

*Teacher Supply and Demand
in the State of Wyoming*

Supply

Demand

*Prepared by
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EXECUTIVE SUMMARY

This report uses existing state data to provide information about the status and trends in the Wyoming teacher workforce. Information at the state level about this workforce has become more salient since state-level policymakers have gained new responsibilities for education funding.

Between 1993 and 2000, overall enrollment in Wyoming public schools declined, mostly in elementary grades. This decline is expected to continue through 2008 in all grade levels. The number of Wyoming public school teachers has increased between 1993 and 2000, with the majority of the increases occurring in high school grades where enrollment has slightly increased during the same period. Wyoming teachers are fairly evenly distributed across various regions in the state (using Wyoming Department of Employment regional characterization). Many (45 percent) teach in small towns, with about 26 percent working in rural areas and 29 percent working in cities or small towns. The workforce is slowly aging, with the average age increasing by two years between 1993 and 2000.

Analysis of teacher qualifications and indicators of shortages reveal issues in the western part of the state as well as in small and rural schools. These schools generally have fewer teachers with master's degrees, more novices, more uncertified teachers and more vacancies. Higher vacancy rates and proportions of uncertified teachers are also seen with foreign language teachers and student support services providers (e.g., counselors and psychologists).

Teacher salaries have increased between 1993 and 2000, with the largest increases occurring between 1997 and 1998. Areas with indicators of teacher shortages, that is, rural schools or schools in the western parts of the state, do not have lower salaries than other schools in the state. Statewide, Wyoming teacher salaries are about average when compared to neighboring states. A crude measure of teacher workload, the student-teacher ratio, is on average lower in Wyoming than in its neighboring states. Within Wyoming the ratios are lowest in rural schools.

Teacher attrition has increased between 1993 and 1999 from about 8.9 percent to 10.8 percent, mostly due to the aging of the workforce. Attrition rates are slightly higher in rural schools. Analysis of transfers shows a small flow of experienced teachers out of rural schools and the western part of the state to cities, towns, and the southeast and central parts of the state. Teachers generally do not receive higher salaries when they transfer within the state. Analyses of the employment patterns of former teachers show that many remain in the state. Those who remain in the state appear to take cuts in pay from what they could expect as teachers. Those who go to Utah and Colorado may increase their salaries over what they could expect from teaching in Wyoming. The largest salary increase appears to go to those who leave the state and leave teaching.

A crude forecast of teacher supply and demand shows that if Wyoming maintains current student-teacher ratios, expenditures on teacher salaries would be reduced by about 10 percent between 2000 and 2008, and the number of new teachers that districts would need to hire each year would remain at current levels of between 500 and 600 per year.

Overall, this analysis suggests both subject areas (foreign language and student support services) and geographic areas (the western part of the state and rural schools) that may require the state's attention. Although not definitive, the data do not support the concept that salaries, or workload, are the primary determinants in many decisions by teachers about whether and where to work. This suggests that other factors, not measured in these data, that may include community amenities and school working conditions may be equally or more important to Wyoming's ability to attract and maintain a quality teaching workforce. At the same time, if Wyoming is able to maintain its current student-teacher ratio, teacher salary expenditures will go down in the future. This reduction in salary expenditures may create a pool of funds that can be used to improve both teacher working conditions and quality.

INTRODUCTION

Prior to the 2000–2001 school year, Wyoming legislators were asked to significantly increase funding for education to allow for higher teacher salaries. In a presentation by representatives of the Wyoming K–12 education community entitled *Who Will Teach Wyoming's Children? A Call to Action!* (2001), it was argued that these higher salaries are needed to allow Wyoming school districts to attract more qualified teacher candidates. The presentation placed the need to attract more candidates within the context of a national increase in teacher demand caused by an aging teacher workforce and increasing enrollment.

