660	52,980
Race and ethnicity not reported	150	150	140
<b>Educator Experience</b>			
25+ years	3,530	4,510	5,650
15-24 years	13,330	14,680	15,880
5-14 years	21,030	21,020	21,930
1-4 years	10,320	11,620	12,270
< one year	3,220	3,140	3,110
Not reported	940	910	900

\*Note: The counts in race categories add to more than the total because educators who reported more than one race were tallied in each race category. All race categories include both Hispanic and not Hispanic educators.

Table 2 shows study group sizes for subgroups based on combinations of educator and school characteristics. These subgroups will be used to report public K-12 retention.

*Table 2: Study group sizes for subgroups*

Educator characteristic	Educators in study group		
	2016	2017	2018
Educators, all ages	52,370	55,880	59,730
Educators, age under 60	48,820	51,870	55,290
Educators, age under 40	22,220	22,980	23,880
Female educators, age under 60	35,510	37,950	40,700
Male educators, age under 60	13,310	13,920	14,590
BIPOC educators, age under 60	5,230	5,710	6,230



Educator characteristic	Educators in study group		
	2016	2017	2018
BIPOC educators, age under 60	2,630	2,840	3,110
White alone educators, age under 60	43,470	46,040	48,940
White alone educators, age under 40	19,530	20,080	20,710
Educators with less than five years of experience, age under 60	13,350	14,550	15,150
Educators with five to 14 years of experience, age under 60	20,280	20,230	21,120
Educators with 15+ years of experience, age under 60	14,350	16,290	18,210
Educators age under 60 in the highest-poverty schools	13,460	14,280	15,120
Educators age under 60 in the lowest-poverty schools	11,160	11,980	12,930

## Endorsement overlap

About half of the educators in the study groups hold more than one endorsement within the subject areas included in this study. Some endorsements are part of a dual endorsement policy which requires an additional endorsement to also be held.<sup>10</sup> Some endorsements are specialty endorsements related to highly specialized areas of instruction; a teacher must hold a certificate with at least one other endorsement before adding a specialty endorsement.<sup>11</sup> Table 3 shows the number of educators in the 2016 study group by endorsement category, the number of educators with an endorsement in that area alone, and the number of educators holding endorsements in additional areas. Only endorsements of interest are included in these tables. Study group members may have additional endorsements that are not the focus of this study. Appendix C contains tables for 2017 and 2018. Individual values may not sum to the total due to rounding.

*Table 3: Endorsement Overlap, 2016 Study Group*

Endorsement category	Study group members with endorsement	Number of endorsements				
		1	2	3	4	5 or more
All study group members	52,370	27,070	18,730	5,480	930	150
Bilingual Education	4,130	150	2,410	1,220	280	60
Special Education	8,410	1,670	4,580	1,760	340	60
Mathematics	4,580	1,460	2,000	850	220	50
Science	3,930	1,400	1,580	710	180	50
CTE Agriculture	470	190	160	80	30	10
CTE Business & Marketing	1,700	540	680	340	120	30
CTE Health	350	120	120	70	30	10
CTE Family & Consumer	1,140	480	380	200	60	20
CTE Skilled & Technical Sciences	2,700	810	910	710	230	40
Principal	4,450	1,560	1,310	1,200	320	60
Elementary Education	31,280	14,070	12,470	3,930	690	120
English	6,750	1,800	3,080	1,460	340	70
Health/Fitness	3,380	1,220	1,390	590	140	30

10. For example, beginning September 2019 a teacher who obtains a bilingual education, English language learner, or science endorsement must earn and/or add a second endorsement in another endorsement area. See <https://www.pesb.wa.gov/current-educators/assignment/endorsements/> or [WAC 181-79A-132](#).

11. Ibid.

Endorsement category	Study group members with endorsement	Number of endorsements				
		1	2	3	4	5 or more
History	5,920	1,300	2,940	1,300	330	60
Reading	4,790	20	2,840	1,570	320	50
Spanish	1,490	280	610	460	110	20

### Typical endorsement overlaps

What are the typical overlaps in educator endorsements in the study groups? Table 4 shows the top two endorsements combined with each endorsement type in this analysis for the 2016 study group as an example (see Appendix C for overlap among the 2017 and 2018 study groups). The Elementary Education endorsement is the most commonly held endorsement among the study group members. It is also the endorsement most frequently paired with other endorsements. It is the most common endorsement held by those with Bilingual Education, Special Education, Mathematics, several CTE specialties, Reading, Spanish and Principal. Note that these combinations reflect the set of endorsements that are the focus of this study. Educators may have additional endorsements in other areas (other teaching specialties or ESA endorsements, for example).

*Table 4: Typical endorsement combinations for the 2016 study group*

Educators with endorsement	Also have:	And:
Bilingual Education	Elementary Education (71%)	English (15%)
Special Education	Elementary Education (66%)	Reading (9%)
Mathematics	Elementary Education (31%)	Science (21%)
Science	Mathematics (25%)	Elementary Education (23%)
CTE Agriculture	Science (30%)	CTE Skilled & Technical Sciences (24%)
CTE Business & Marketing	CTE Skilled & Technical Sciences (30%)	Elementary Education (16%)
CTE Health	Science (37%)	CTE Skilled & Technical Sciences (21%)
CTE Family & Consumer	Elementary Education (22%)	CTE Health (16%)
CTE Skilled & Technical Sciences	Elementary Education (22%)	CTE Business & Marketing (19%)
Principal	Elementary Education (35%)	History (13%)
Elementary Education	Special Education (18%)	Reading (14%)
English	History (30%)	Elementary Education (29%)
Health/Fitness	Elementary Education (23%)	History (10%)
History	English (34%)	Elementary Education (27%)
Reading	Elementary Education (94%)	Special Education (16%)
Spanish	Elementary Education (37%)	Bilingual Education (33%)

### Assessing retention and exit rates

For each study group member, a three-year public K-12 employment follow-up was evaluated with respect to the base year for that study group (see Figure 1). Seven patterns of public K-12 employment emerged:

1. Employed in the same school all four years.
2. Employed in the same district all four years.
3. Employed in public K-12 all four years.

4. Employed in public K-12 in year one (base year) and year four, with a gap or pause in employment during year two, year three, or both (an apparent pause in public K-12 employment).
5. Employed in public K-12 in years one through three but not in year four (a one-year absence from public K-12).
6. Employed in public K-12 in years one and two but not in years three or four (a two-year absence from public K-12).
7. Employed in public K-12 in years one through three (a three-year absence from public K-12) but not in year four.

The latter three categories (5 – 7) suggest a potential exit from public K-12 employment. However, the shorter absence from public K-12 enrollment may be a pause followed by a return in years beyond the follow-up period.

The process of classifying educators into these categories is complicated by the fact that many educators work at more than one school. Appendix A details the method used to assign an educator to the appropriate retention category.

Table 5 shows the study group size and retention patterns for each study group. Overall, 60-70% of educators are retained in the same school during the four-year study period, 75-80% are retained in the same school district, and 80-85% remain in public K-12 education.

Three subgroups are shown — educators under 60 and female and male educators under 60. The differences in retention between the all-age and under-60 groups illustrate retirement's effect. Approximately 14-15% of all educators appeared to leave public K-12 employment during the follow-up period. When educators over 60 are excluded from the analysis, the exit rate drops to 11-12%.

Over 70% of each study group were female educators. Female educators had a lower overall retention rate in public K-12 employment and higher employment pause and exit rates. However, the higher rates of apparent employment exit may include employment pauses not captured in the four-year study period.

Table 5: Retention characteristics by study group, all educators (unduplicated)

Category	2016		2017		2018	
<b>All educators</b>						
Same school, four years	33,230	64%	36,550	66%	40,550	68%
Same district, four years	39,320	75%	42,760	77%	46,940	79%
Public K-12, four years	44,420	85%	47,500	85%	51,030	85%
K-12 Employment pause	830	2%	860	2%	810	1%
K-12 Employment exit	7,120	14%	7,520	13%	7,900	13%
Total	52,370		55,880		59,730	
<b>Educators age &lt;60</b>						
Same school, four years	31,780	65%	34,830	68%	38,650	70%
Same district, four years	37,690	77%	40,860	79%	44,850	81%
Public K-12, four years	42,710	87%	45,530	88%	48,870	88%
K-12 Employment pause	780	2%	800	2%	770	1%
K-12 Employment exit	5,330	11%	5,540	11%	5,660	10%
Total	48,820		51,870		55,290	
<b>Female educators age &lt;60</b>						
Same school, four years	22,630	64%	25,090	67%	28,000	69%
Same district, four years	27,100	76%	29,710	78%	32,820	81%
Public K-12, four years	30,820	87%	33,120	87%	35,750	88%
K-12 Employment pause	630	2%	650	2%	590	1%
K-12 Employment exit	4,060	11%	4,180	11%	4,350	11%
Total	35,510		37,950		40,700	
<b>Male educators age &lt;60</b>						
Same school, four years	9,150	69%	9,740	70%	10,650	73%
Same district, four years	10,590	80%	11,160	80%	12,030	82%
Public K-12, four years	11,890	89%	12,400	89%	13,110	90%
K-12 Employment pause	150	1%	150	1%	180	1%
K-12 Employment exit	1,260	10%	1,370	10%	1,300	9%
Total	13,310		13,920		14,590	

Note: Totals may not add due to rounding.

## Educator retention by endorsement area: same-school retention

The following sections focus on the two extreme retention situations — educators remaining in the same school for the base year and all three follow-up years and educators who, based on Retention-Mobility File analysis, appear to leave public K-12 employment. Appendix E contains similar tables for same-district retention.

### Retention by educator characteristics: age

Figure 3 shows the three study groups' same-school retention rates by endorsement area. For all endorsement areas, same-school retention was higher for the 2018 study group than for the 2016 study group.

Table 6, which follows Figure 3, shows the percentage of study group members employed at the same school for each endorsement area for the base year and all three follow-up years.

Of note:

- Retention varied by endorsement area. Educators with Bilingual, Special Education, and Principal endorsements had relatively low same-school retention rates.
- Same-school retention rates were relatively high for educators with endorsements in CTE, Health/Fitness, and History.

Figure 3: Same-school retention rates, educators under age 60, 2016 – 2018 study groups

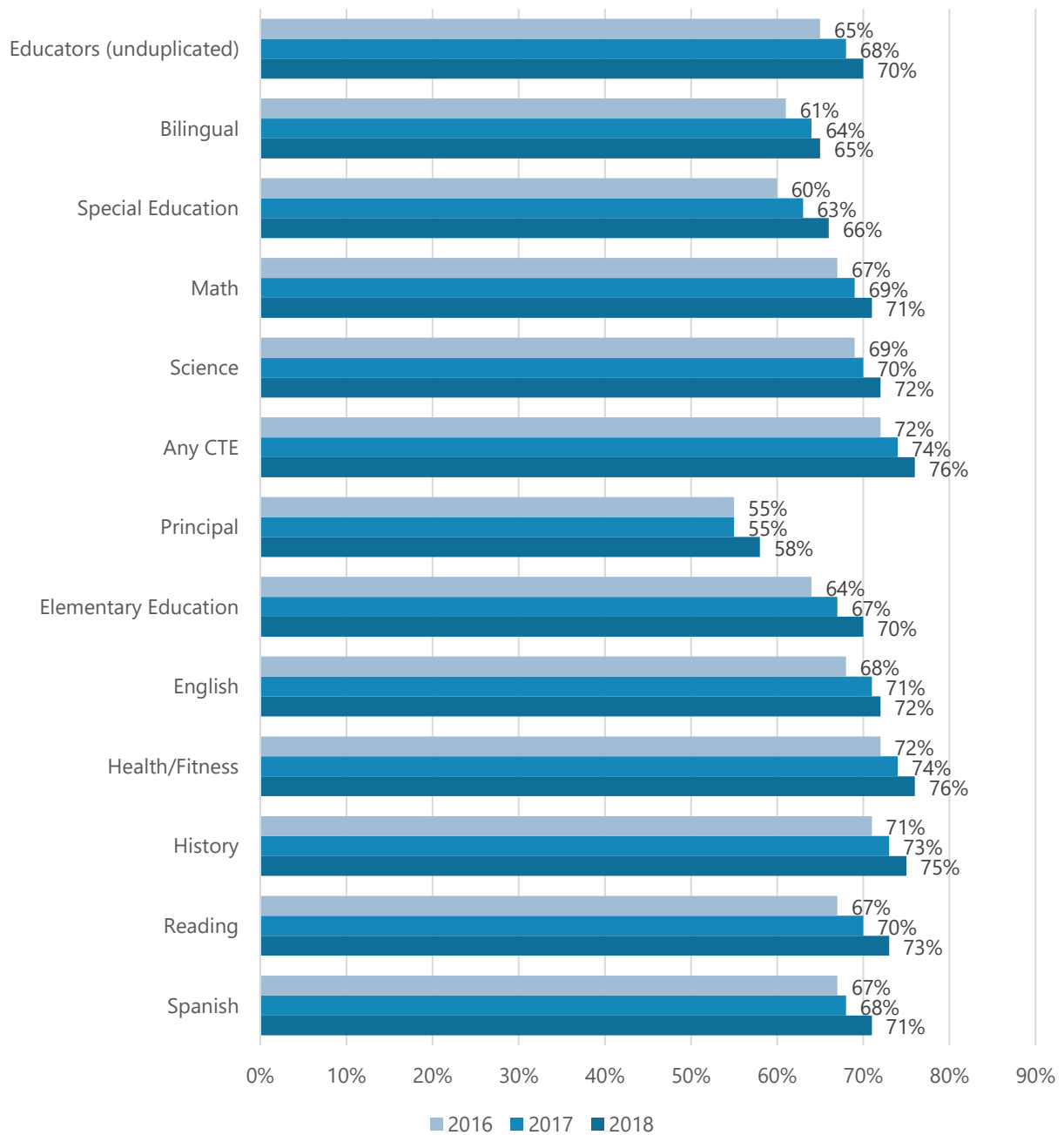


Table 6: Same-school retention rates for educators under age 60

Endorsement area	Educators in study group			Same school, four years		
	2016	2017	2018	2016	2017	2018
Unduplicated study group	48,550	51,550	55,010	65%	68%	70%
Bilingual Education	3,880	4,340	4,980	61%	64%	65%
Special Education	7,650	8,210	8,870	60%	63%	66%
Mathematics	4,310	4,690	5,120	67%	69%	71%
Science	3,620	3,920	4,300	69%	70%	72%
Any CTE	4,710	4,810	4,800	72%	74%	76%
CTE Agriculture	420	430	430	70%	72%	77%
CTE Business/Marketing	1,480	1,520	1,530	69%	73%	75%
CTE Health	320	350	370	77%	78%	78%
CTE Human Services	950	960	960	71%	73%	75%
CTE Skilled & Technical Sciences	2,360	2,460	2,480	73%	74%	77%
Principal	3,940	4,130	4,340	55%	55%	58%
Elementary Education	29,220	31,130	33,420	64%	67%	70%
English	6,290	6,820	7,370	68%	71%	72%
Health/Fitness	3,210	3,510	3,890	72%	74%	76%
History	5,440	5,830	6,260	71%	73%	75%
Reading	4,490	4,780	5,110	67%	70%	73%
Spanish	1,410	1,480	1,590	68%	68%	71%

## Younger educators

Figure 4 shows the same-school retention rates for educators under age 40 by endorsement area for the three study groups. For all endorsement areas, same-school retention was higher for the 2018 study group than for the 2016 study group.

Table 7, which follows Figure 5, shows the percentage of study group members employed at the same school for each endorsement area for the base year and all three follow-up years.

Of note:

- Retention varied by endorsement area. Educators with Bilingual Education, Special Education, and Principal endorsements had relatively low same-school retention rates.
- Same-school retention rates were relatively high for educators with CTE, Health/Fitness, History, Mathematics and Reading endorsements.

Figure 4: Same-school retention rates, educators under age 40, 2016 – 2018 study groups

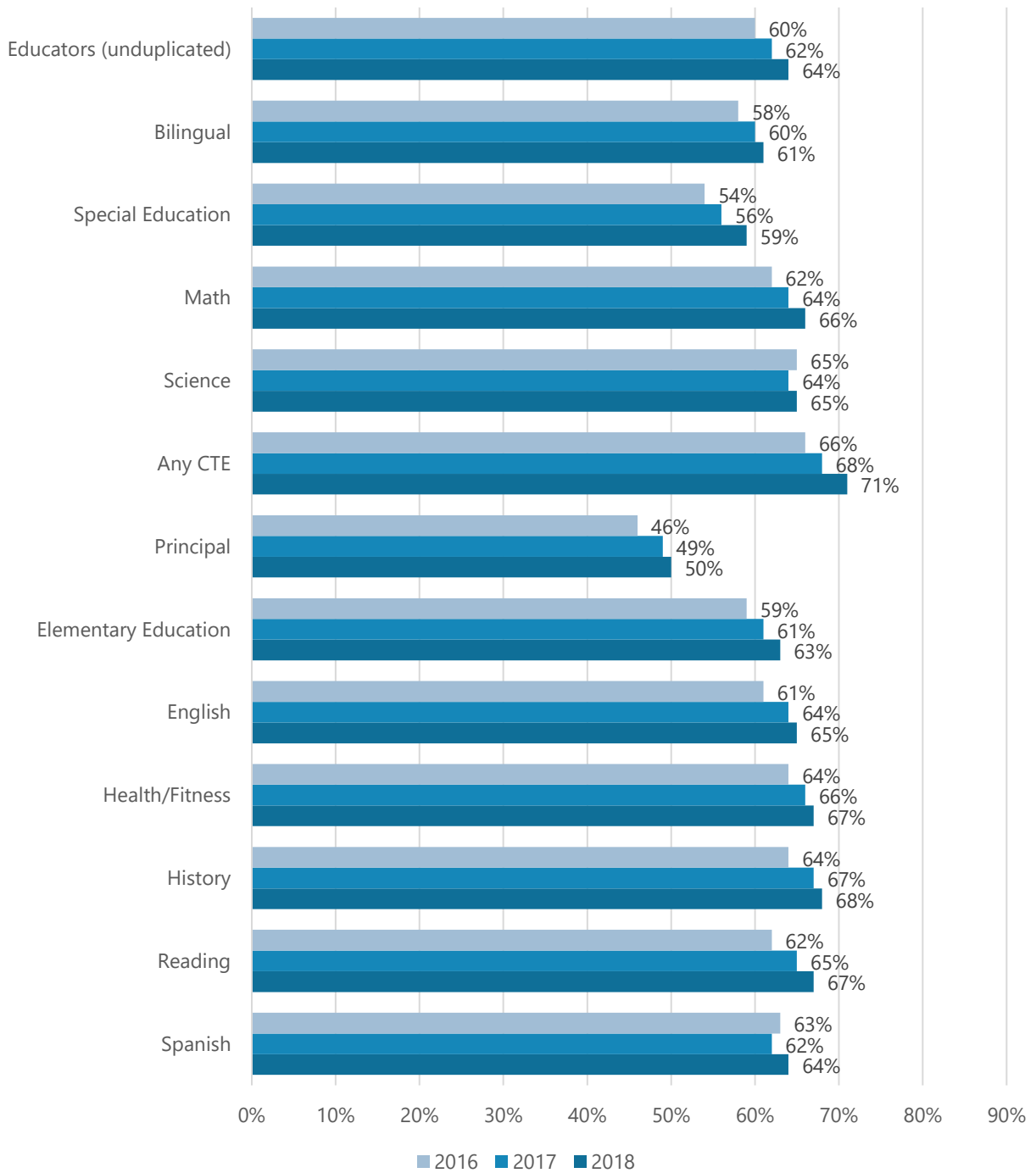


Table 7: Same-school retention rates for educators under age 40

Endorsement area	Educators in study group			Same school, four years		
	2016	2017	2018	2016	2017	2018
Unduplicated study group	22,080	22,810	23,750	60%	62%	64%
Bilingual Education	2,000	2,220	2,550	58%	60%	61%
Special Education	3,120	3,270	3,410	54%	56%	59%
Mathematics	2,140	2,250	2,420	62%	64%	66%
Science	1,460	1,530	1,670	65%	64%	65%
Any CTE	1,220	1,260	1,250	66%	68%	71%
CTE Agriculture	160	170	170	69%	71%	72%
CTE Business/Marketing	350	350	350	64%	68%	71%
CTE Health	130	140	150	66%	68%	72%
CTE Human Services	300	320	310	66%	69%	72%
CTE Skills/Technology	490	530	530	65%	67%	70%
Principal	900	900	950	46%	49%	50%
Elementary Education	13,540	13,910	14,490	59%	61%	63%
English	2,540	2,700	2,810	61%	64%	65%
Health/Fitness	1,260	1,300	1,370	64%	66%	67%
History	2,000	2,060	2,150	64%	67%	68%
Reading	2,070	2,100	2,110	62%	65%	67%
Spanish	550	530	500	63%	62%	64%

### Retention by educator characteristics: gender

Same-school retention rates are higher for male educators than female educators in all endorsement categories. The differences are most pronounced in those with Science, Mathematics and Principal endorsements.