The purpose of this report is to help Wyoming policymakers address the questions raised by *Who Will Teach Wyoming's Children? A Call to Action!* (2001) about the Wyoming teacher workforce and future supply and demand. The report provides information about Wyoming's current teacher workforce and future teacher demand. This report describes the overall teacher workforce in terms of number of teachers, their ages, subjects and grades taught, years to retirement, and geographic location. Conditions in individual districts are not reported; instead, information about teachers is presented in terms of school location, subjects taught, and student characteristics. The report looks at attributes of the workforce: qualifications, teacher shortages, teacher movements (attrition and transfers), and salary level. It is beyond the scope of this report to answer questions such as, What is the right salary level to attract an adequate supply of qualified teachers into Wyoming classrooms? Instead, the report provides information about relationships between salary and the behavior of Wyoming teachers. A rough forecast is made of future teacher demand and teacher salary expenditures through 2008.

This information is provided to the Wyoming State Government, which gained new responsibilities in the 1990s for education funding. State Supreme Court Decisions (e.g., *State of Wyoming et al. v. Campbell County School District*, 2001) have resulted in a situation in which “local school districts retain an important, indeed crucial role, in the delivery of instruction, ...[but] are no longer principally responsible for determining spending levels” (Management, Analysis, and Planning Associates, L. L. C., 1997, p. 23). In other words, the statehouse has become the final arbitrator of school funding levels. With these new responsibilities come additional needs for information. This report attempts to fill part of that need. The final section makes recommendations about ongoing data gathering and analysis that should help the state take a more comprehensive approach to its new responsibilities.

TRENDS IN STUDENT POPULATION

Wyoming is in the midst of a decrease in the size of its school-age population. Figure 1 shows student enrollment by grade level between 1993 and 2000.

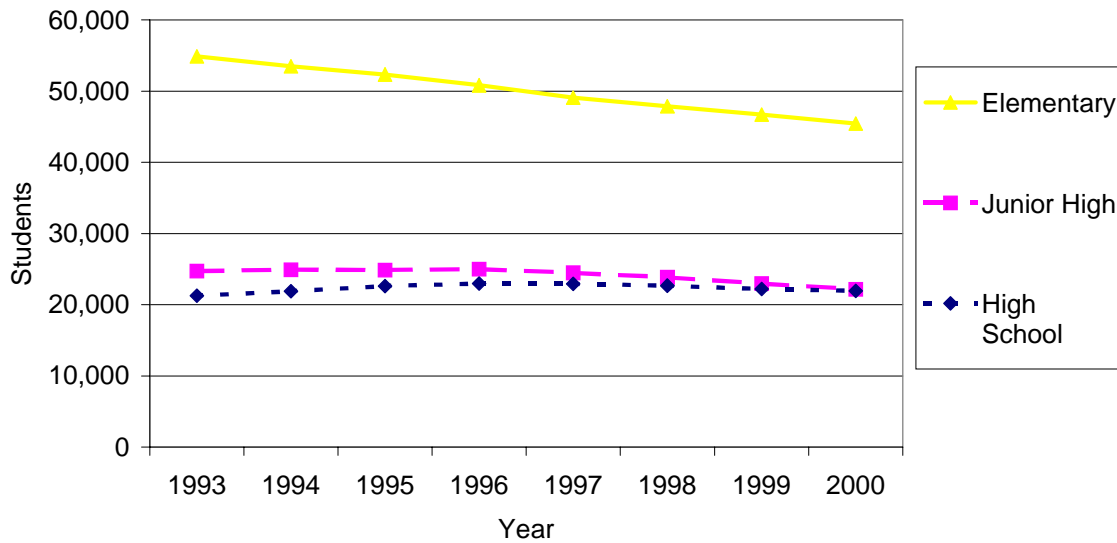


Figure 1: Wyoming Enrollment by Grade Group 1993 to 2000

Source: WDE Enrollment Data File

Since 1993, enrollment in the elementary grades (K–6) has declined by over 17 percent from about 54,883 students to 45,427. The decline in enrollment in the junior high grade levels (grades 7–9) has been smaller, about 10 percent, from 24,732 to 22,182. High school (grades 10–12) enrollment grew between 1993 and 1996 from 21,282 to 22,927 and decreased slowly since 1996 to 21,942. The end result is that since 1993, enrollment in the high school grades has increased about three percent.