Figure 5 shows the follow-up status for female and male educators under age 60. Tables 8 and 9, which follow, provide additional details. Note that over 70% of educators are female.

Figure 5: Follow-up status for female and male educators under age 60, 2016 study group

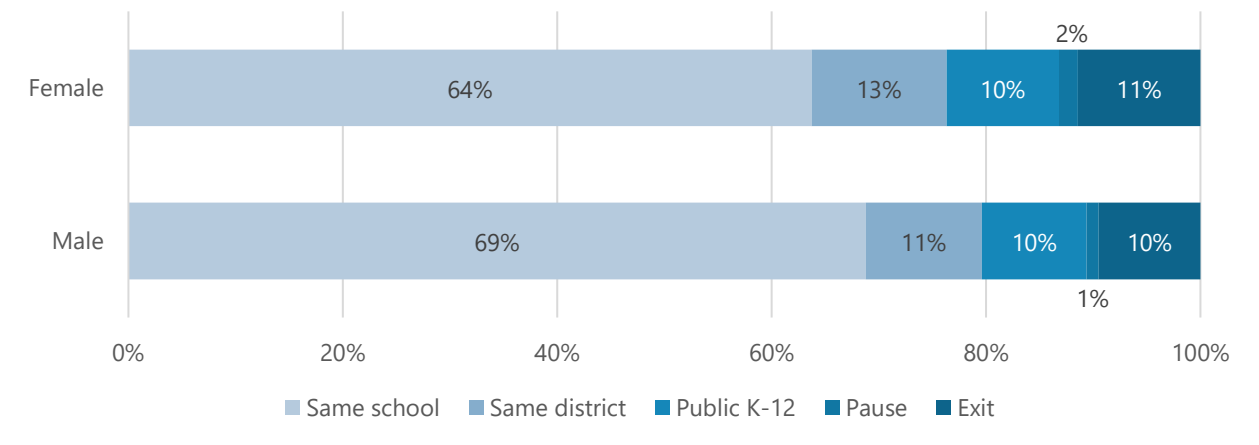




Table 8: Same-school retention rates for female educators under age 60

Endorsement area	Educators in study group			Same school, four years		
	2016	2017	2018	2016	2017	2018
Educators (unduplicated)	35,310	37,720	40,490	64%	67%	69%
Bilingual Education	3,340	3,720	4,270	60%	63%	65%
Special Education	6,390	6,830	7,380	59%	62%	65%
Mathematics	2,460	2,700	2,980	64%	67%	69%
Science	2,020	2,210	2,460	66%	67%	69%
Any CTE	2,560	2,620	2,630	70%	73%	75%
CTE Agriculture	190	210	220	69%	70%	73%
CTE Business/Marketing	810	830	830	68%	72%	73%
CTE Health	200	220	230	72%	76%	76%
CTE Human Services	830	840	840	70%	71%	74%
CTE Skilled & Technical Sciences	900	980	980	70%	72%	75%
Principal	2,030	2,170	2,350	52%	51%	55%
Elementary Education	24,620	26,380	28,370	64%	67%	69%
English	4,400	4,780	5,180	68%	70%	71%
Health/Fitness	1,550	1,710	1,920	71%	72%	74%
History	2,670	2,880	3,110	68%	71%	73%
Reading	4,080	4,360	4,670	66%	70%	72%
Spanish	1,080	1,140	1,230	67%	67%	70%

Table 9: Same-school retention rates for male educators under age 60

Endorsement area	Educators in study group			Same school, four years		
	2016	2017	2018	2016	2017	2018
Educators (unduplicated)	13,220	13,830	14,510	69%	70%	73%
Bilingual Education	550	620	700	65%	68%	68%
Special Education	1,260	1,380	1,490	62%	65%	69%
Mathematics	1,860	1,990	2,130	71%	72%	75%
Science	1,600	1,710	1,840	74%	74%	76%
Any CTE	2,150	2,190	2,170	75%	76%	78%
CTE Agriculture	230	220	210	72%	73%	80%
CTE Business/Marketing	680	690	710	72%	74%	77%
CTE Health	120	140	130	84%	83%	81%
CTE Human Services	120	120	130	77%	81%	79%
CTE Skilled & Technical Sciences	1,460	1,480	1,500	75%	76%	78%
Principal	1,910	1,960	1,980	58%	59%	61%
Elementary Education	4,590	4,750	5,050	67%	68%	71%
English	1,890	2,040	2,190	69%	72%	75%
Health/Fitness	1,660	1,800	1,970	73%	75%	78%
History	2,770	2,960	3,150	74%	75%	78%
Reading	410	420	440	71%	72%	76%
Spanish	330	350	360	69%	73%	75%

## Retention by educator characteristics: race and ethnicity

Educators have been grouped into two categories based on race and ethnicity information in the endorsement data, which was collected in Census Bureau format. Ethnicity is recorded as either “Hispanic” or “not Hispanic.” Race categories include American Indian and Alaska Native, Asian, Black, Native

Hawaiian and other Pacific Islander, and white. In the following tables and figures, BIPOC (Black, Indigenous and people of color) indicates that the individual is Hispanic or any race category other than white. "White alone" is equivalent to "white, not Hispanic."

Figure 6 shows same-school retention rates for BIPOC and white alone educators under 60 years of age in the 2016 study group. Tables 10 and 11 follow, providing details behind this chart and similar information for the 2017 and 2018 study groups.

Overall, BIPOC educators have lower same-school retention than white alone educators. This is true for all endorsement areas except Bilingual Education.

*Figure 6: Same-school retention rates for BIPOC and white alone educators under age 60, 2016 study group*

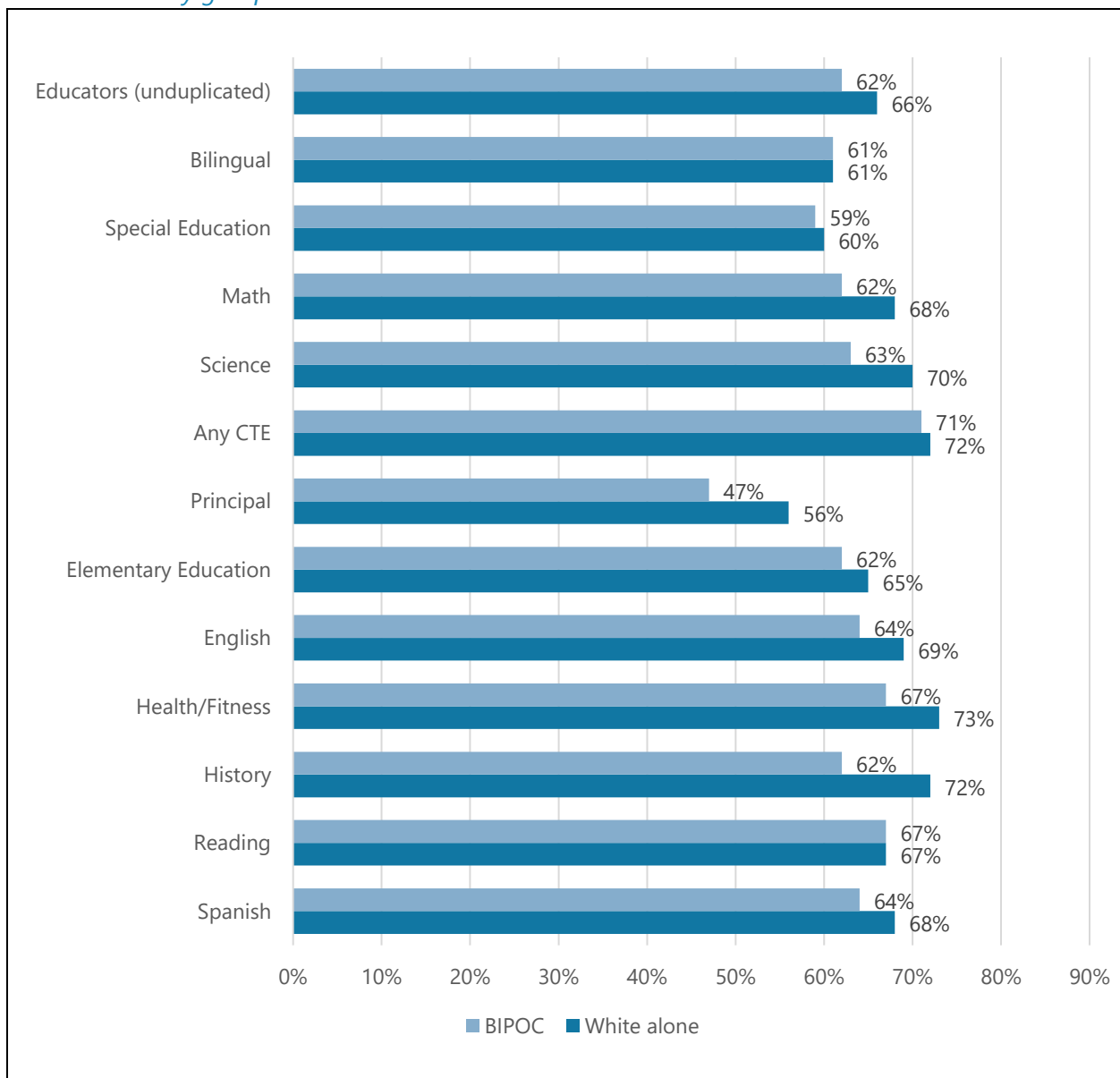


Table 10: Same-school retention rates for BIPOC educators under age 60

Endorsement area	Educators in study group			Same school, four years		
	2016	2017	2018	2016	2017	2018
Educators (unduplicated)	5,190	5,660	6,190	62%	64%	67%
Bilingual Education	850	950	1,070	61%	65%	67%
Special Education	700	790	890	59%	57%	60%
Mathematics	480	540	570	62%	65%	71%
Science	320	350	380	63%	68%	69%
Any CTE	350	370	400	71%	72%	72%
CTE Agriculture	20	30	30	70%	64%	72%
CTE Business/Marketing	120	130	140	71%	70%	74%
CTE Health	30	30	30	70%	63%	66%
CTE Human Services	70	70	80	66%	69%	72%
CTE Skilled & Technical Sciences	200	210	220	71%	74%	70%
Principal	470	510	560	47%	47%	51%
Elementary Education	3,200	3,480	3,800	62%	64%	67%
English	530	600	630	64%	66%	70%
Health/Fitness	270	290	340	67%	71%	76%
History	440	480	490	62%	64%	72%
Reading	310	320	360	67%	68%	67%
Spanish	310	330	360	64%	64%	67%

Table 11: Same-school retention rates for white alone educators under age 60

Endorsement area	Educators in study group			Same school, four years		
	2016	2017	2018	2016	2017	2018
Educators (unduplicated)	43,240	45,760	48,700	66%	68%	71%
Bilingual Education	3,030	3,380	3,900	61%	63%	65%
Special Education	6,920	7,400	7,960	60%	63%	66%
Mathematics	3,820	4,140	4,530	68%	70%	72%
Science	3,300	3,560	3,910	70%	71%	72%
Any CTE	4,340	4,430	4,380	72%	74%	77%
CTE Agriculture	400	410	410	71%	72%	77%
CTE Business/Marketing	1,360	1,390	1,380	70%	73%	75%
CTE Health	300	330	330	78%	80%	79%
CTE Human Services	880	890	870	71%	73%	76%
CTE Skilled & Technical Sciences	2,150	2,240	2,250	74%	75%	78%
Principal	3,470	3,620	3,770	56%	56%	59%
Elementary Education	25,970	27,610	29,580	65%	67%	70%
English	5,730	6,200	6,710	69%	71%	73%
Health/Fitness	2,930	3,210	3,550	73%	74%	76%
History	4,990	5,340	5,750	72%	74%	76%
Reading	4,180	4,450	4,740	67%	70%	73%
Spanish	1,100	1,160	1,230	68%	70%	72%

## Younger educators

Figure 7 shows same-school retention rates for BIPOC and white alone educators under 40 in the 2016 study group. Details behind this chart and similar information for the 2017 and 2018 study groups are provided in Tables 12 and 13, which follow.

Overall, BIPOC educators have lower same-school retention than white alone educators. This is true for all endorsement areas except Special Education. The differences are most pronounced in the Principal endorsement and in the subject matter areas of Science and History.

Tables 12 and 13 show same-school retention rates for BIPOC and white alone educators under age 40.

*Figure 7: Same-school retention rates for BIPOC and white alone educators under age 40, 2016 study group*

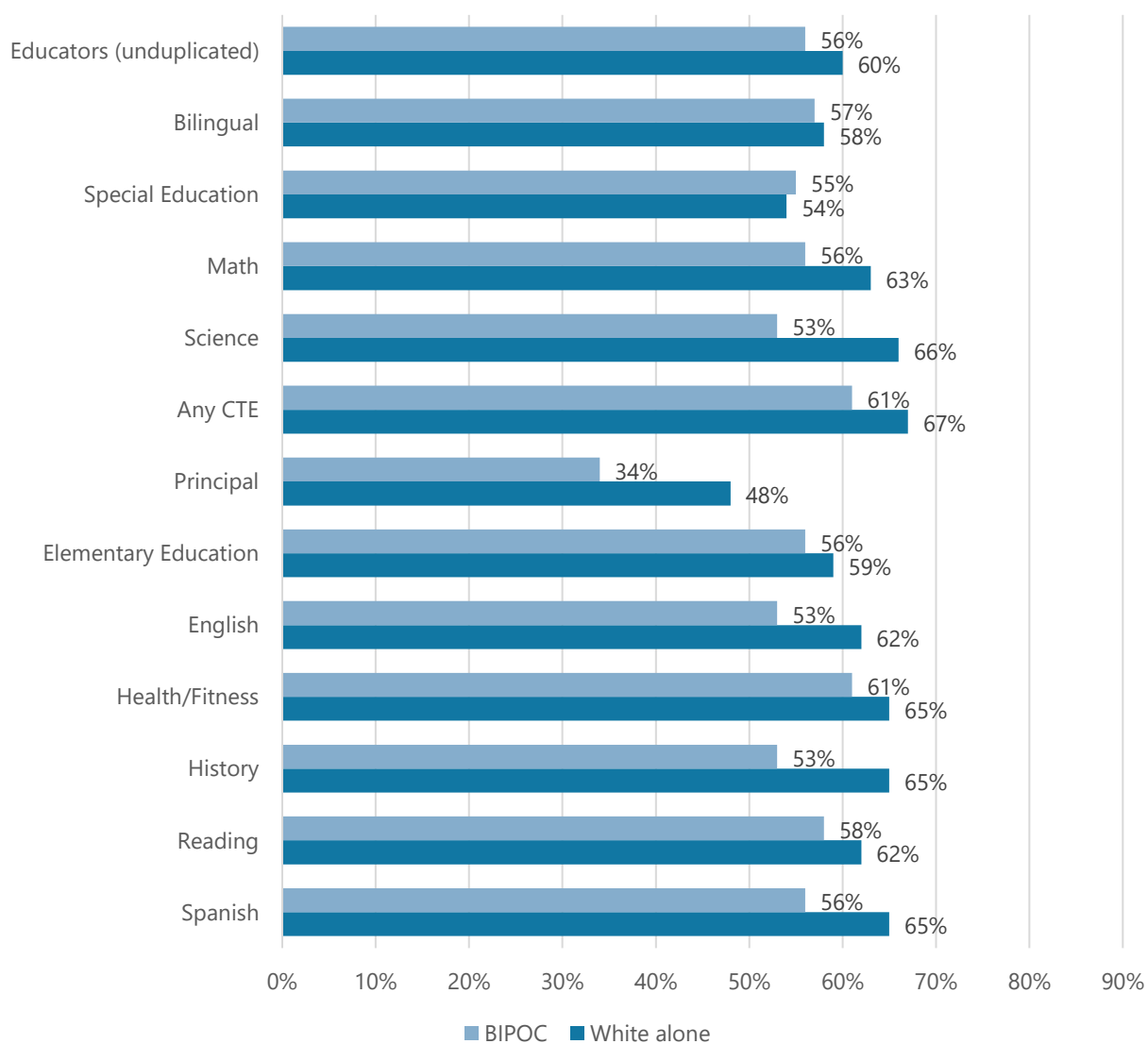


Table 12: Same-school retention rates for BIPOC educators under age 40

Endorsement area	Educators in study group			Same school, four years		
	2016	2017	2018	2016	2017	2018
Educators (unduplicated)	2,610	2,820	3,090	56%	58%	62%
Bilingual Education	420	460	540	57%	61%	62%
Special Education	310	360	410	55%	51%	55%
Mathematics	270	300	310	56%	59%	66%
Science	150	150	170	53%	64%	63%
Any CTE	120	130	140	61%	58%	67%
CTE Agriculture	<i>Suppressed due to small cell sizes.</i>					
CTE Business/Marketing	50	50	50	67%	59%	69%
CTE Health	<i>Suppressed due to small cell sizes.</i>					
CTE Human Services	30	30	40	63%	69%	81%
CTE Skilled & Technical Sciences	60	60	60	56%	56%	59%
Principal	120	130	140	34%	38%	46%
Elementary Education	1,640	1,770	1,950	56%	58%	62%
English	250	280	290	53%	58%	65%
Health/Fitness	130	130	140	61%	66%	73%
History	170	170	180	53%	58%	64%
Reading	150	140	160	58%	58%	61%
Spanish	100	100	120	56%	52%	59%

Table 13: Same-school retention rates for white alone educators under age 40

Endorsement area	Educators in study group			Same school, four years		
	2016	2017	2018	2016	2017	2018
Educators (unduplicated)	19,410	19,930	20,600	60%	63%	65%
Bilingual Education	1,580	1,760	2,010	58%	61%	61%
Special Education	2,800	2,890	2,990	54%	56%	59%
Mathematics	1,860	1,940	2,100	63%	64%	66%
Science	1,300	1,370	1,500	66%	65%	66%
Any CTE	1,100	1,130	1,110	67%	70%	72%
CTE Agriculture	160	160	160	71%	73%	73%
CTE Business/Marketing	300	290	300	64%	70%	71%
CTE Health	120	120	120	68%	71%	75%
CTE Human Services	270	290	270	66%	69%	72%
CTE Skilled & Technical Sciences	440	470	460	66%	69%	72%
Principal	770	770	810	48%	51%	51%
Elementary Education	11,880	12,130	12,520	59%	61%	63%
English	2,280	2,420	2,500	62%	65%	65%
Health/Fitness	1,130	1,170	1,230	65%	66%	67%
History	1,830	1,880	1,950	65%	67%	69%
Reading	1,920	1,960	1,950	62%	65%	67%
Spanish	450	430	380	65%	65%	65%

## Retention by educator characteristics: experience

Figure 8 shows the same-school retention rates by years of experience for educators under 60 in the 2016 study group. As teaching experience increases, so do same-school retention rates. The 2016 study group

had same-school retention rates of 74% for educators with 15 or more years of experience, 66% for those with five to 14 years of experience, and 57% for those with less than five years of experience.

The greatest differences in same-school retention between those with 15 or more years of experience and those with five to 14 years of experience is in educators with endorsements in Special Education, Health/Fitness and those with a Principal endorsement. The greatest differences between those with 15 or more years of experience and those with less than five years of experience are in educators with endorsements in Health/Fitness, Special Education and Mathematics.

Tables 14 through 16 follow, providing additional detail.

*Figure 8: Same-school retention rates by years of experience, educators under age 60, 2016 study group*

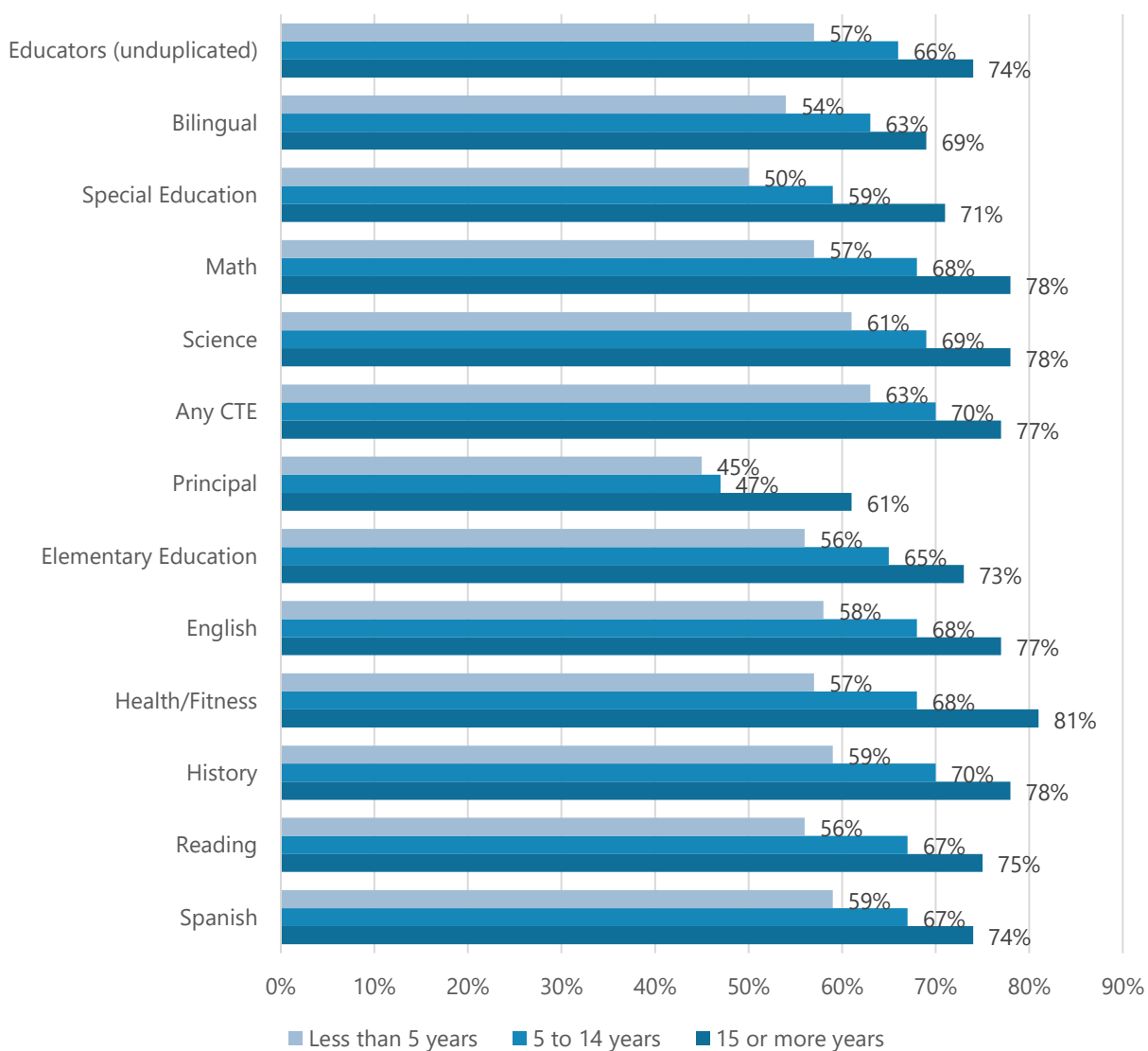


Table 14: Same-school retention rates for educators under 60 with 15+ years of experience

Endorsement area	Educators in study group			Same school, four years		
	2016	2017	2018	2016	2017	2018
Educators (unduplicated)	14,290	16,210	18,140	74%	76%	78%
Bilingual Education	880	1,050	1,250	69%	71%	73%
Special Education	2,380	2,730	3,060	71%	73%	76%
Mathematics	1,190	1,390	1,610	78%	79%	81%
Science	1,240	1,440	1,600	78%	79%	80%
Any CTE	2,290	2,370	2,370	77%	79%	81%
CTE Agriculture	190	190	180	74%	75%	82%
CTE Business/Marketing	680	720	710	75%	77%	79%
CTE Health	80	100	100	93%	86%	83%
CTE Human Services	390	400	410	76%	77%	77%
CTE Skilled & Technical Sciences	1,250	1,310	1,330	78%	80%	82%
Principal	2,400	2,490	2,620	61%	60%	63%
Elementary Education	7,720	9,130	10,530	73%	75%	78%
English	2,230	2,620	3,000	77%	79%	80%
Health/Fitness	1,490	1,740	1,990	81%	81%	82%
History	2,220	2,610	2,950	78%	80%	81%
Reading	1,480	1,760	2,040	75%	77%	79%
Spanish	530	610	700	74%	75%	78%

Table 15: Same-school retention rates for educators under 60 with 5-14 years of experience

Endorsement area	Educators in study group			Same school, four years		
	2016	2017	2018	2016	2017	2018
Educators (unduplicated)	20,170	20,120	21,030	66%	68%	71%
Bilingual Education	1,550	1,680	1,890	63%	66%	68%
Special Education	3,000	3,040	3,220	59%	63%	65%
Mathematics	1,720	1,800	1,970	68%	71%	74%
Science	1,380	1,390	1,490	69%	70%	73%
Any CTE	1,550	1,520	1,500	70%	73%	76%
CTE Agriculture	150	150	140	71%	71%	74%
CTE Business/Marketing	540	530	540	66%	71%	75%
CTE Health	130	150	150	78%	83%	82%
CTE Human Services	350	330	320	71%	73%	79%
CTE Skilled & Technical Sciences	710	730	730	70%	72%	75%
Principal	1,290	1,370	1,460	47%	46%	51%
Elementary Education	12,980	12,820	13,280	65%	68%	70%
English	2,570	2,510	2,580	68%	70%	72%
Health/Fitness	1,150	1,150	1,230	68%	71%	74%
History	2,060	1,950	1,940	70%	71%	75%
Reading	2,060	2,000	2,050	67%	70%	71%
Spanish	630	610	610	67%	68%	70%

Table 16: Same-school retention rates for educators under 60 with &lt;5 years of experience

Endorsement area	Educators in study group			Same school, four years		
	2016	2017	2018	2016	2017	2018
Educators (unduplicated)	13,260	14,430	15,050	57%	59%	61%
Bilingual Education	1,410	1,560	1,780	54%	57%	58%
Special Education	2,140	2,310	2,470	50%	51%	55%
Mathematics	1,290	1,410	1,440	57%	58%	60%
Science	930	1,030	1,150	61%	60%	62%
Any CTE	760	820	830	63%	64%	67%
CTE Agriculture	80	90	100	61%	66%	71%
CTE Business/Marketing	230	250	250	62%	65%	65%
CTE Health	100	100	110	65%	65%	68%
CTE Human Services	180	210	200	61%	67%	68%
CTE Skilled & Technical Sciences	340	370	370	64%	62%	65%
Principal	210	240	230	45%	47%	45%
Elementary Education	8,160	8,840	9,260	56%	58%	60%
English	1,340	1,560	1,660	58%	62%	62%
Health/Fitness	500	550	590	57%	58%	60%
History	1,050	1,160	1,240	59%	62%	63%
Reading	910	970	960	56%	59%	63%
Spanish	210	240	250	59%	56%	57%

### Retention by school characteristics: high- and low-poverty schools

Schools were classified into quartiles based on the percentage of the enrollment eligible for free- or reduced-price lunch (FRPL). “High-poverty” schools in this analysis have the highest FRPL-eligibility rates and account for 25% of the total public K-12 school enrollment. The “low-poverty” schools have the lowest FRPL-eligibility rates and account for 25% of the total public K-12 school enrollment. FRPL-eligible and total student counts were obtained from the annual OSPI Report Card Enrollment Data files for the years corresponding to the study group base years.<sup>12</sup>

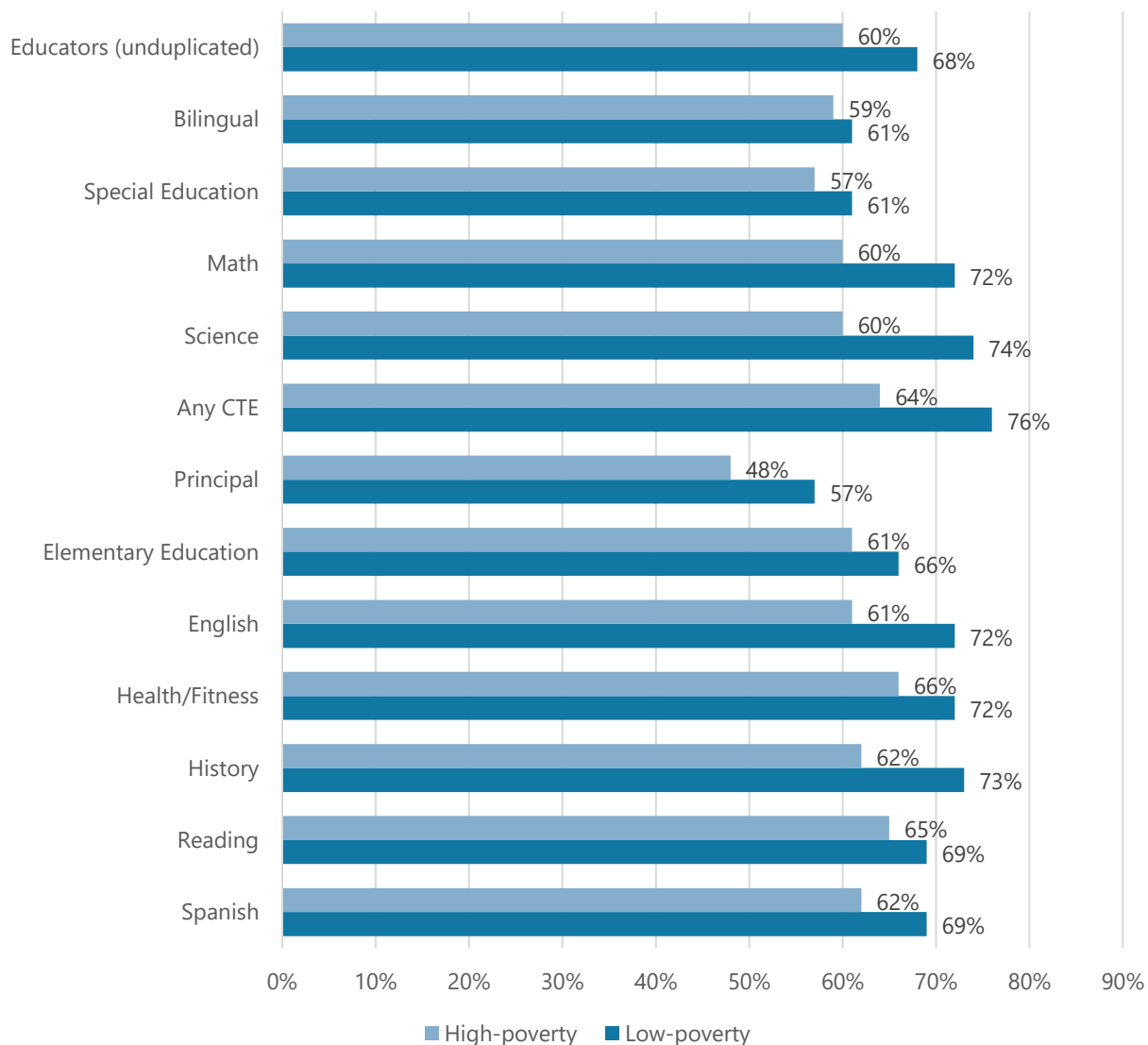
Same-school retention rates for high-poverty schools are lower in all endorsement categories than those in the lowest poverty quartile. The differences in the 2016 study group were particularly pronounced in Science, Mathematics and several CTE areas.

Figure 9 shows same-school retention rates for 2016 Study Group educators under 60 working in high- and low-poverty schools.

12. The files for 2016, 2017, and 2018 are available from the OSPI Data Portal (<https://www.k12.wa.us/data-reporting/data-portal>).



Figure 9: Same-school retention rates for educators under age 60 in high- and low-poverty schools, 2016 study group



Tables 17 and 18 show the same-school retention rates for educators working in high and low poverty schools.

Overall, there was an 8-9 percentage point difference between same-school retention rates for the three study groups. The differences in the 2016 study group were greatest in Science, Mathematics and several CTE areas.

Table 17: Same-school retention rates for educators under age 60 in high-poverty schools

Endorsement Area	Educators in Study Group			Same School, four years		
	2016	2017	2018	2016	2017	2018
Educators (unduplicated)	13,390	14,170	15,020	60%	63%	65%
Bilingual Education	1,780	1,910	2,140	59%	63%	65%
Special Education	2,030	2,230	2,400	57%	58%	61%
Mathematics	980	1,060	1,190	60%	62%	66%
Science	710	760	860	60%	63%	66%
Any CTE	850	850	910	64%	68%	72%
CTE Agriculture	70	90	90	58%	67%	73%
CTE Business/Marketing	280	290	300	62%	67%	74%
CTE Health	60	60	70	65%	75%	74%
CTE Human Services	180	180	190	67%	67%	71%
CTE Skilled & Technical Sciences	420	420	470	64%	67%	71%
Principal	1,120	1,170	1,230	48%	48%	52%
Elementary Education	9,290	9,870	10,390	61%	63%	65%
English	1,400	1,530	1,630	61%	65%	65%
Health/Fitness	760	830	910	66%	71%	70%
History	1,130	1,210	1,330	62%	66%	69%
Reading	1,460	1,550	1,630	65%	68%	70%
Spanish	390	400	410	62%	63%	69%

Table 18: Same-school retention rates for educators under 60 in low-poverty schools

Endorsement Area	Educators in Study Group			Same School, four years		
	2016	2017	2018	2016	2017	2018
Educators (unduplicated)	11,090	11,910	12,890	68%	71%	73%
Bilingual Education	620	720	880	61%	62%	65%
Special Education	1,630	1,750	1,940	61%	66%	66%
Mathematics	1,100	1,140	1,260	72%	75%	75%
Science	950	1,020	1,120	74%	74%	75%
Any CTE	1,060	1,050	1,050	76%	79%	80%
CTE Agriculture	70	70	70	71%	71%	82%
CTE Business/Marketing	340	330	340	74%	80%	80%
CTE Health	80	80	90	85%	88%	78%
CTE Human Services	190	200	190	75%	76%	77%
CTE Skilled & Technical Sciences	570	580	570	75%	79%	79%
Principal	800	880	920	57%	58%	59%
Elementary Education	6,260	6,940	7,640	66%	70%	73%
English	1,670	1,780	1,900	72%	73%	76%
Health/Fitness	780	820	920	72%	73%	76%
History	1,430	1,480	1,560	73%	75%	77%
Reading	830	910	960	69%	72%	76%
Spanish	350	370	400	69%	68%	72%

## Educators leaving public K-12 employment

At the other extreme of retention are educators who are assumed to have left public K-12 employment, i.e., those absent from public K-12 employment in the last one to three years of the follow-up period. To some extent, the patterns related to the K-12 exit rates are related to the retention rates at the other extreme – the same-school retention rate. Tables 19 through 31 show the K-12 exit rate by endorsement area for the subgroups displayed in the previous section.

### Public K-12 employment exit rate: age

Figure 10 shows exit rates for educators aged 40–59 and under 40 in the 2016 study group. Overall, the older group exited public K-12 at a rate of 9%; the exit rate for younger educators was 13%. In all endorsement areas except Principal, the younger educators exited at higher rates than the older educators. The largest differences between the two groups are Bilingual Education, English and Spanish. Table 19 shows the exit rates for the older group of educators. Although educators with Principal endorsements have low same-school retention rates (see Table 6), they also have low exit rates. Table 20 shows exit rates for younger educators.