In early 1999, the Wyoming Department of Administration and Information (WDAI), Division of Economic Analysis prepared a county-level population forecast for 2000 to 2008. The forecast is limited by the fact that it did not use information from the 2000 Census, nor did it take into account Wyoming’s recent changes in economic fortunes related to changing energy prices. The WDAI forecast shown in Figure 2 (which includes historical data for 1998) reveals that the size of school-age populations is expected to continue to decline.

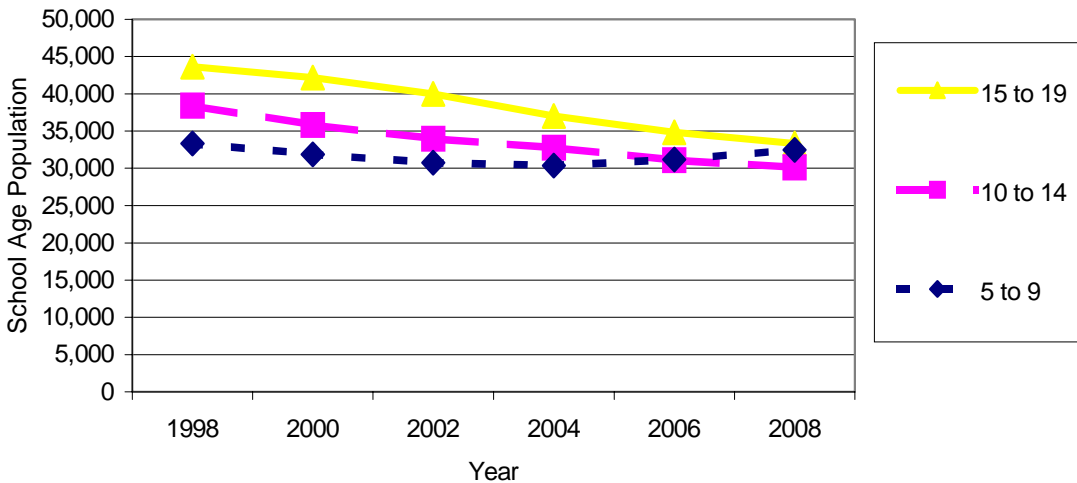


Figure 2: School-Age Population Projections 2000–2008

Source: Wyoming Department of Administration and Information: Division of Economic Analysis, located at <http://eadiv.state.wy.us/pop/proj-as.htm>

The WDAI forecast provides information by age group. The decline in population for the youngest age group, ages 5 to 9, is expected to slow between 2000 and 2004. Slight increases in this population are forecasted between 2004 and 2008; by 2008 the population in the 5 to 9 age group is expected to increase by about two percent over 2000 levels. The decline in population for the middle age group, ages 10 to 14, is expected to be continuous between 2000 and 2008. This age group is forecasted to be about 16 percent smaller in 2008 than in 2000. The largest forecasted decline — 21 percent — is for the oldest group, roughly of high school age, 15 to 19 years old.

THE WYOMING TEACHER WORKFORCE

The Wyoming Department of Education (WDE) furnished McREL with data on all education professionals working in Wyoming since 1993 in a data set called the Professional Staff List Report. The amount of information contained in this data set grew during this period. This means that for some analyses, data for only more recent years are presented.

School years are reported as the year that the school year began. For example, the latest year analyzed in this report, the 2000–2001 school year, is reported as the 2000 school year.

Prior to conducting the analysis, key data decisions were made about the parameters for determining which individuals would be considered to be teachers, assigning them to job types (such as language arts versus social sciences), and determining their grade level (elementary, middle/junior high, high school, or all grades). The methods used to make those assignments are explained in Appendix A. Appendix B contains a table of job types and assignments.

Teachers were defined as individuals who work most of their time in teaching jobs. Individuals were used since districts and schools hire people, not full-time equivalents (FTEs). Decisions about whether a person was a teacher (versus an administrator), what subject that person taught, and at which grade were based on the assignments individuals reported spending the largest portion of their time on. People who spent equal amounts of time working inside and outside the classroom (e.g., half time as an administrator and half time as a teacher) were included in this report as teachers.

GRADE GROUPS

Table 1 shows the total number of teachers by grade grouping for the Wyoming teacher workforce between 1993 and 2000. The total number of teachers remained fairly steady between 1993 and 1997, increased in 1998 and 1999, and then decreased in 2000.

Table 1: Wyoming Teachers by Grade

Grade/Year	1993	1994	1995	1996	1997	1998	1999	2000
Elementary	3,147	3,177	3,161	3,102	3,051	3,073	3,157	3,158
Middle School/ Junior High	1,513	1,513	1,535	1,539	1,548	1,563	1,598	1,566
High School	1,860	1,897	1,951	1,944	1,985	2,027	2,061	2,062
All Grades	450	451	430	466	458	492	491	431
Total	6,970	7,038	7,077	7,051	7,042	7,155	7,307	7,217

Source: WDE Professional Staff List Report

The grade-level information in the data was not precise, so some fluctuation from year to year in the number of teachers in each grade group was expected. In general, it appears that the number of high school teachers has increased over the years, as has enrollment. The number of teachers in the other grade groupings appears to have remained steady, although enrollment in these areas has generally declined.

SUBJECTS TAUGHT

Table 2 shows the proportion of teachers who taught in each of 13 subject areas. Between 1993 and 2000, there were small changes in the distribution of teachers to different subjects. The largest decline, four percentage points, was in the proportion of teachers working in general education. General education teachers are most often found in elementary schools. There was a smaller decline in the proportion of teachers working in vocational and driver's education. Between 1993 and 2000, the proportion of teachers working in math and science, computers, remediation, and special education increased by about a percentage point each.

Table 2: Wyoming Teachers by Subject

Subject	1993	2000	Change in Percentage Points ¹
Computers	1%	1%	1
Foreign Language	2%	2%	0
General Education	41%	37%	-4
Humanities	7%	8%	0
Language Arts	6%	7%	0
Math and Science	9%	10%	1
PE	6%	6%	0
Remediation	2%	3%	1
Social Science	5%	5%	0
Special Education	13%	14%	1
Voc & Driver's Ed	8%	7%	-1
Total	100%	100%	

Source: WDE Professional Staff List Report

GEOGRAPHIC DISTRIBUTION

This analysis described the geographic distribution of teachers in two ways: locale and region. For locale, a Census Bureau definition of rural areas, small towns, or cities was used (Manley, 2000). The distribution of teachers to these areas has remained very steady with about 29 percent of teachers in cities/large towns, 45 percent in small towns, and 26 percent of teachers in rural areas. (Additional details can be found in Appendix C.) The other geographic indicator is based on five regions within the state: northwest, northeast, southwest, southeast, and central. The regions used here are the same as those used by the Wyoming Department of Employment when presenting economic data². Table 3 shows the distribution of Wyoming teachers by region in 1993 and 2000. This distribution has been fairly stable over the seven-year period. There was a slight decline in the proportion of teachers working in the southwest, and a similar increase in the proportion of teachers working in the southeast.

¹ Rounding makes the proportion of Humanities and Language Arts' teachers appear to change, while the actual change was less than .5 percentage points. Rounding also makes the proportion of computer teachers appear not to change, but the difference is greater than .5 percentage points.

² For more information on the Department of Employment, see <http://wydoe.state.wy.us/>.

Table 3: Distribution of Wyoming Teachers by Region of the State

Region	1993	2000
Northwest	18%	18%
Northeast	18%	18%
Southwest	22%	21%
Southeast	23%	24%
Central	19%	19%

Source: WDE Professional Staff List Report

AGE

Wyoming’s teacher workforce is aging — a trend that mirrors national patterns. Between 1993 and 2000, the average age of the Wyoming teacher workforce increased by two years, from 41.6 to 43.6 (see Appendix C). Figure 3, which shows the distribution of teachers by age for 1994, 1997, and 2000, shows the aging of the workforce. The peak of the distribution in 1994 was 43; in 1997, 45; and in 2000, 48.