Figure 10: Public K-12 exit rates for educators age 40–59 and age under 40, 2016 study group

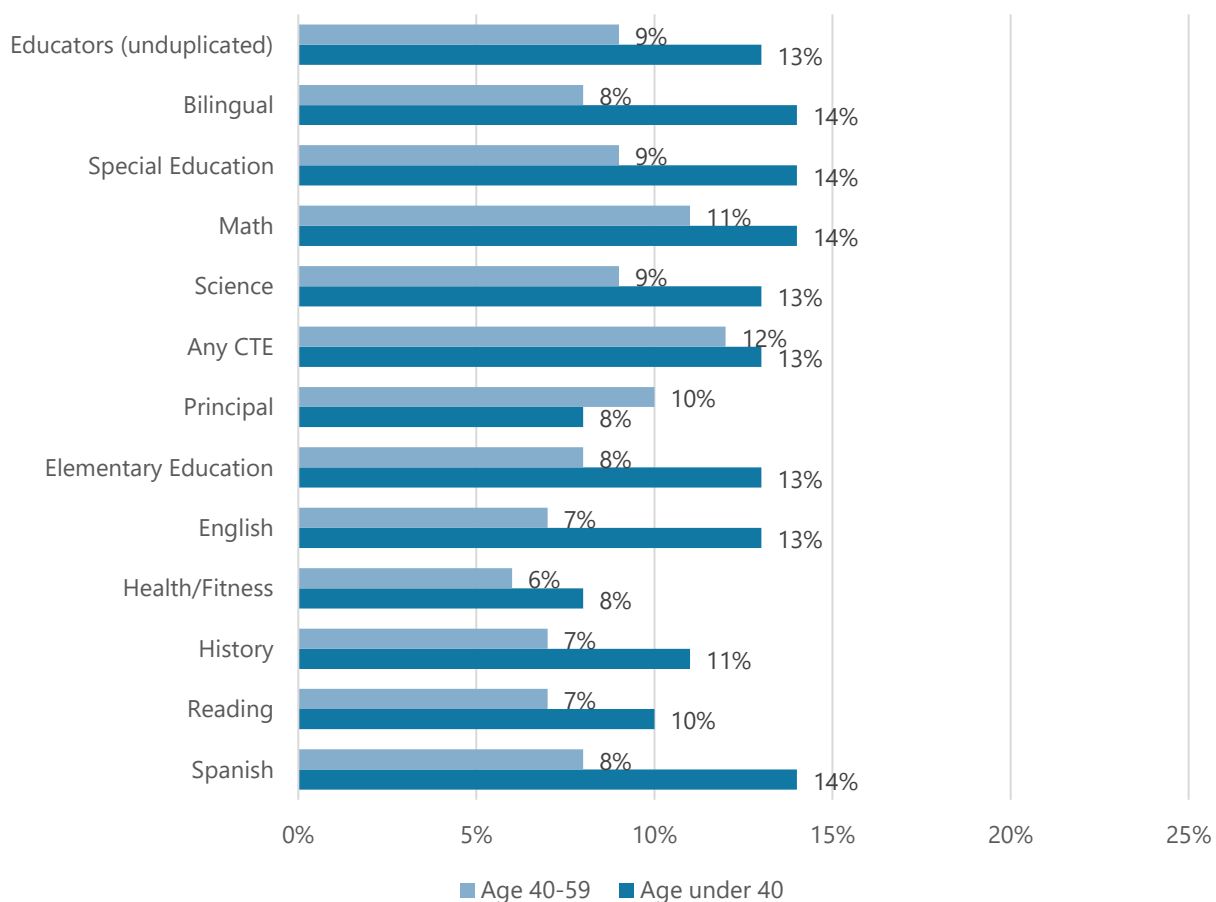


Table 19: Public K-12 exit rates for educators aged 40-59

Endorsement Area	Educators in Study Group			Exit Rate		
	2016	2017	2018	2016	2017	2018
Educators (unduplicated)	26,610	28,890	31,410	9%	9%	8%
Bilingual Education	1,900	2,140	2,450	8%	8%	8%
Special Education	4,550	4,970	5,480	9%	9%	9%
Mathematics	2,190	2,460	2,720	11%	10%	10%
Science	2,180	2,410	2,640	9%	9%	10%
Any CTE	3,500	3,570	3,570	12%	11%	11%
CTE Agriculture	260	270	260	16%	14%	9%
CTE Business/Marketing	1,140	1,180	1,190	12%	12%	11%
CTE Health	190	220	220	7%	7%	12%
CTE Human Services	650	640	660	12%	12%	11%
CTE Skilled & Technical Sciences	1,880	1,940	1,960	12%	10%	10%
Principal	3,060	3,240	3,400	10%	10%	9%
Elementary Education	15,750	17,310	19,030	8%	8%	8%
English	3,770	4,130	4,580	7%	7%	8%
Health/Fitness	1,960	2,220	2,530	6%	6%	7%
History	3,450	3,790	4,130	7%	7%	7%
Reading	2,430	2,680	3,010	7%	6%	6%
Spanish	860	960	1,100	8%	9%	9%

Table 20: Public K-12 exit rates for educators under age 40

Endorsement Area	Educators in Study Group			Exit Rate		
	2016	2017	2018	2016	2017	2018
Educators (unduplicated)	22,220	22,980	23,880	13%	13%	13%
Bilingual Education	2,010	2,250	2,560	14%	13%	13%
Special Education	3,140	3,290	3,430	14%	14%	13%
Mathematics	2,160	2,270	2,440	14%	13%	14%
Science	1,460	1,550	1,690	13%	14%	15%
Any CTE	1,230	1,270	1,260	13%	14%	13%
CTE Agriculture	160	170	170	11%	8%	11%
CTE Business/Marketing	350	350	350	13%	14%	13%
CTE Health	130	140	150	15%	16%	14%
CTE Human Services	310	320	310	10%	12%	10%
CTE Skilled & Technical Sciences	500	540	530	15%	17%	16%
Principal	910	910	960	8%	7%	9%
Elementary Education	13,610	14,000	14,550	13%	13%	12%
English	2,560	2,730	2,830	13%	14%	14%
Health/Fitness	1,270	1,310	1,370	8%	10%	10%
History	2,020	2,070	2,160	11%	12%	12%
Reading	2,080	2,120	2,120	10%	10%	10%
Spanish	560	540	500	14%	15%	13%

## Public K-12 employment exit rate: gender

Figure 11 shows public K-12 exit rates for male and female educators under 60 in the 2016 study group. Tables 21 and 22 show exit rates for female and male educators. Exit rates for those with Health/Fitness, History, and Reading endorsements are consistently lower than the overall rate.

*Figure 11: Public K-12 exit rates for male and female educators under age 60, 2016 study group*

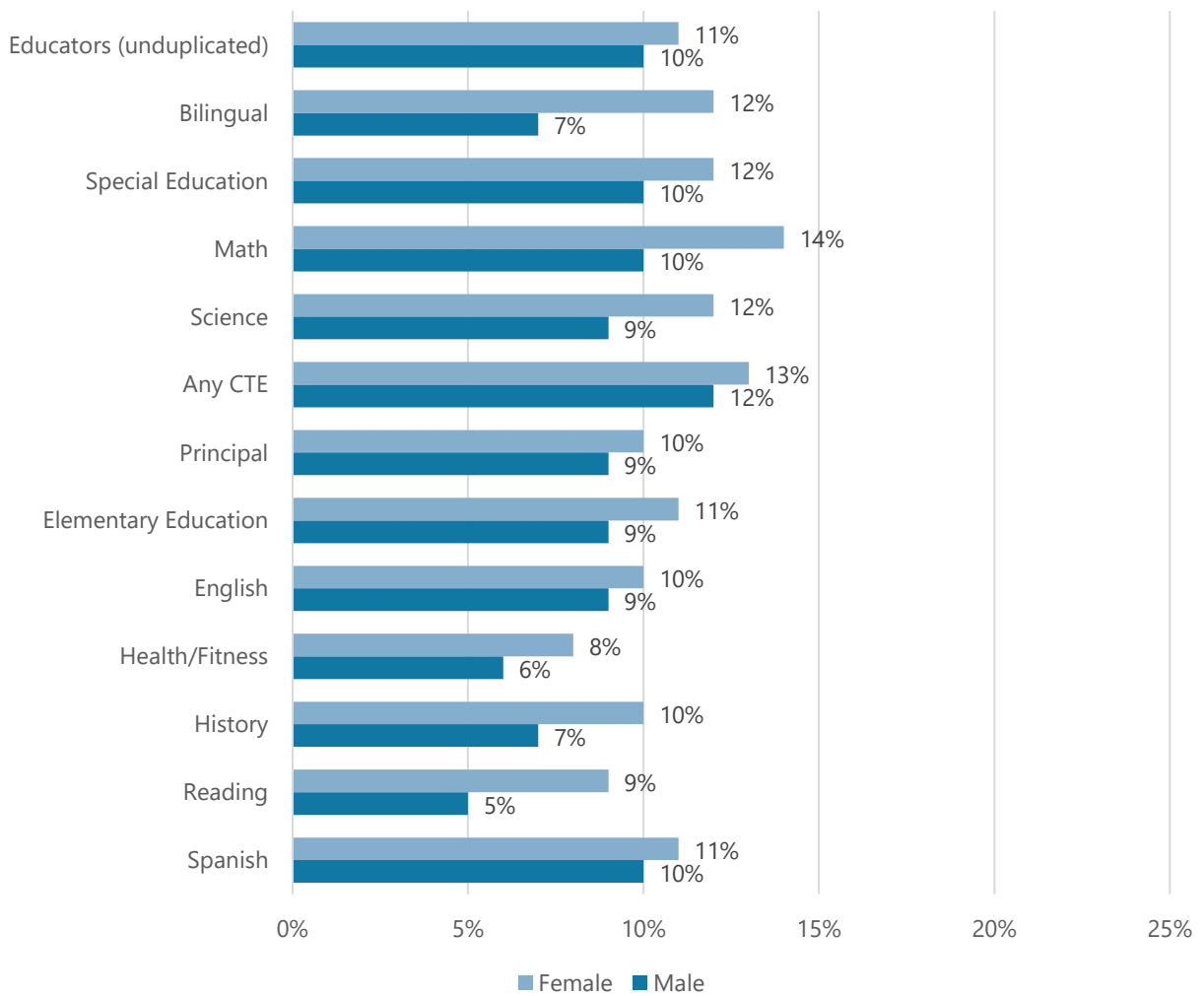


Table 21: Public K-12 exit rates for female educators under age 60

Endorsement Area	Educators in Study Group			Exit Rate		
	2016	2017	2018	2016	2017	2018
Educators (unduplicated)	35,510	37,950	40,700	11%	11%	11%
Bilingual Education	3,360	3,760	4,300	12%	11%	11%
Special Education	6,410	6,880	7,410	12%	11%	11%
Mathematics	2,480	2,720	3,000	14%	13%	13%
Science	2,040	2,230	2,470	12%	11%	13%
Any CTE	2,570	2,640	2,640	13%	12%	11%
CTE Agriculture	190	210	220	15%	11%	10%
CTE Business/Marketing	810	830	830	14%	13%	12%
CTE Health	200	220	240	13%	13%	15%
CTE Human Services	840	850	840	11%	12%	11%
CTE Skilled & Technical Sciences	910	980	990	12%	11%	11%
Principal	2,050	2,190	2,370	10%	11%	10%
Elementary Education	24,740	26,530	28,510	11%	10%	10%
English	4,420	4,800	5,200	10%	10%	10%
Health/Fitness	1,560	1,720	1,930	8%	9%	9%
History	2,690	2,890	3,120	10%	9%	10%
Reading	4,100	4,380	4,690	9%	8%	8%
Spanish	1,080	1,140	1,230	11%	11%	11%

Table 22: Public K-12 exit rates for male educators under age 60

Endorsement Area	Educators in Study Group			Exit Rate		
	2016	2017	2018	2016	2017	2018
Educators (unduplicated)	13,310	13,920	14,590	10%	10%	9%
Bilingual Education	550	620	700	7%	9%	8%
Special Education	1,270	1,380	1,500	10%	10%	9%
Mathematics	1,870	2,000	2,150	10%	10%	10%
Science	1,610	1,730	1,860	9%	10%	10%
Any CTE	2,160	2,200	2,180	12%	12%	11%
CTE Agriculture	230	220	210	13%	13%	9%
CTE Business/Marketing	680	690	710	10%	11%	10%
CTE Health	120	140	130	6%	7%	9%
CTE Human Services	120	120	130	11%	11%	9%
CTE Skilled & Technical Sciences	1,470	1,490	1,500	12%	12%	12%
Principal	1,920	1,970	1,990	9%	8%	8%
Elementary Education	4,620	4,780	5,080	9%	8%	8%
English	1,900	2,060	2,200	9%	10%	8%
Health/Fitness	1,670	1,800	1,970	6%	6%	7%
History	2,790	2,980	3,170	7%	8%	7%
Reading	410	420	440	5%	4%	5%
Spanish	330	350	370	10%	10%	10%

## Public K-12 employment exit rate: race and ethnicity

Figure 12 shows public K-12 exit rates for BIPOC and white alone educators under 60 in the 2016 study group. BIPOC educators with History and English endorsements exit the public K-12 employment at relatively high rates compared with white alone educators. BIPOC educators with Bilingual Education and Reading endorsements exit at relatively low rates.

Tables 23 and 24 show exit rates for BIPOC and white alone educators under age 60.

*Figure 12: Public K-12 exit rates for BIPOC and white alone educators under age 60, 2016 study group*

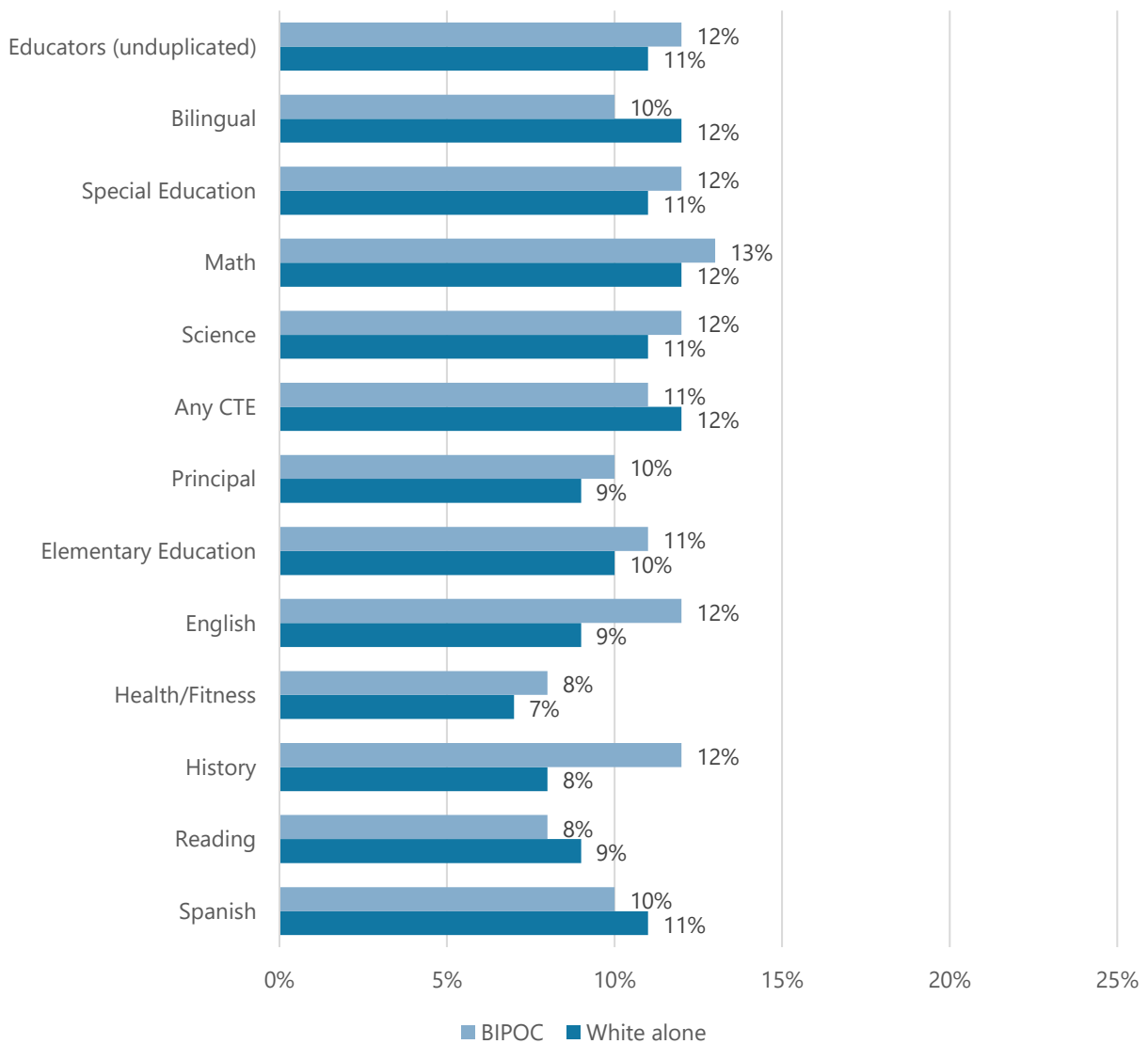


Table 23: Public K-12 exit rates for BIPOC educators under age 60

Endorsement Area	Educators in Study Group			Exit Rate		
	2016	2017	2018	2016	2017	2018
Educators (unduplicated)	5,230	5,710	6,230	12%	12%	11%
Bilingual Education	850	960	1,080	10%	9%	9%
Special Education	700	790	900	12%	12%	12%
Mathematics	490	540	580	13%	12%	13%
Science	320	350	390	12%	12%	12%
Any CTE	350	370	400	11%	12%	12%
CTE Agriculture	<i>Suppressed due to small cell sizes.</i>					
CTE Business/Marketing	120	130	140	10%	10%	9%
CTE Health	<i>Suppressed due to small cell sizes.</i>					
CTE Human Services	70	70	80	12%	15%	13%
CTE Skilled & Technical Sciences	200	210	220	12%	11%	15%
Principal	470	510	570	10%	9%	8%
Elementary Education	3,230	3,510	3,820	11%	11%	10%
English	540	600	640	12%	12%	9%
Health/Fitness	280	290	340	8%	8%	10%
History	450	480	500	12%	11%	10%
Reading	310	320	370	8%	8%	11%
Spanish	310	330	370	10%	14%	16%

Table 24 shows exit rates for white alone educators under age 60.

Table 24: Public K-12 exit rates for white alone educators under age 60

Endorsement Area	Educators in Study Group			Exit Rate		
	2016	2017	2018	2016	2017	2018
Educators (unduplicated)	43,470	46,040	48,940	11%	10%	10%
Bilingual Education	3,050	3,410	3,920	12%	11%	11%
Special Education	6,960	7,440	7,990	11%	11%	10%
Mathematics	3,850	4,170	4,560	12%	11%	11%
Science	3,320	3,590	3,940	11%	11%	12%
Any CTE	4,360	4,450	4,400	12%	12%	11%
CTE Agriculture	400	410	410	14%	12%	10%
CTE Business/Marketing	1,360	1,390	1,390	12%	12%	11%
CTE Health	300	330	340	11%	10%	13%
CTE Human Services	890	890	880	11%	11%	10%
CTE Skilled & Technical Sciences	2,160	2,260	2,260	12%	12%	11%
Principal	3,490	3,640	3,790	9%	10%	9%
Elementary Education	26,090	27,760	29,720	10%	10%	9%
English	5,770	6,250	6,740	9%	10%	10%
Health/Fitness	2,940	3,220	3,560	7%	8%	8%
History	5,020	5,370	5,770	8%	8%	8%
Reading	4,200	4,470	4,760	9%	8%	8%
Spanish	1,110	1,160	1,230	11%	10%	9%



## Younger educators

Figure 13 shows public K-12 exit rates for BIPOC and white alone educators under 40 in the 2016 study group. Young BIPOC educators leave public K-12 employment at higher rates than white alone educators in all endorsement areas except Bilingual Education. Tables 25 and 26 provide additional detail.

*Figure 13: Public K-12 exit rates for BIPOC and white alone educators under age 40, 2016 study group*

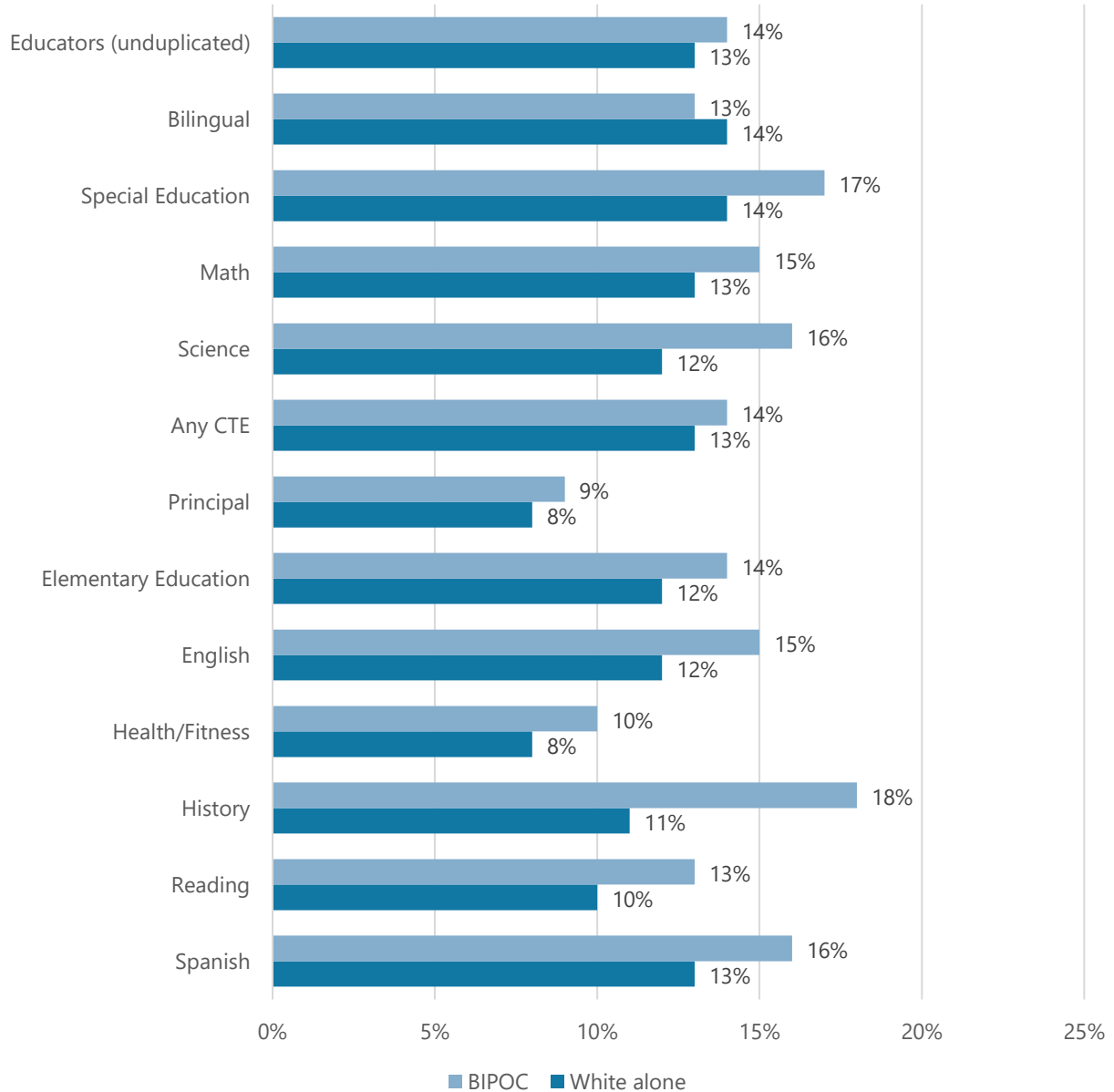


Table 25: Public K-12 exit rates for BIPOC Educators under age 40

Endorsement Area	Educators in Study Group			Exit Rate		
	2016	2017	2018	2016	2017	2018
Educators (unduplicated)	2,630	2,840	3,110	14%	14%	13%
Bilingual Education	420	460	540	13%	11%	12%
Special Education	320	360	410	17%	16%	15%
Mathematics	270	300	310	15%	12%	15%
Science	150	160	170	16%	13%	14%
Any CTE	120	130	140	14%	22%	16%
CTE Agriculture	<i>Suppressed due to small cell sizes.</i>					
CTE Business/Marketing	50	50	50	13%	22%	14%
CTE Health	<i>Suppressed due to small cell sizes.</i>					
CTE Human Services	30	30	40	9%	19%	8%
CTE Skilled & Technical Sciences	60	60	60	16%	21%	20%
Principal	120	130	140	9%	6%	8%
Elementary Education	1,660	1,780	1,960	14%	13%	13%
English	250	280	300	15%	16%	11%
Health/Fitness	130	130	140	10%	9%	14%
History	170	180	190	18%	12%	10%
Reading	150	140	160	13%	11%	14%
Spanish	100	110	120	16%	21%	20%

Table 26: Public K-12 exit rates for white alone educators under age 40

Endorsement Area	Educators in Study Group			Exit Rate		
	2016	2017	2018	2016	2017	2018
Educators (unduplicated)	19,530	20,080	20,710	13%	13%	12%
Bilingual Education	1,590	1,780	2,020	14%	13%	14%
Special Education	2,810	2,910	3,010	14%	14%	13%
Mathematics	1,880	1,960	2,120	13%	13%	13%
Science	1,310	1,390	1,510	12%	13%	15%
Any CTE	1,110	1,140	1,120	13%	13%	13%
CTE Agriculture	160	160	160	9%	7%	11%
CTE Business/Marketing	300	290	300	13%	12%	12%
CTE Health	120	120	130	16%	15%	13%
CTE Human Services	270	290	270	10%	11%	10%
CTE Skilled & Technical Sciences	440	470	470	14%	16%	15%
Principal	780	780	810	8%	7%	9%
Elementary Education	11,940	12,200	12,570	12%	12%	12%
English	2,300	2,440	2,520	12%	14%	14%
Health/Fitness	1,140	1,180	1,230	8%	10%	10%
History	1,840	1,890	1,970	11%	11%	11%
Reading	1,930	1,970	1,950	10%	10%	9%
Spanish	450	430	380	13%	14%	11%

## Public K-12 employment exit rate: experience

Figure 14 shows exit rates by endorsement area and educator experience for the 2016 study group. Exit rates decrease as educator experience increases, mirroring the pattern of same-school retention rates. The overall exit rate for educators with 15 years or more experience is 7-8%. For educators with five to 14

years of experience, the exit rate was 9% for the 2016 and 2017 study groups and 8% for the 2018 study group. There was a dramatic difference for the educators with less than five years of experience, who had exit rates of 16% for the three study groups. Tables 27 through 29, which follow Figure 14, provide details.

Figure 14: Public K-12 exit rates for educators under age 60 by experience, 2016 study group

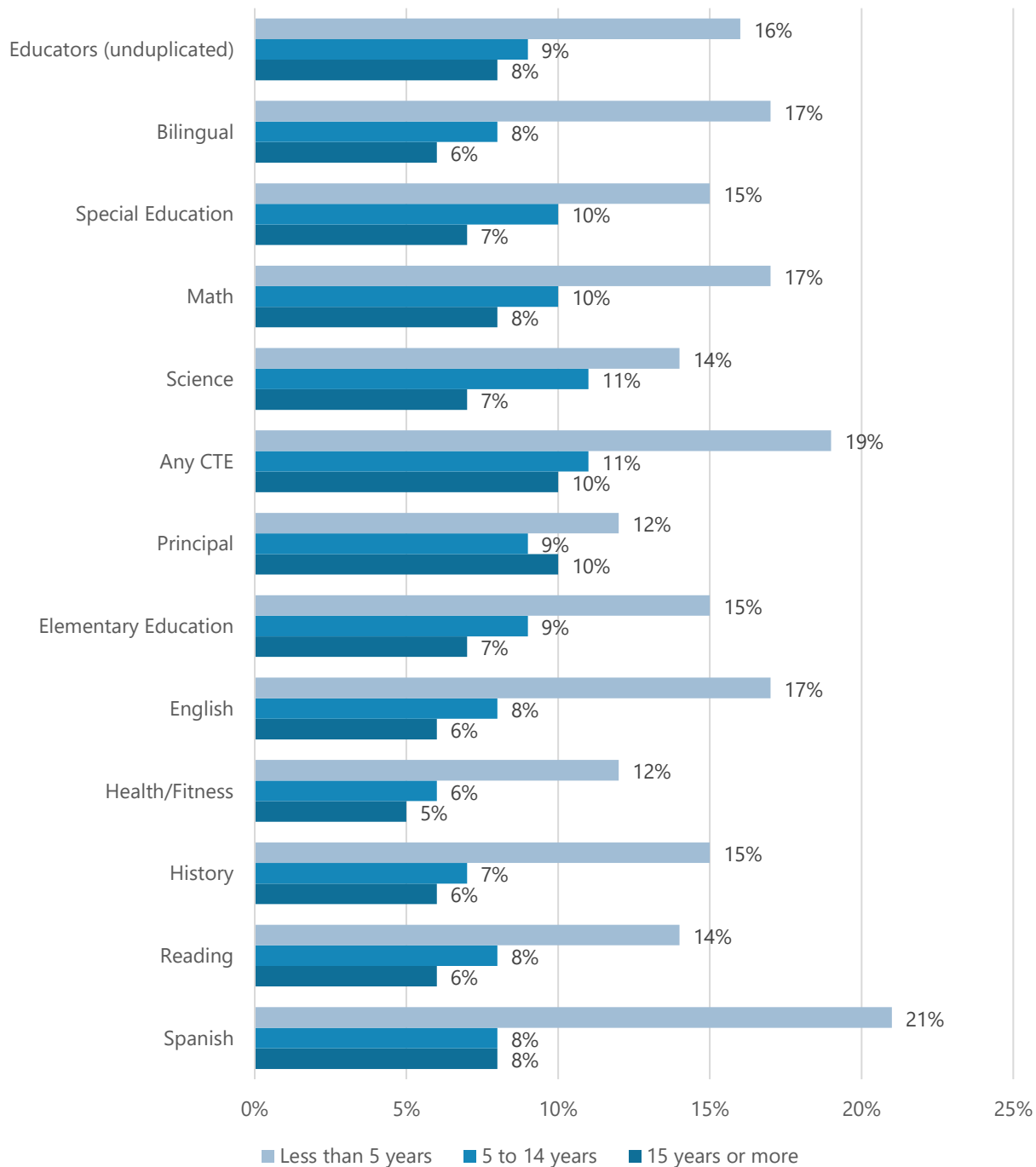


Table 27: Public K-12 exit rates for educators under age 60 with 15 or more years of experience

Endorsement Area	Educators in Study Group			Exit Rate		
	2016	2017	2018	2016	2017	2018
Educators (unduplicated)	14,350	16,290	18,210	8%	7%	7%
Bilingual Education	880	1,060	1,260	6%	7%	7%
Special Education	2,390	2,740	3,070	7%	7%	7%
Mathematics	1,200	1,400	1,620	8%	6%	7%
Science	1,250	1,450	1,610	7%	7%	8%
Any CTE	2,300	2,380	2,380	10%	9%	9%
CTE Agriculture	190	190	180	14%	12%	7%
CTE Business/Marketing	690	720	710	10%	10%	10%
CTE Health	80	100	100	4%	4%	9%
CTE Human Services	390	400	410	10%	9%	10%
CTE Skilled & Technical Sciences	1,260	1,320	1,340	9%	7%	8%
Principal	2,420	2,500	2,630	10%	9%	8%
Elementary Education	7,750	9,170	10,580	7%	7%	6%
English	2,240	2,630	3,010	6%	6%	6%
Health/Fitness	1,500	1,750	2,000	5%	6%	6%
History	2,230	2,620	2,970	6%	6%	6%
Reading	1,480	1,770	2,050	6%	5%	5%
Spanish	530	610	700	8%	7%	7%

Table 28 shows exit rates for educators with five to 14 years of experience.

Table 28: Public K-12 exit rates for educators under age 60 with 5-14 years of experience

Endorsement Area	Educators in Study Group			Exit Rate		
	2016	2017	2018	2016	2017	2018
Educators (unduplicated)	20,280	20,230	21,120	9%	9%	8%
Bilingual Education	1,560	1,690	1,900	8%	8%	8%
Special Education	3,010	3,060	3,240	10%	9%	9%
Mathematics	1,730	1,810	1,980	10%	9%	9%
Science	1,390	1,400	1,500	11%	10%	10%
Any CTE	1,560	1,530	1,500	11%	11%	10%
CTE Agriculture	150	150	140	13%	11%	10%
CTE Business/Marketing	540	530	540	13%	12%	10%
CTE Health	130	150	150	4%	6%	9%
CTE Human Services	350	330	320	9%	10%	8%
CTE Skilled & Technical Sciences	720	730	740	12%	13%	12%
Principal	1,300	1,380	1,460	9%	8%	8%
Elementary Education	13,030	12,890	13,340	9%	8%	8%
English	2,580	2,520	2,590	8%	9%	8%
Health/Fitness	1,160	1,160	1,230	6%	6%	6%
History	2,070	1,950	1,950	7%	7%	7%
Reading	2,070	2,000	2,050	8%	7%	7%
Spanish	630	610	620	8%	10%	9%

Table 29 shows exit rates for educators with less than five years of experience.

*Table 29: Public K-12 exit rates for educators under age 60 with less than 5 years of experience*

Endorsement area	Educators in Study Group			Exit Rate		
	2016	2017	2018	2016	2017	2018
Educators (unduplicated)	13,350	14,550	15,150	16%	16%	16%
Bilingual Education	1,420	1,570	1,790	17%	16%	15%
Special Education	2,150	2,330	2,490	15%	16%	15%
Mathematics	1,300	1,430	1,460	17%	18%	19%
Science	950	1,050	1,150	14%	16%	18%
Any CTE	770	830	830	19%	20%	18%
CTE Agriculture	80	90	100	16%	12%	14%
CTE Business/Marketing	230	250	250	17%	17%	17%
CTE Health	100	100	110	23%	23%	21%
CTE Human Services	180	210	200	16%	16%	12%
CTE Skilled & Technical Sciences	340	370	370	19%	22%	22%
Principal	210	240	240	12%	16%	15%
Elementary Education	8,210	8,900	9,310	15%	16%	15%
English	1,360	1,580	1,670	17%	17%	17%
Health/Fitness	500	550	590	12%	15%	15%
History	1,060	1,170	1,250	15%	17%	17%
Reading	920	970	970	14%	14%	14%
Spanish	220	240	250	21%	21%	20%

## Public K-12 employment exit rate: high and low-poverty schools

Figure 15 shows public K-12 education exit rates for the 2016 study group educators under age 60 in high- and low-poverty schools. Overall, there is little difference in the exit rates for high-poverty and low-poverty schools, but there are differences across endorsement areas. Tables 30 and 31 show exit rates for educators working in high- and low-poverty schools.

Figure 15: Public K-12 exit rates for educators under age 60 in high- and low-poverty schools, 2016 study group

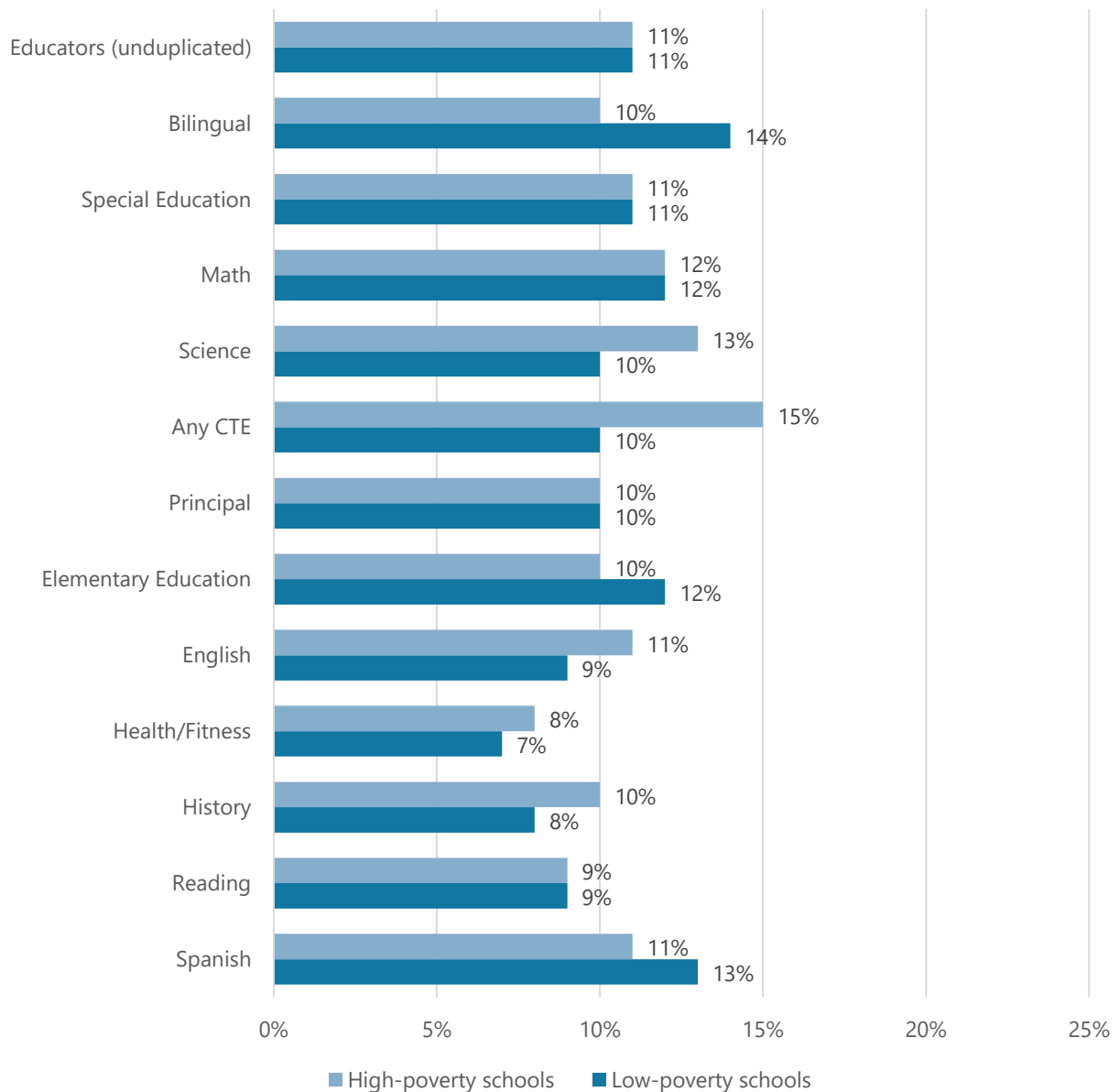


Table 30: Public K-12 exit rates for educators under age 60 in high-poverty schools