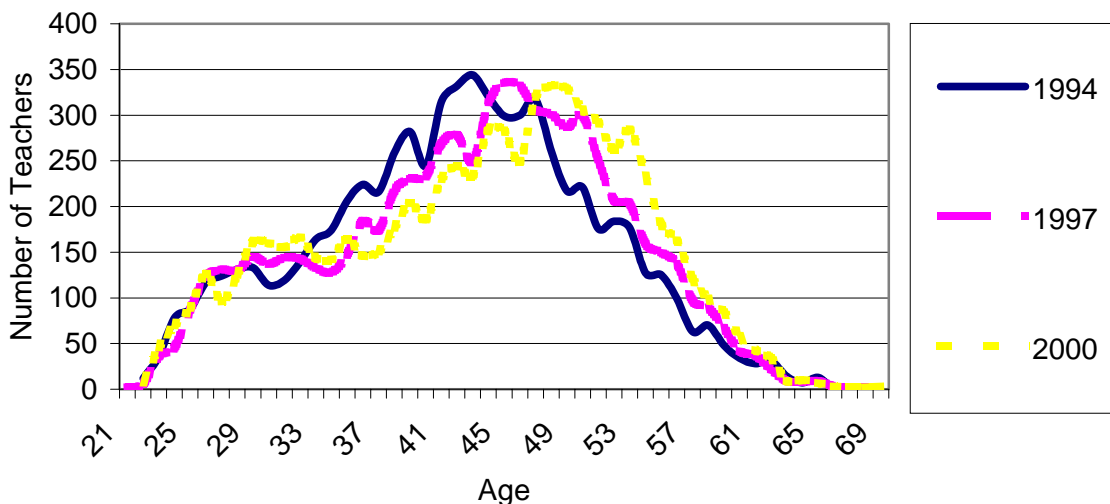


Figure 3: Age Distribution of Wyoming Teachers

Source: WDE Professional Staff List Report

An issue facing all education policymakers is replacing the large group of teachers between the ages of 40 and 55 as they retire. The issue of future retirements will be addressed further in the “Teacher Supply and Demand” section of this report. This section simply describes the distribution of average years to retirement for Wyoming teachers.

YEARS TO RETIREMENT

According to the Wyoming State Retirement System Web page, teachers become eligible for retirement either by reaching the age of 60, or through the rule of 85 where years of experience and age total more than 85³. Using these two decision rules, the approximate years to retirement can be calculated for teachers starting in 1996 when experience data were collected. Table 4 shows the average years to retirement for all teachers in Wyoming and for teachers by locale. The far-right column shows that the average years to retirement decreased from 14.4 in 1996 to 13.5 in 2000 for all teachers in the state.

Table 4: Average Years to Retirement

Year	City/Large Town	Small Town	Rural	Total
1996	13.9	14.1	15.3	14.4
1997	13.6	13.8	15.0	14.0
1998	13.6	13.6	14.5	13.9
1999	13.8	13.5	14.3	13.8
2000	13.5	13.2	14.0	13.5

Source: WDE Professional Staff List Report

Teachers in rural schools are slightly farther from retirement than those in cities/large towns or small towns. The difference in average years to retirement has become smaller, moving from over a year in 1996 to less than a year in 2000. The difference may be due to a higher concentration of inexperienced teachers in rural schools, as discussed in the next section of this report under “Teacher Qualifications.” There is little difference among the regions in the average age and average years to retirement.

Teachers working in foreign language, computers, general education, and language arts are generally the closest to retirement, averaging about 13 years. Teachers working in math and science and special education are farthest from retirement, averaging less than 15 years. (See Appendix C for additional details.)

TEACHER QUALIFICATIONS

There are two types of information on teacher qualifications contained in the WDE Professional Staff List: experience and education. The link between teacher quality, defined as improved student performance, and these qualifications is mixed (Reichardt, 2001). The clearest links have been found between teacher experience and student achievement. As teachers go through their first several years of teaching, student achievement tends to increase (Hanushek, Kain, & Rivkin, 1998). To analyze the distribution of teacher experience, teachers are classified as either novice, that is, in their first three years of teaching, or those with more than three years of experience.