Endorsement Area	Educators in Study Group			Exit Rate		
	2016	2017	2018	2016	2017	2018
Educators (unduplicated)	13,460	14,280	15,120	11%	11%	11%
Bilingual Education	1,790	1,940	2,160	10%	10%	9%
Special Education	2,040	2,240	2,410	11%	11%	11%
Mathematics	990	1,070	1,200	12%	12%	11%
Science	710	770	870	13%	14%	14%
Any CTE	850	860	910	15%	13%	12%
CTE Agriculture	70	90	100	18%	17%	12%
CTE Business/Marketing	280	290	310	16%	14%	11%
CTE Health	60	60	70	13%	13%	13%
CTE Human Services	180	180	200	12%	14%	9%
CTE Skilled & Technical Sciences	430	420	470	15%	12%	14%
Principal	1,120	1,170	1,240	10%	9%	10%
Elementary Education	9,330	9,940	10,460	10%	11%	10%
English	1,410	1,530	1,640	11%	12%	11%
Health/Fitness	760	830	920	8%	8%	8%
History	1,140	1,220	1,340	10%	10%	10%
Reading	1,470	1,560	1,650	9%	8%	8%
Spanish	390	410	410	11%	11%	10%

Table 31: Public K-12 exit rates for educators under age 60 years in low-poverty schools

Endorsement Area	Educators in Study Group			Exit Rate		
	2016	2017	2018	2016	2017	2018
Educators (unduplicated)	11,160	11,980	12,930	11%	10%	10%
Bilingual Education	620	730	880	14%	13%	11%
Special Education	1,640	1,760	1,950	11%	10%	11%
Mathematics	1,110	1,150	1,270	12%	10%	11%
Science	960	1,030	1,130	10%	9%	11%
Any CTE	1,070	1,060	1,050	10%	9%	11%
CTE Agriculture	70	70	70	14%	14%	12%
CTE Business/Marketing	340	330	340	11%	9%	11%
CTE Health	80	80	90	7%	5%	13%
CTE Human Services	190	200	190	10%	13%	13%
CTE Skilled & Technical Sciences	580	590	580	11%	9%	11%
Principal	810	880	920	10%	9%	7%
Elementary Education	6,280	6,970	7,660	12%	10%	10%
English	1,690	1,800	1,910	9%	9%	9%
Health/Fitness	790	820	920	7%	7%	8%
History	1,440	1,490	1,570	8%	9%	9%
Reading	830	910	960	9%	7%	7%
Spanish	360	370	400	13%	12%	9%

## Employment outside K-12

Information from the Employment Security Department (ESD) was used to assess the employment of educators during and after their public K-12 employment. Wage information from the Unemployment Insurance (UI) program—including earnings for each calendar quarter and the employer's industry and ownership (private or public)—supplements the information in the OSPI personnel records and provides information about employment outside the public K-12 education sector. Approximately 99% of all study group members were matched with UI program employment and earnings data.

Under the UI system, employers report to ESD every quarter. For each employee, the reports contain the quarterly earnings, hours worked, and employer industry and ownership. The industry is reported using North American Industry Classification System (NAICS) code. School districts, tribal governments, and charter school organizations are employers reporting to ESD. The employee's occupation is not available in these records, so there is no way to distinguish the role of the individual within the organization.

Alignment between the UI quarterly wage reporting does not perfectly mesh with school years. The fourth quarter of one calendar year and the first and second quarters of the following calendar year are aligned with a school year. The third quarter could include earnings related to either or both of that school year or the preceding one. Figure 15 shows this potential overlap across school years in the third calendar quarter (July through September).

*Figure 16: Alignment of calendar quarters (UI wage data) and school year (educator data)*

Data Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
UI Wage	Quarter 1			Quarter 2			Quarter 3			Quarter 4		
Educator	School Year X						School Year X+1					

To avoid ambiguity in an employment follow-up analysis, follow-up years for employment beginning with the first full calendar year after the apparent end of public K-12 employment, i.e., the first follow-up year for school year X will be calendar year X+1.

Appendix F provides additional details related to UI wage data.

UI wage data were compiled for the educators in the three study groups. For each individual, wages were summed over all public K-12 employers. For individuals employed by both public K-12 employers and by employers outside public K-12, a primary industry was identified — the industry associated with the highest wage total for the calendar year. For some study group members, the primary employer was a non-public K-12 employer. Quarterly records with earnings greater than or equal to \$500.00 were used in this analysis.

The longitudinal wage analysis focuses on the 2016 educator study group — those educators working in public K-12 education who, as of October 1, 2015, had an endorsement that was a focus of this study. Table 32 shows counts of 2016 study group educators by primary industry of their employment.



Table 32: 2016 study group by primary industry of employment

Primary Industry	Calendar Year				
	2016	2017	2018	2019	2020
Public K-12	51,410	49,390	47,660	46,070	44,540
Other Industry	300	720	1,050	1,400	1,600
Total	51,710	50,120	48,710	47,470	46,140
Percent Public K-12	99%	99%	98%	97%	97%

Columns may not sum to the total due to rounding.

The following tables show employment by industry for the 2016 educator study group. The industry breakdown used in the tables is shown as “Study Industry Group” in Figure 16. One NAICS Supersector — Education and Health Services — is divided into three categories: Public K-12 Education; Education Services, except Public K-12; and Health Services. These industry groups shown in the table are based on NAICS Supersectors defined by the U.S. Bureau of Labor Statistics.<sup>13</sup>

Figure 17: Industry groups

Study Industry Group	Supersector	Sectors
Public K-12 Education	Education and Health Services	Educational Services
Education Services, except Public K-12		Health Care and Social Assistance
Health Services		
Government	Government	Federal Government; State Government; Local Government
Goods Producing	Natural Resources and Mining	Logging, Mining
	Construction	Construction
	Manufacturing	Manufacturing
Trade, Transportation, Utilities	Trade, Transportation, Utilities	Wholesale Trade, Retail Trade, Transportation and Warehousing, Utilities
Information	Information	Information
Professional and Business Services	Professional and Business Services	Professional, Scientific and Technical Services; Management of Companies and Enterprises; Administrative and Support and Waste Management and Remediation Services
Other Services	Information; Financial Activities; Leisure and Hospitality; Other Services, except Public Administration	Information; Finance and Insurance; Real Estate and Rental and Leasing; Arts, Entertainment and Recreation; Accommodation and Food Services; Other Services, except Public Administration

Some educators whose primary employer is public K-12 education are concurrently employed in other industries. Table 33 shows secondary employment by sector for the 2016 educator study group with the primary employer public K-12 education.

13. [NAICS Supersectors: U.S. Bureau of Labor Statistics \(bls.gov\)](https://www.bls.gov)

*Table 33: Secondary employment by industry group, 2016 study group where public K-12 employment is primary*

Industry Group	2016	2017	2018	2019	2020
Education Services (except public K-12)	910	800	720	650	560
Public Administration	840	780	730	650	530
Health Services	380	250	210	300	240
Trade, Transportation, Utilities	330	290	250	200	200
Professional and Business Services	250	230	190	180	160
Information, Financial Services, Leisure and Hospitality, Other Services	900	800	680	630	440
Goods-Producing	270	250	210	180	180
Total	3,860	3,390	2,990	2,780	2,310

Columns may not sum to the total due to rounding.

Table 34 shows the industry group of the primary employer for the 2016 study group of educators whose primary employer is other than public K-12 education.

*Table 34: Primary employment by industry group, 2016 study group where public K-12 employment is not primary*

Industry Group	2016	2017	2018	2019	2020
Education Services (except public K-12)	110	210	270	350	400
Public Administration	60	140	220	280	310
Health Services	30	90	140	200	240
Trade, Transportation, Utilities	10	60	100	120	150
Professional and Business Services	20	80	110	120	140
Information, Financial Services, Leisure and Hospitality, Other Services	40	100	150	240	260
Goods-Producing	10	40	70	80	100
Total	300	720	1,050	1,400	1,600

Columns may not sum to the total due to rounding.

The following tables show employment in public K-12 and other industries derived from UI program data. Calendar year wage data and employment counts are shown.

It is not unusual for an educator to have reported earnings from public K-12 school districts when there is no corresponding record in the Retention-Mobility file. Several factors account for this:

- The S-275 personnel file is a snapshot of employees as of Oct. 1 for each school year. Some employees begin employment after that date and are not captured in the file.
- The Retention-Mobility files supplement the S-275 personnel file with the addition of teachers in the CEDARS staff schedule tables. Educators in non-teaching positions — principals, educational staff associates, for example — are not captured through this process.

Table 35 shows earnings for 2016 study group educators who remained in the same school district for the base year (2016 school year) and the following three follow-up years — through the 2018-2019 school

year. For all but a few educators in this group, the industry of the primary employer was public K-12 education. The number of educators whose primary industry was public K-12 was stable through 2018 and decreased in 2019 and 2020. Median earnings for educators with primary employment in public K-12 education increased steadily through calendar year 2020, from \$68,700 in 2016 to \$95,300 in 2020. Unsurprisingly, the number of educators whose primary industry was other than public K-12 was small — around 100 through 2019, increasing to 350 in 2020. Median earnings for those whose primary industry of employment was not public K-12 increased through 2019 but decreased significantly in 2020, the first year of the COVID pandemic.

*Table 35: UI program employment and earnings for same-district educators*

Calendar Year Employment	2016	2017	2018	2019	2020
Public K-12	38,900	38,890	38,890	38,770	37,620
Other Industry	100	100	100	150	350
Median Earnings	2016	2017	2018	2019	2020
Public K-12	\$68,700	\$73,500	\$79,600	\$90,300	\$95,300
Other Industry	\$44,300	\$46,100	\$53,300	\$51,800	\$41,200

Dollar amounts, which are rounded to the nearest \$100, are not inflation-adjusted.

Table 36 shows counts for the 2,240 members of the 2016 educator study group who — based on analysis of OSPI Retention-Mobility data — left public K-12 employment as an educator after the 2015-2016 school year. UI program wage data suggests that some members continued employment in the public K-12 sector. As expected, employment data from the UI program show a sharp decrease in the number of study group members whose primary industry of employment was public K-12 education beginning with calendar year 2017. Study group members whose primary industry was not public K-12 education increased from 110 in 2016 to 420 in 2017 and remained steady through 2020. Median earnings for study group members whose primary industry of employment was public K-12 education decreased after 2016. After 2016, median earnings for those whose primary industry was not public K-12 education were higher than those whose primary employment was in public K-12 education.

*Table 36: Employment and earnings for educators under age 60 leaving after one year*

Calendar Year Employment	2016	2017	2018	2019	2020
Primary Industry: Public K-12	2,130	440	350	360	330
Primary Industry: Other	110	420	430	440	420
Median Earnings	2016	2017	2018	2019	2020
Primary Industry: Public K-12	\$37,000	\$7,400	\$6,700	\$11,700	\$10,700
Primary Industry: Other	\$36,600	\$30,000	\$32,700	\$39,800	\$41,400

Dollar amounts, which are rounded to the nearest \$100, are not inflation-adjusted.

Table 37 shows counts for the 2,190 members of the 2016 educator study group who, based on analysis of OSPI Retention-Mobility data, were not employed as public K-12 educators after 2017. As expected, employment data from the UI program show a sharp decrease in the number of study group members whose primary industry of employment was public K-12 education in calendar year 2018.

Study group members whose primary industry was not public K-12 education increased after 2017 and remained steady through 2020. Median earnings for this group decreased in an expected pattern after — lower in 2017 and then increasing each year through 2020.

*Table 37: Employment and earnings for educators under age 60 leaving after two years*

Calendar Year Employment	2016	2017	2018	2019	2020
Public K-12	2,160	1,970	430	410	370
Other Industry	30	90	370	390	350
Median Earnings	2016	2017	2018	2019	2020
Public K-12	\$60,800	\$41,200	\$6,700	\$11,200	\$16,000
Other Industry	\$46,800	\$38,000	\$32,200	\$38,300	\$43,700

Dollar amounts, which are rounded to the nearest \$100, are not inflation-adjusted.

## Summary and suggestions for future work

This descriptive study used data from two sources to analyze the employment of educators holding endorsements in high-demand areas.

Retention-Mobility data and teacher credential data from OSPI allowed an analysis that assessed retention by educator specialty. Employment data from the state's UI program expanded the study to include the employment of educators in other industries. It also provided data for employment in public K-12 education not captured by the Oct. 1 S-275 personnel data collection administered by OSPI.

Same-school and same-district retention rates by endorsement were evaluated for educators classified by age, gender, race and ethnicity, experience and school poverty characteristics. Overall retention rates were relatively high for older educators, male educators, educators with 15 or more years of experience, and educators in low-poverty schools. Compared with the overall retention rate for all educators under 60, rates were lower for BIPOC educators.

Certain endorsements showed high turnover across all educator and school characteristics.

- Educators with Special Education endorsements had low same-school and low same-district retention rates overall and for most subgroups based on educator and school characteristics. The exceptions were educators under age 40, Black, Indigenous and people of color (BIPOC) educators and educators with less than five years of experience.
- Educators with Bilingual Education endorsements had low same-school and low same-district retention rates overall. Those under age 40 had relatively high public K-12 exit rates. BIPOC educators had high same-district retention rates and low public K-12 exit rates compared with all BIPOC educators.
- The administrative career path taken by educators with Principal endorsements often leads to school changes within a district and employment across districts. Educators with Principal endorsements had low same-school and same-district retention rates overall and in all subgroups because the administrator career track often necessitates such changes. As expected, their exit rates from public K-12 were low for most subgroups. Exceptions to this were educators with Principal endorsements with 15 or more years of experience.

For most educators, public K-12 education employers were the primary source of earnings during calendar years 2016 through 2020. Top employers outside public K-12 education were in other education services (including private schools) and public administration (federal, state and local government).

Several factors complicated the analysis – overlapping study group members over the three study years, multiple endorsements held by individual educators, and employment of individual educators in more than one school in a given year. An approach to accommodate the effects of administrative coding changes was developed and applied in the analysis.

As additional data become available, the approach taken in this study could be extended to evaluate educator employment patterns as a new normal is established following the first years of the COVID pandemic. Expansion of the study could include the actual roles of the educators (teaching, educational staff associate, administrator), the type of license (Residency, Professional, Continuing, Career Technical Education, or limited), along with the specific endorsements held.

## Appendix A: Study group development

The OSPI Retention-Mobility data was used to determine public school employment for educators holding endorsements of interest. The Retention-Mobility file includes all educator types (administrators, teachers, educational staff associates and paraprofessionals) employed in a given school year.

### Schools replaced or reconfigured

Some schools were closed during the study period but were replaced with new buildings in a one-to-one relationship. When this happened, the old and new school records were combined using single, consistent coding. In other cases, a single school was replaced with a pair of new schools. In cases where a school in a base year was replaced during the follow-up period, the records of the new schools were merged with those of the original school. When both new schools were expressed in the study group base year, they were treated as separate schools throughout the analysis.

### Administrative coding changes

One other situation resulted in combining or recoding schools. Administrative changes resulted in the creation of separate districts for tribal schools. When possible, the early records where the tribal schools were assigned to a non-tribal school district were recoded to the new district and school coding.

### Educators excluded

Educators working in schools that closed with no obvious successor within the follow-up window were excluded from same-school retention rate calculations.

Educators associated with records with no school building assignment were excluded from the study groups.

All educators were included in the follow-up determination.

### Retention classification for educators working in more than one school

Some educators are employed in more than one school, and some are employed in more than one district. Educator retention is described at several levels – same-school retention, same-district retention and public K-12 retention. For educators working in multiple settings, if an educator continues working in the same school as the previous year, the same-school classification is applied. Similarly, if there is no same-school continuity but there is same-district employment, the educator is assigned to that category.

## Appendix B: Endorsement code categories

### Bilingual Education

Code	Endorsement	Code	Endorsement
0306	English as a Second	2307	Bilingual Education-Supporting
0307	Bilingual Education	3306	English as a Second Language
1306	English as a Second Language-Primary	3307	Bilingual Education
2306	English as a Second Language-Supporting	3336	English Language Learner

### Special Education

Code	Endorsement	Code	Endorsement
0002	Special Education	3390	Deaf Education
0304	Special Education	3391	Deaf Education with American Sign Language (ASL) Proficiency
0500	Early Childhood Special Education	3500	Early Childhood Special Education
1304	Special Education-Primary	5009	Varying Exceptionalities
1500	Early Childhood Special Education-Primary	5019	Mild/Moderate Impairments
3304	Special Education	5027	Orientation and Mobility
3360	Specialty: Deaf Education	5044	Learning Disabilities
3362	Specialty: Visually Impaired	5048	Behavior Disorders
		5052	Educable Mentally Handicapped

### Mathematics

Code	Endorsement	Code	Endorsement
0008	Mathematics	3403	Middle Level Math/Science
0837	Mathematics	3404	Middle Level Mathematics
1837	Mathematics-Primary	3837	Mathematics
2837	Mathematics-Supporting	5031	Middle School Math
3365	Specialty: Elementary Mathematics Specialist	8950	Mathematics Applied (V610000)

### Science

Code	Endorsement	Code	Endorsement
0009	Natural Sciences	0814	Physics
0051	Biological Science	1810	Science-Primary
0054	Earth Science	1811	Biology-Primary
0055	General Science	1812	Chemistry-Primary
0810	Science	1813	Earth Science-Primary
0811	Biology	1814	Physics-Primary
0812	Chemistry		
		Code	Endorsement
0813	Earth Science	2811	Biology-Supporting
		2812	Chemistry-Supporting
		2813	Earth Science-Supporting

2814	Physics-Supporting	5002	Physical Science
3364	Specialty: Environmental Sustainability	5021	Middle School Science
3405	Middle Level Science	5041	Secondary Education: Bioscience
3810	Science	5055	Natural Science
3811	Designated Science: Biology	5060	Geology
3812	Designated Science: Chemistry	5064	Environmental Science
3813	Designated Science: Earth Science	8960	Science Applied (V620000)
3814	Designated Science: Physics	8961	Biology Applied (V620001)

**Code Endorsement**

3815	Designated Science: Earth and Space Science
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**CTE: Agriculture**

**Code Endorsement**

0001	Agriculture
0830	Agriculture
1830	Agriculture Education-Primary
3830	Agriculture Education
8100	CTE Agriculture Education (V010000)
8101	Agribusiness (V010101)
8102	Agricultural Mechanics (V010201)

**Code Endorsement**

8104	Aquaculture (V010303)
8105	Horticulture (V010601)
8106	Floriculture (V010603)
8107	Agriculture Food Science (V011001)
8108	Natural Resources (V030101)
8109	Chemical Technology (V410301)
8110	Veterinarian Assistant (V510808)

**CTE: Business & Marketing**

**Code Endorsement**

0016	Business and Office Education
0831	Business Education
0833	Marketing Education
1831	Business Education-Primary
1833	Marketing Education-Primary
3831	Business Education
3832	Business and Marketing Education
3833	Marketing Education
8300	CTE Business Education (V070000)
8310	Publishing (V091001)
8311	Business Management (V520100)
8312	Accounting & Related Programs (V520300)
8313	Legal Administrative Services (V520403)
8314	Medical Administrative Services (V520404)
8315	Business Law (V520703)
8316	Banking Support Services (V520895)

**Code Endorsement**

8317	Computer Applications & Related Prog (V521206)
8318	Fashion Merchandising (V080102)
8319	Entrepreneurship (V080301)
8320	General Sales Operations (V080706)
8321	Sports & Recreational Marketing (V080907)
8322	Tourism and Travel Services (V081198)
8323	Auto Parts & Accessories Marketing (V081203)
8324	Advertising Service (V090201)
8325	Lodging Management (V520902)
8326	Marketing Management (V521401)
8327	Real Estate (V510501)
8400	CTE Marketing Education (V080000)
8500	CTE Business & Marketing Education (V078000)



## CTE: Health

Code	Endorsement	Code	Endorsement
8601	Health Infomatic Careers (V510700)	8607	Nursing Assistant (511614)
8602	Health Support Services Careers (V510710)	8608	Biomedical Science (V260102)
8603	Health Therapeutic Careers (V510800)	8609	Health Science Biotechnology (V261202)
8604	Health Diagnostic Careers (V510900)	8610	Health Support Services Careers (V510710)
8605	Dental Assisting (V510601)	8611	Global Health (V512210)
8606	Sports Medicine (V510709)		

## CTE: Human Services

Code	Endorsement	Code	Endorsement
0014	Home Economics	8643	Food Science Dietetics & Nutrition (V190504)
0331	American Sign Language	8644	Housing, Interiors & Furnishings (V190601)
0835	Home and Family Life Education	8645	Facilities Management & Maintenance (V190604)
0841	Family & Consumer Sciences Education	8646	Family and Community Services (V190707)
1841	Family & Consumer Sciences Education-Primary	8647	Early Childhood Education & Services (V190708)
3331	American Sign Language	8648	Textiles and Apparel (V190901)
3841	Family and Consumer Sciences	8649	Educational Para Pro (V200206)
5039	Family and Child Development	8650	Careers in Education (V200212)
8600	CTE Family & Consumer Sciences Ed (V200002)	8651	Culinary Arts (V200493)
8612	Personal Care Services (V310510)	8652	Hospitality, Recreation & Tourism (V310101)
8630	Cosmetology (V120403)	8670	Sign Language Interpreter (V510205)
8640	Food Production and Services (V120505)		
8641	Translation and Interpretation (V160103)		
8642	Consumer Services (V190403)		

## CTE: Skilled & Technical Sciences

Code	Endorsement	Code	Endorsement
0013	Industrial Arts	8703	Manufacturing Technology (V150100)
0832	Computer Science	8704	Criminal Protective Services (V430100)
0836	Technology Education	8705	Forensic Technology (V430106)
0840	Instructional Technology	8706	Fire Service (V430203)
1836	Technology Education-Primary	8707	Construction Trades (V460200)
3382	Computer Science	8708	Electrician (V460302)
3836	Technology Education	8717	Aircraft Technician (V470608)
5049	Computer Science	8718	Drafting (V480101)
8317	Computer Applications & Related Prog (V521206)	8719	Precision Metal Worker (V480500)
8700	CTE Technology Education (V210100)	8720	Aviation Occupations (V490100)
8701	Communication Technologies (V100100)	8721	Water Transportation Worker (V490300)
8702	Material Engineering (V141801)	8722	Commercial Design/Applied Art (V500400)

Code	Endorsement
8723	Stage Design Technician (V500502)
8724	Professional Crafts (V500700)

Code	Endorsement
8725	JROTC (V280300)
8726	Engineering (V143501)
8760	STEM Technology (V141000)

## Principal

Code	Endorsement
0701	Principal

## Elementary Education

Code	Endorsement
0000	Elementary
0024	Elementary Education
0400	Elementary Education
0501	Early Childhood Education
1400	Elementary Education-Primary
1401	Middle Level-Primary
1501	Early Childhood Education-Primary
2501	Early Childhood Education-Supporting

Code	Endorsement
3400	Elementary Education
3501	Early Childhood Education
5018	Early Childhood/Elementary
5022	Middle School Social Studies
5024	Multiple Subjects
5025	Elementary/Middle School
5032	General Subjects

## English

Code	Endorsement
0004	English/Language Arts
0031	English/Language Arts
0800	English/Language Arts
0802	English
1800	English/Language Arts-Primary

Code	Endorsement
1802	English-Primary
2802	English-Supporting
3800	English Language Arts
5057	Language Arts

## Health & Fitness

Code	Endorsement
0017	Physical Education/Recreation
0021	Physical Education
0302	Physical Education
0834	Health
1302	Health/Fitness-Primary

Code	Endorsement
2302	Health/Fitness-Supporting
3302	Health/Fitness
5001	Physical Education
5045	Health

## History

Code	Endorsement	Code	Endorsement
0041	Social Studies	1824	History-Primary
0820	Social Studies	2824	History-Supporting
0823	Geography	3820	Social Studies
0824	History	3824	History
0825	Political Science	5003	Social Science
1820	Social Studies-Primary	5047	World History

## Reading

Code	Endorsement	Code	Endorsement
0003	Reading	1305	Reading-Primary
0305	Reading	3305	Reading

## Spanish

Code	Endorsement	Code	Endorsement
0319	Spanish	2319	Spanish-Supporting
1319	Spanish-Primary	3319	Spanish

## Appendix C: Additional endorsement overlap tables

Table C-1: Endorsement overlap, 2017 study group

Endorsement Category	Study group Members with Endorsement	Number of Endorsements				
		1	2	3	4	Five or more
Any (unduplicated)	55,880	28,310	20,330	6,030	1,040	170
Bilingual Education	4,660	150	2,730	1,400	310	70
Special Education	9,110	1,760	5,000	1,900	370	80
Mathematics	5,000	1,600	2,130	970	240	60
Science	4,280	1,530	1,680	800	200	60
CTE Agriculture	490	180	170	90	30	10
CTE Business & Marketing	1,780	510	720	390	140	30
CTE Health	390	130	120	70	50	10
CTE Family & Consumer	1,160	470	390	210	70	20
CTE Skilled & Technical Sciences	2,840	790	990	770	250	50
Principal	4,680	1,490	1,420	1,360	350	60
Elementary Education	33,560	14,860	13,500	4,280	770	140
English	7,360	1,900	3,410	1,590	370	90
Health/Fitness	3,710	1,270	1,570	680	160	30
History	6,340	1,330	3,180	1,400	360	70
Reading	5,150	20	3,020	1,700	350	70
Spanish	1,590	320	640	490	130	20

Note: Endorsements of interest only are tallied in this table. Detail may not add to total due to rounding.

Table C-2: Endorsement overlap, 2018 study group

Endorsement Category	Study group Members with Endorsement	Number of Endorsements				
		1	2	3	4	Five or more
Any (unduplicated)	59,730	29,660	22,060	6,630	1,170	200
Bilingual Education	5,320	170	3,090	1,620	380	70
Special Education	9,870	1,900	5,400	2,060	410	90
Mathematics	5,450	1,660	2,350	1,070	290	80
Science	4,700	1,650	1,870	860	250	80
CTE Agriculture	500	180	170	90	40	20
CTE Business & Marketing	1,790	480	730	400	140	40
CTE Health	400	130	140	70	40	20
CTE Family & Consumer	1,160	450	390	220	70	30
CTE Skilled & Technical Sciences	2,880	730	1,030	810	260	60
Principal	4,920	1,410	1,550	1,500	390	80
Elementary Education	36,180	15,780	14,680	4,710	850	160
English	8,020	1,990	3,710	1,780	430	100
Health/Fitness	4,140	1,380	1,720	800	200	50
History	6,850	1,390	3,390	1,580	400	80
Reading	5,530	10	3,190	1,840	400	90
Spanish	1,730	360	710	510	140	20

Note: Endorsements of interest only are tallied in this table. Detail may not add to total due to rounding.

## Appendix D: Retention table detail

*Table D-1: Retention characteristics for educators under age 60*

Retention Category	Educators in Study Group			Rate		
	2016	2017	2018	2016	2017	2018
Educators	48,820	51,870	55,290			
Same School, four years	31,780	34,830	38,650	65%	68%	70%
Same District, four years	37,690	40,860	44,850	77%	79%	81%
Public K-12, four years	42,710	45,530	48,870	87%	88%	88%
K-12 Employment Pause	780	800	770	2%	2%	1%
K-12 Exit after three years	1,870	1,790	1,750	4%	3%	3%
K-12 Exit after two years	1,650	1,770	1,790	3%	3%	3%
K-12 Exit after base year	1,820	1,980	2,120	4%	4%	4%

*Table D-2: Retention characteristics for educators under age 40*

Retention Category	Educators in Study Group			Rate		
	2016	2017	2018	2016	2017	2018
Educators	22,220	22,980	23,880			
Same School, four years	13,220	14,130	15,270	60%	62%	64%
Same District, four years	15,980	16,890	18,130	72%	74%	76%
Public K-12, four years	18,900	19,540	20,410	85%	85%	85%
K-12 Employment Pause	440	470	460	2%	2%	2%
K-12 Exit after three years	970	920	870	4%	4%	4%
K-12 Exit after two years	870	960	980	4%	4%	4%
K-12 Exit after base year	1,040	1,100	1,170	5%	5%	5%

*Table D-3: Retention characteristics for female educators under age 60*

Retention Category	Educators in Study Group			Rate		
	2016	2017	2018	2016	2017	2018
Educators	35,510	37,950	40,700			
Same School, four years	22,630	25,090	28,000	64%	67%	69%
Same District, four years	27,100	29,710	32,820	76%	78%	81%
Public K-12, four years	30,820	33,120	35,750	87%	87%	88%
K-12 Employment Pause	630	650	590	2%	2%	1%
K-12 Exit after three years	1,430	1,340	1,370	4%	4%	3%
K-12 Exit after two years	1,270	1,330	1,370	4%	3%	3%
K-12 Exit after base year	1,370	1,510	1,610	4%	4%	4%

Table D-4: Retention characteristics for male educators under age 60

Retention Category	Educators in Study Group			Rate		
	2016	2017	2018	2016	2017	2018
Educators	13,310	13,920	14,590			
Same School, four years	9,150	9,740	10,650	69%	70%	73%
Same District, four years	10,590	11,160	12,030	80%	80%	82%
Public K-12, four years	11,890	12,400	13,110	89%	89%	90%
K-12 Employment Pause	150	150	180	1%	1%	1%
K-12 Exit after three years	450	460	380	3%	3%	3%
K-12 Exit after two years	380	440	410	3%	3%	3%
K-12 Exit after base year	440	460	510	3%	3%	3%

Table D-5: Retention characteristics for BIPOC educators under age 60

Retention Category	Educators in Study Group			Rate		
	2016	2017	2018	2016	2017	2018
Educators	5,230	5,710	6,230			
Same School, four years	3,210	3,610	4,150	62%	64%	67%
Same District, four years	3,910	4,350	4,890	75%	76%	79%
Public K-12, four years	4,520	4,950	5,440	86%	87%	87%
K-12 Employment Pause	110	100	90	2%	2%	1%
K-12 Exit after three years	200	200	210	4%	4%	3%
K-12 Exit after two years	190	220	220	4%	4%	4%
K-12 Exit after base year	220	230	270	4%	4%	4%

Table D-6: Retention characteristics for white alone educators under age 60

Retention Category	Educators in Study Group			Rate		
	2016	2017	2018	2016	2017	2018
Same School, four years	28,540	31,200	34,470	66%	68%	71%
Same District, four years	33,740	36,480	39,920	78%	79%	82%
Public K-12, four years	38,160	40,530	43,370	88%	88%	89%
K-12 Employment Pause	660	690	670	2%	2%	1%
K-12 Exit after three years	1,650	1,590	1,540	4%	3%	3%
K-12 Exit after two years	1,450	1,530	1,550	3%	3%	3%
K-12 Exit after base year	1,550	1,700	1,810	4%	4%	4%

Table D-7: Retention characteristics for BIPOC educators under age 40

Retention Category	Educators in Study Group			Rate		
	2016	2017	2018	2016	2017	2018
Educators	2,630	2,840	3,110			
Same School, four years	1,460	1,630	1,930	56%	58%	62%
Same District, four years	1,820	2,020	2,300	69%	71%	74%
Public K-12, four years	2,180	2,370	2,640	83%	84%	85%
K-12 Employment Pause	60	70	60	2%	2%	2%
K-12 Exit after three years	120	120	120	5%	4%	4%
K-12 Exit after two years	120	140	140	4%	5%	4%
K-12 Exit after base year	140	140	160	5%	5%	5%

Table D-8: Retention characteristics for white alone educators under age 40

Retention Category	Educators in Study Group			Rate		
	2016	2017	2018	2016	2017	2018
Educators	19,530	20,080	20,710			
Same School, four years	11,740	12,480	13,330	60%	63%	65%
Same District, four years	14,140	14,860	15,810	72%	74%	76%
Public K-12, four years	16,700	17,140	17,740	86%	85%	86%
K-12 Employment Pause	370	390	400	2%	2%	2%
K-12 Exit after three years	840	800	740	4%	4%	4%
K-12 Exit after two years	750	810	840	4%	4%	4%
K-12 Exit after base year	870	930	990	4%	5%	5%

Table D-9: Retention characteristics for educators under age 60 with less than 5 years of experience

Retention Category	Educators in Study Group			Rate		
	2016	2017	2018	2016	2017	2018
Educators	13,350	14,550	15,150			
Same School, four years	7,560	8,460	9,160	57%	59%	61%
Same District, four years	9,130	10,130	10,920	68%	70%	72%
Public K-12, four years	10,960	11,840	12,400	82%	81%	82%
K-12 Employment Pause	310	320	330	2%	2%	2%
K-12 Exit after three years	710	780	720	5%	5%	5%
K-12 Exit after two years	640	740	800	5%	5%	5%
K-12 Exit after base year	730	860	900	5%	6%	6%

Table D-10: Retention characteristics for educators under age 60 with 5-14 years of experience

Retention Category	Educators in Study Group			Rate		
	2016	2017	2018	2016	2017	2018
Educators	20,280	20,230	21,120			
Same School, four years	13,300	13,720	14,950	66%	68%	71%
Same District, four years	16,000	16,330	17,530	79%	81%	83%
Public K-12, four years	18,110	18,200	19,140	89%	90%	91%
K-12 Employment Pause	310	300	290	2%	1%	1%
K-12 Exit after three years	630	530	500	3%	3%	2%
K-12 Exit after two years	590	580	530	3%	3%	3%
K-12 Exit after base year	640	620	670	3%	3%	3%

Table D-11: Retention characteristics for educators under age 60 with 15 or more years of experience

Retention Category	Educators in Study Group			Rate		
	2016	2017	2018	2016	2017	2018
Educators	14,350	16,290	18,210			
Same School, four years	10,610	12,320	14,220	74%	76%	78%
Same District, four years	12,180	14,010	15,990	85%	86%	88%
Public K-12, four years	13,140	15,010	16,840	92%	92%	92%
K-12 Employment Pause	100	120	110	1%	1%	1%
K-12 Exit after three years	470	430	480	3%	3%	3%
K-12 Exit after two years	350	410	390	2%	2%	2%
K-12 Exit after base year	290	330	390	2%	2%	2%

Table D-12: Retention characteristics for educators under age 60 in high poverty schools

Retention Category	Educators in Study Group			Rate		
	2016	2017	2018	2018	2016	2017
Educators	13,460	14,280	15,120			
Same School, four years	8,020	8,860	9,800	60%	63%	65%
Same District, four years	9,980	10,840	11,870	74%	76%	78%
Public K-12, four years	11,720	12,440	13,300	87%	87%	88%
K-12 Employment Pause	210	220	220	2%	2%	1%
K-12 Exit after three years	480	560	480	4%	4%	3%
K-12 Exit after two years	500	480	540	4%	3%	4%
K-12 Exit after base year	540	580	590	4%	4%	4%



*Table D-13: Retention characteristics for educators under age 60 in low poverty schools*

Retention Category	Educators in Study Group			Rate		
	2016	2017	2018	2016	2017	2018
Educators	11,160	11,980	12,930			
Same School, four years	7,570	8,400	9,430	68%	71%	73%
Same District, four years	8,850	9,750	10,710	79%	81%	83%
Public K-12, four years	9,740	10,560	11,440	87%	88%	89%
K-12 Employment Pause	180	200	190	2%	2%	1%
K-12 Exit after three years	440	380	420	4%	3%	3%
K-12 Exit after two years	390	400	390	3%	3%	3%
K-12 Exit after base year	410	450	490	4%	4%	4%

## Appendix E: School district retention rates

The following tables show retention rates for educators by school district. School district retention is equal to the same-school retention plus the same-district retention rates in the detailed retention tables.

### Retention by educator characteristics: age

Table E-1 shows for each endorsement area the number of study group members for each of the three study groups and the percent employed in the same district for all three follow-up years. Of note:

- Retention varied by endorsement area. Educators with Bilingual, Special Education, and Principal endorsements had relatively low same-district retention rates.
- Same-district retention rates were relatively high for educators with endorsements in several Health/Fitness and History.
- For all specialties, the same-district retention was higher for the 2018 study group than for the 2016 study group.

*Table E-1: Same-district retention rates for educators under age 60*

Endorsement Area	Educators in Study Group			Same District, four years		
	2016	2017	2018	2016	2017	2018
Educators (unduplicated)	48,820	51,870	55,290	77%	79%	81%
Bilingual Education	3,910	4,380	5,010	75%	77%	79%
Special Education	7,690	8,260	8,910	74%	77%	79%
Mathematics	4,340	4,730	5,150	76%	78%	80%
Science	3,650	3,960	4,330	78%	78%	80%
Any CTE	4,730	4,840	4,820	79%	80%	82%
CTE Agriculture	420	430	430	76%	76%	80%
CTE Business/Marketing	1,490	1,530	1,540	78%	80%	82%
CTE Health	330	360	370	80%	82%	82%
CTE Human Services	960	970	970	77%	78%	81%
CTE Skilled & Technical Sciences	2,370	2,470	2,490	80%	81%	82%
Principal	3,970	4,150	4,360	75%	74%	77%
Elementary Education	29,370	31,310	33,580	78%	80%	82%
English	6,330	6,860	7,410	78%	80%	81%
Health/Fitness	3,230	3,520	3,900	83%	84%	85%
History	5,480	5,860	6,290	81%	82%	84%
Reading	4,510	4,800	5,130	80%	82%	84%
Spanish	1,420	1,490	1,600	78%	78%	79%

Table E-2 shows same-district retention rates for younger educators – those under 40 years of age. Of note:

- Same-district retention rates are lower than those for under-60 educators.
- Retention varied by endorsement area. As with the under-60 subgroup, educators with Special Education and Principal endorsements had relatively low same-district retention rates.
- For all specialties, the same-district retention was higher for the 2018 study group than for the 2016 study group.