³See <http://retirement.state.wy.us/ret3.htm>

There is some research that shows that high school students perform better in certain subjects when they have teachers with more advanced education in those subjects (Goldhaber & Brewer, 1997). Data on teacher education levels were gathered by WDE for the first time in 2000. These data indicate whether a teacher has a master’s degree, but not the subject of that degree.

An equity issue facing many districts and states is the uneven distribution of highly qualified (well-educated and experienced) teachers. Schools with many minority or poor children, very large or very small schools, or rural schools, often have fewer highly qualified teachers (Henke, Choy, Chen, Geis, & Alt, 1997). To analyze this issue, schools in Wyoming were classified into two sets of quartiles: (1) the proportion of poor students (i.e., free- and reduced-lunch eligible), and (2) by enrollment. Assignment to quartiles was re-calculated each year as school enrollment changed, but the cut-off points were relatively stable. The quartile ranges for 2000 are shown in Table 5.

Table 5: Quartile Regions for Analysis of Teacher Qualifications

	Quartile 1	Quartile 2	Quartile 3	Quartile 4
Percent Free- and Reduced-Lunch Eligible	0 to 17%	18% to 29%	30 to 42%	43 to 92%
Total Enrollment in 2000	1 to 69	70 to 183	184 to 309	310 to 1,716

Source: WDE Enrollment Report

EDUCATION LEVELS

About 27 percent of Wyoming teachers reported having master’s degrees in 2000. Wyoming is well below the national of 49 percent reported in 1993 (Henke et al., 1997). The distribution of Wyoming teachers with master’s degrees is clearly related to locale and geographic region. Table 6 shows that schools in rural areas are least likely to have teachers with master’s degrees, while schools in cities or large towns are most likely to have teachers with master’s degrees. The southeast area of the state, where the only university is located, has a higher concentration of teachers with master’s degrees. The lowest concentration of master’s degrees is in the southwest section of the state. The northwest, northeast, and central regions of the state have relatively similar proportions of teachers with master’s degrees.

Table 6: Distribution of Teachers with a Master's Degree by Locale and Region

Locale/Region	Percentage of Teachers with a Master's Degree
City/Large Town	36%
Small Town	26%
Rural	18%
Northwest	27%
Northeast	26%
Southwest	19%
Southeast	35%
Central	30%

Source: WDE Professional Staff List Report

As has been seen in other states, there is an inverse relationship between the proportion of poor students and teachers with master's degrees; that is, schools with more poor students have fewer teachers with master's degrees (Lewis, Parsad, Carey, Bartfai, Farris, & Smerdon, 1999). The schools with the most free- and reduced-lunch eligible students (quartile 4) have the smallest proportion of teachers with master's degrees (25 percent), while schools with the fewest free- and reduced-lunch students (quartile 1) have the largest proportion of teachers with master's degrees (30 percent). Schools in the middle two quartiles of free- and reduced-lunch students have about the same proportion of teachers with master's degrees (26 percent in quartile 3, and 27 percent in quartile 2).

School size is also related to the proportion of teachers with master's degrees. The smallest schools have the fewest teachers with master's degrees. About 17 percent of teachers in the smallest schools (quartile 1, enrollment between 1 and 69) have master's degrees, compared to 31 percent in the largest schools (quartile 4, enrollment between 310 and 1,716).

There are differences between the education levels of teachers and their subject categories as shown in Table 7. Relatively high proportions (over a third) of foreign language, special education, and computer teachers have master's degrees. Relatively low proportions (about a quarter) of general education, humanities, and PE teachers have master's degrees.