Table E-2: Same-district retention rates for educators under age 40

Endorsement Area	Educators in Study Group			Same District, four years		
	2016	2017	2016	2017	2016	2017
Educators (unduplicated)	22,220	22,980	23,880	72%	74%	76%
Bilingual Education	2,010	2,250	2,560	70%	72%	74%
Special Education	3,140	3,290	3,430	69%	70%	73%
Mathematics	2,160	2,270	2,440	72%	73%	75%
Science	1,460	1,550	1,690	74%	73%	74%
Any CTE	1,230	1,270	1,260	73%	74%	77%
CTE Agriculture	160	170	170	75%	76%	76%
CTE Business/Marketing	350	350	350	71%	74%	77%
CTE Health	130	140	150	71%	72%	77%
CTE Human Services	310	320	310	73%	75%	78%
CTE Skilled & Technical Sciences	500	540	530	72%	73%	77%
Principal	910	910	960	71%	73%	73%
Elementary Education	13,610	14,000	14,550	73%	74%	77%
English	2,560	2,730	2,830	70%	72%	74%
Health/Fitness	1,270	1,310	1,370	76%	77%	79%
History	2,020	2,070	2,160	73%	75%	77%
Reading	2,080	2,120	2,120	76%	77%	79%
Spanish	560	540	500	72%	71%	72%

### Retention by educator characteristics: gender

Tables E-3 and E-4 show for each endorsement area the number of female and male study group members for each of the three study groups and the percent employed in the same district for all three follow-up years. Same-district retention rates are generally higher for male educators.

Table E-3: Same-district retention rates for female educators under age 60

Endorsement Area	Educators in Study Group			Same District, four years		
	2016	2017	2016	2017	2016	2017
Educators (unduplicated)	35,510	37,950	40,700	76%	78%	81%
Bilingual Education	3,360	3,760	4,300	75%	77%	78%
Special Education	6,410	6,880	7,410	74%	77%	79%
Mathematics	2,480	2,720	3,000	74%	76%	78%
Science	2,040	2,230	2,470	75%	77%	78%
Any CTE	2,570	2,640	2,640	78%	80%	82%
CTE Agriculture	190	210	220	74%	75%	78%
CTE Business/Marketing	810	830	830	76%	79%	81%
CTE Health	200	220	240	76%	79%	80%
CTE Human Services	840	850	840	77%	78%	80%
CTE Skilled & Technical Sciences	910	980	990	79%	80%	83%
Principal	2,050	2,190	2,370	74%	73%	76%
Elementary Education	24,740	26,530	28,510	77%	79%	82%
English	4,420	4,800	5,200	78%	80%	81%
Health/Fitness	1,560	1,720	1,930	82%	82%	84%
History	2,690	2,890	3,120	78%	81%	82%
Reading	4,100	4,380	4,690	80%	82%	84%
Spanish	1,080	1,140	1,230	78%	77%	79%

Table E-4: Same-district retention rates for male educators under age 60

Endorsement Area	Educators in Study Group			Same District, four years		
	2016	2017	2016	2017	2016	2017
Educators (unduplicated)	13,310	13,920	14,590	80%	80%	82%
Bilingual Education	550	620	700	78%	79%	80%
Special Education	1,270	1,380	1,500	75%	77%	80%
Mathematics	1,870	2,000	2,150	79%	80%	82%
Science	1,610	1,730	1,860	81%	80%	82%
Any CTE	2,160	2,200	2,180	80%	81%	83%
CTE Agriculture	230	220	210	77%	77%	83%
CTE Business/Marketing	680	690	710	80%	80%	83%
CTE Health	120	140	130	87%	87%	86%
CTE Human Services	120	120	130	80%	83%	85%
CTE Skilled & Technical Sciences	1,470	1,490	1,500	80%	81%	82%
Principal	1,920	1,970	1,990	77%	76%	78%
Elementary Education	4,620	4,780	5,080	80%	82%	84%
English	1,900	2,060	2,200	79%	81%	82%
Health/Fitness	1,670	1,800	1,970	83%	85%	86%
History	2,790	2,980	3,170	83%	83%	85%
Reading	410	420	440	82%	85%	89%
Spanish	330	350	370	80%	80%	82%

## Retention by educator characteristics: race and ethnicity

Tables E-5 and E-6 show retention rates for Black, Indigenous and people of color (BIPOC) and white alone educators.

*Table E-5: Same-district retention rates for BIPOC educators under age 60*

Endorsement Area	Educators in Study Group			Same District, four years		
	2016	2017	2016	2017	2016	2017
Educators (unduplicated)	5,230	5,710	6,230	75%	76%	79%
Bilingual Education	850	960	1080	76%	79%	80%
Special Education	700	790	900	71%	73%	76%
Mathematics	490	540	580	72%	75%	77%
Science	320	350	390	74%	76%	76%
Any CTE	350	370	400	78%	79%	80%
CTE Agriculture	20	30	30	78%	72%	88%
CTE Business/Marketing	120	130	140	77%	79%	82%
CTE Health	30	30	30	81%	74%	72%
CTE Human Services	70	70	80	71%	69%	75%
CTE Skilled & Technical Sciences	200	210	220	79%	81%	78%
Principal	470	510	570	72%	69%	73%
Elementary Education	3,230	3,510	3,820	76%	78%	81%
English	540	600	640	75%	77%	80%
Health/Fitness	280	290	340	79%	84%	85%
History	450	480	500	74%	77%	80%
Reading	310	320	370	81%	82%	81%
Spanish	310	330	370	75%	73%	73%

*Table E-6: Same-district retention rates for white alone educators under age 60*

Endorsement Area	Educators in Study Group			Same District, four years		
	2016	2017	2016	2017	2016	2017
Educators (unduplicated)	43,470	46,040	48,940	78%	79%	82%
Bilingual Education	3,050	3,410	3,920	75%	77%	78%
Special Education	6,960	7,440	7,990	75%	77%	79%
Mathematics	3,850	4,170	4,560	77%	78%	80%
Science	3,320	3,590	3,940	79%	79%	80%
Any CTE	4,360	4,450	4,400	79%	80%	83%
CTE Agriculture	400	410	410	75%	76%	80%
CTE Business/Marketing	1,360	1,390	1,390	78%	80%	82%
CTE Health	300	330	340	80%	83%	83%
CTE Human Services	890	890	880	78%	79%	82%
CTE Skilled & Technical Sciences	2,160	2,260	2,260	80%	81%	83%
Principal	3,490	3,640	3,790	76%	75%	77%
Elementary Education	26,090	27,760	29,720	78%	80%	82%
English	5,770	6,250	6,740	79%	80%	81%
Health/Fitness	2,940	3,220	3,560	83%	84%	85%
History	5,020	5,370	5,770	81%	83%	84%
Reading	4,200	4,470	4,760	80%	82%	85%
Spanish	1,110	1,160	1,230	79%	79%	81%

Tables E-7 and E-8 show same-district retention rates for BIPOC and white alone educators under 40 years of age.

*Table E-7: Same-district retention rates for BIPOC educators under age 40*

Endorsement Area	Educators in Study Group			Same District, four years		
	2016	2017	2018	2016	2017	2018
Educators (unduplicated)	2,630	2,840	3,110	69%	71%	74%
Bilingual Education	420	460	540	72%	75%	76%
Special Education	320	360	410	66%	66%	69%
Mathematics	270	300	310	67%	70%	73%
Science	150	160	170	64%	71%	68%
Any CTE	120	130	140	68%	66%	76%
CTE Agriculture	10	10	10	20%	20%	78%
CTE Business/Marketing	50	50	50	70%	65%	73%
CTE Health	20	20	20	67%	59%	67%
CTE Human Services	30	30	40	66%	69%	83%
CTE Skilled & Technical Sciences	60	60	60	69%	68%	72%
Principal	120	130	140	65%	63%	71%
Elementary Education	1,660	1,780	1,960	71%	73%	76%
English	250	280	300	65%	68%	75%
Health/Fitness	130	130	140	71%	78%	79%
History	170	180	190	63%	69%	74%
Reading	150	140	160	72%	73%	75%
Spanish	100	110	120	63%	61%	64%

*Table E-8: Same-district retention rates for white alone educators under age 40*

Endorsement Area	Educators in Study Group			Same District, four years		
	2016	2017	2018	2016	2017	2018
Educators (unduplicated)	19,530	20,080	20,710	72%	74%	76%
Bilingual Education	1,590	1,780	2,020	70%	72%	73%
Special Education	2,810	2,910	3,010	69%	71%	73%
Mathematics	1,880	1,960	2,120	73%	74%	75%
Science	1,310	1,390	1,510	75%	74%	75%
Any CTE	1,110	1,140	1,120	73%	75%	78%
CTE Agriculture	160	160	160	77%	78%	76%
CTE Business/Marketing	300	290	300	72%	76%	78%
CTE Health	120	120	130	72%	74%	78%
CTE Human Services	270	290	270	74%	76%	78%
CTE Skilled & Technical Sciences	440	470	470	73%	74%	78%
Principal	780	780	810	72%	75%	73%
Elementary Education	11,940	12,200	12,570	73%	75%	77%
English	2,300	2,440	2,520	71%	73%	74%
Health/Fitness	1,140	1,180	1,230	76%	77%	79%
History	1,840	1,890	1,970	74%	76%	77%
Reading	1,930	1,970	1,950	76%	78%	80%
Spanish	450	430	380	74%	73%	74%

## Retention by educator characteristics: experience

Tables E-9 through E-11 show retention rates by educator experience. As teaching experience increases, so do same-district retention rates. Overall, the 2016 study group had the same district-retention rates of 85% for educators with 15 or more years of experience, 79% for those with five to 14 years of experience, and 68% for those with less than five years of experience.

Overall, the same-district retention rate for educators with less than five years of experience increased for each study group.

*Table E-9: Same-district retention rates for educators under age 60 with 15 or more years of experience*

Endorsement Area	Educators in Study Group			Same District, four years		
	2016	2017	2018	2016	2017	2018
Educators (unduplicated)	14,350	16,290	18,210	85%	86%	88%
Bilingual Education	880	1,060	1,260	85%	85%	87%
Special Education	2,390	2,740	3,070	84%	85%	87%
Mathematics	1,200	1,400	1,620	87%	87%	88%
Science	1,250	1,450	1,610	86%	85%	87%
Any CTE	2,300	2,380	2,380	84%	85%	86%
CTE Agriculture	190	190	180	78%	79%	86%
CTE Business/Marketing	690	720	710	82%	83%	85%
CTE Health	80	100	100	94%	92%	90%
CTE Human Services	390	400	410	82%	84%	84%
CTE Skilled & Technical Sciences	1,260	1,320	1,340	85%	86%	87%
Principal	2,420	2,500	2,630	79%	78%	80%
Elementary Education	7,750	9,170	10,580	85%	87%	89%
English	2,240	2,630	3,010	87%	88%	88%
Health/Fitness	1,500	1,750	2,000	89%	89%	89%
History	2,230	2,620	2,970	88%	89%	89%
Reading	1,480	1,770	2,050	86%	88%	90%
Spanish	530	610	700	85%	85%	87%

**Table E-10: Same-district retention rates for educators under age 60 with 5-14 years of experience**

Endorsement Area	Educators in Study Group			Same District, four years		
	2016	2017	2018	2016	2017	2018
Educators (unduplicated)	20,280	20,230	21,120	79%	81%	83%
Bilingual Education	1,560	1,690	1,900	79%	81%	81%
Special Education	3,010	3,060	3,240	75%	79%	80%
Mathematics	1,730	1,810	1,980	79%	81%	83%
Science	1,390	1,400	1,500	78%	80%	81%
Any CTE	1,560	1,530	1,500	79%	80%	83%
CTE Agriculture	150	150	140	77%	76%	79%
CTE Business/Marketing	540	530	540	76%	79%	83%
CTE Health	130	150	150	84%	87%	86%
CTE Human Services	350	330	320	79%	78%	84%
CTE Skilled & Technical Sciences	720	730	740	79%	79%	82%
Principal	1,300	1,380	1,460	72%	71%	73%
Elementary Education	13,030	12,890	13,340	80%	82%	84%
English	2,580	2,520	2,590	78%	80%	82%
Health/Fitness	1,160	1,160	1,230	82%	83%	85%
History	2,070	1,950	1,950	81%	83%	85%
Reading	2,070	2,000	2,050	82%	83%	85%
Spanish	630	610	620	79%	79%	80%

**Table E-11: Same-district retention rates for educators under age 60 with less than 5 years of experience**

Endorsement Area	Educators in Study Group			Same District, four years		
	2016	2017	2018	2016	2017	2018
Educators (unduplicated)	13,350	14,550	15,150	68%	70%	72%
Bilingual Education	1,420	1,570	1,790	66%	69%	71%
Special Education	2,150	2,330	2,490	66%	66%	70%
Mathematics	1,300	1,430	1,460	66%	67%	69%
Science	950	1,050	1,150	70%	70%	70%
Any CTE	770	830	830	68%	69%	71%
CTE Agriculture	80	90	100	65%	71%	73%
CTE Business/Marketing	230	250	250	70%	72%	71%
CTE Health	100	100	110	67%	66%	69%
CTE Human Services	180	210	200	66%	73%	73%
CTE Skilled & Technical Sciences	340	370	370	68%	67%	69%
Principal	210	240	240	60%	62%	62%
Elementary Education	8,210	8,900	9,310	69%	71%	74%
English	1,360	1,580	1,670	67%	70%	70%
Health/Fitness	500	550	590	69%	72%	73%
History	1,060	1,170	1,250	68%	70%	71%
Reading	920	970	970	68%	71%	74%
Spanish	220	240	250	66%	62%	61%



## Retention by school characteristics: high and low poverty schools

Tables E-12 and E-13 show the same district retention rates for educators working in high- and low-poverty schools.

*Table E-12: Same-district retention rates for educators under age 60 in high-poverty schools*

Endorsement Area	Educators in Study Group			Same District, four years		
	2016	2017	2018	2016	2017	2018
Educators (unduplicated)	13,460	14,280	15,120	74%	76%	78%
Bilingual Education	1,790	1,940	2,160	74%	77%	79%
Special Education	2,040	2,240	2,410	73%	73%	76%
Mathematics	990	1,070	1,200	72%	73%	76%
Science	710	770	870	72%	73%	75%
Any CTE	850	860	910	73%	78%	80%
CTE Agriculture	70	90	100	63%	71%	79%
CTE Business/Marketing	280	290	310	70%	77%	81%
CTE Health	60	60	70	73%	83%	78%
CTE Human Services	180	180	200	77%	77%	80%
CTE Skilled & Technical Sciences	430	420	470	74%	78%	79%
Principal	1,120	1,170	1,240	72%	71%	72%
Elementary Education	9,330	9,940	10,460	75%	77%	80%
English	1,410	1,530	1,640	74%	77%	78%
Health/Fitness	760	830	920	81%	82%	83%
History	1,140	1,220	1,340	76%	79%	80%
Reading	1,470	1,560	1,650	79%	80%	82%
Spanish	390	410	410	78%	77%	80%

*Table E-13: Same-district retention rates for educators under age 60 in low-poverty schools*

Endorsement Area	Educators in Study Group			Same District, four years		
	2016	2017	2018	2016	2017	2018
Educators (unduplicated)	11,160	11,980	12,930	79%	81%	83%
Bilingual Education	620	730	880	76%	78%	79%
Special Education	1,640	1,760	1,950	76%	80%	80%
Mathematics	1,110	1,150	1,270	81%	84%	82%
Science	960	1,030	1,130	82%	83%	82%
Any CTE	1,070	1,060	1,050	81%	84%	85%
CTE Agriculture	70	70	70	77%	77%	84%
CTE Business/Marketing	340	330	340	81%	85%	84%
CTE Health	80	80	90	87%	91%	83%
CTE Human Services	190	200	190	80%	81%	82%
CTE Skilled & Technical Sciences	580	590	580	81%	84%	84%
Principal	810	880	920	78%	79%	80%
Elementary Education	6,280	6,970	7,660	80%	82%	84%
English	1,690	1,800	1,910	81%	81%	83%
Health/Fitness	790	820	920	83%	85%	85%
History	1,440	1,490	1,570	82%	83%	84%
Reading	830	910	960	82%	85%	86%
Spanish	360	370	400	75%	76%	80%

## Appendix F: UI program employment and earnings data

The Unemployment Insurance (UI) Program is a federal-state program financed by payroll taxes paid by employers. The U.S. Department of Labor sets broad criteria for eligibility and coverage, but states determine the specifics of the implementation. In Washington, the Employment Security Department (ESD) is responsible for the administration of the UI Program.

Employers must participate in the UI Program if they pay wages to employees regardless of the dollar amount. Participating employers are called "covered employers." Participation includes registering, reporting wages, and paying unemployment taxes or reimbursing the department for benefits paid for all part-time or full-time employees. There are exceptions to this, including the following:

- Small farm operators – those with payroll less than \$20,000 and fewer than ten employees – do not cover spouses, children under 18 or student workers.
- Employees performing domestic services in a private home, college club, fraternity or sorority, are not covered if the total wages paid are less than \$1,000 per quarter. If payroll exceeds \$1,000 in any quarter, wages must be reported for the entire year and the following year.
- Non-profit preschool staff if fewer than four staff are not covered.
- Business owners are not reported. Sole proprietors do not report their spouses or unmarried children under 18.
- Corporate officers are required to cover themselves for UI unless they opt out by Jan. 15 of each year.

There are additional types of employees that an employer may not be required to report, depending upon the circumstances. Those most pertinent to this study include the following:

- Self-employed workers
- Church employees
- Work-study students, as long as the employer is a non-profit 501(c)(3), state government or local government

Complete information regarding the Unemployment Insurance Program in Washington is available from the Employment Security Department.<sup>14</sup>

In addition to the above categories, federal civilian employees, active duty, and retired military are not reported in the state-level UI Program administrative records.

Nationally, the UI program includes 98% of all employers.<sup>15</sup>

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14. "Unemployment Insurance Tax Information: A handbook for Washington state employers," January 2011, Employment Security Department.

15. "Technical Notes to Establishment Survey Data Published in Employment and Earnings," U.S. Department of Labor, Bureau of Labor Statistics (<https://www.bls.gov/web/empst/cestn.htm>).

## Data elements and timing

In Washington state, employers file a quarterly wage detail report that includes the following elements:

- Year
- Quarter
- Employer account number
- Employee social security number
- Name
- Wages paid during the quarter
- Hours worked during the quarter

Employer characteristics can be added to the wage record. These include:

- Industry – North American Industry Classification System (NAICS) code
- Ownership – Private or public (federal, state, local governments)
- Size of firm (monthly)

There is a lag between when the employer files the report and when the associated administrative data becomes available for research. UI tax payments and wage reports are due by the last day of the month following the last day of each quarter. Incorporating the wage data into administrative databases takes the remaining two months of the quarter. Data are ready for use for research purposes early in the subsequent quarter. The process is summarized in Figure F-1.

*Figure F-1: Timing of collection and availability of UI wage data*

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Quarter 1			Quarter 2			Quarter 3			Quarter 4		
Previous year Quarter 4 data submitted by the employer and processed by ESD			Current year Quarter 1 data submitted by the employer and processed by ESD			Current year Quarter 2 data submitted by the employer and processed by ESD			Current year Quarter 3 data submitted by the employer and processed by ESD		
Previous year Quarter 3 data available for research			Previous year Quarter 4 data available for research			Current year Quarter 1 data available for research			Current year Quarter 2 data available for research		