Table 7: Proportion of 2000 Teachers with a Master’s Degree by Subject

Subject	Proportion of Teachers with a Master’s Degree
Computers	34%
Foreign Language	36%
General Education	24%
Humanities	25%
Language Arts	32%
Math and Science	30%
PE	25%
Remediation	28%
Social Science	27%
Special Education	35%
Voc & Driver’s Ed	27%
Total	27%

Source: WDE Professional Staff List Report

EXPERIENCE

The proportion of novice teachers (those with less than three years of experience) grew dramatically between 1998 and 1999. Before 1999, the proportion of novice teachers in Wyoming schools was about 10 percent, which is lower than the most recent national estimate of 12 percent in 1993 (Henke et al., 1997). From 1999 to 2000, the proportion of novice teachers in Wyoming jumped to 14 percent. The distribution of novice teachers by geographic region and locale shows few clear patterns. In general, there were more novice teachers in the southeast than the other regions, and higher concentrations in rural schools than other locales. Appendix E contains detailed data from this section.

Figure 4 shows the proportion of novice teachers by schools categorized by size. There is a clear relationship between school size and the proportion of novice teachers. Between 1996 and 2000, the proportion of novice teachers in the smallest schools was between four and 12 percentage points higher than in other Wyoming schools.

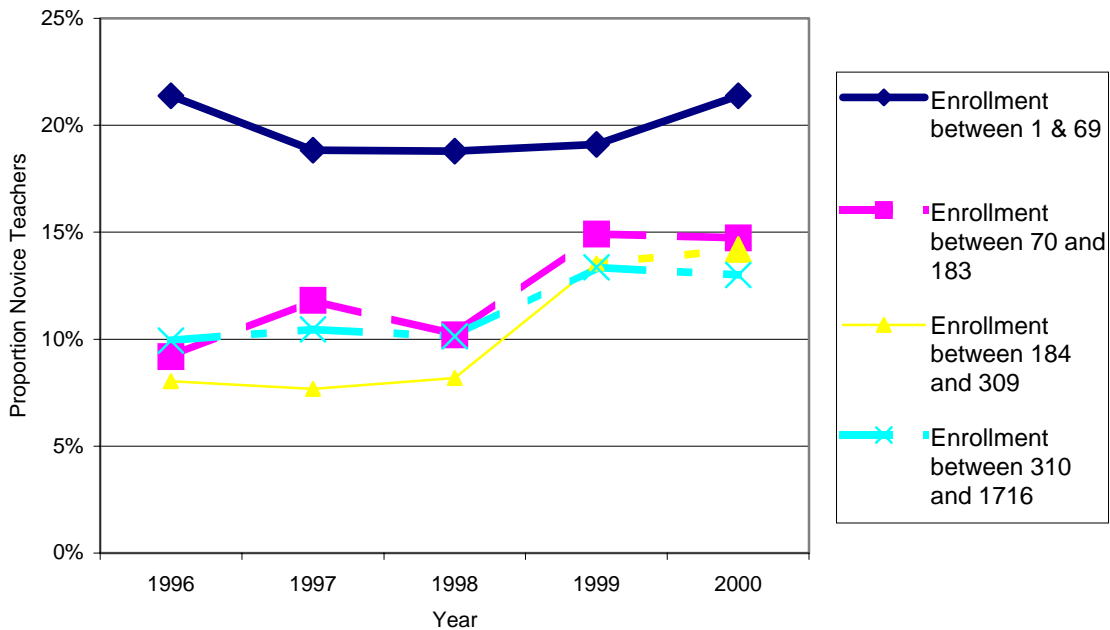


Figure 4: Novice Teachers by School Size

Source: WDE Professional Staff List Report & School Enrollment Reports

The differences between small schools and other schools shrank between 1996 and 1999, but grew between 1999 and 2000.

Figure 5 shows the distribution of novice teachers in schools categorized by proportion of free- and reduced-lunch eligible students. The proportion of novice teachers in schools with high and low proportions of students eligible for free and reduced lunch is about the same between 1996 and 1998. The proportion of novices in each of these groups was between 10 and 11 percent. But differences began to arise after 1998. By 2000, schools with the most and the least free- and reduced-lunch eligible students had more novice teachers, between 15 and 16 percent, compared to the middle two quartiles, which had between 12 and 13 percent novice teachers.

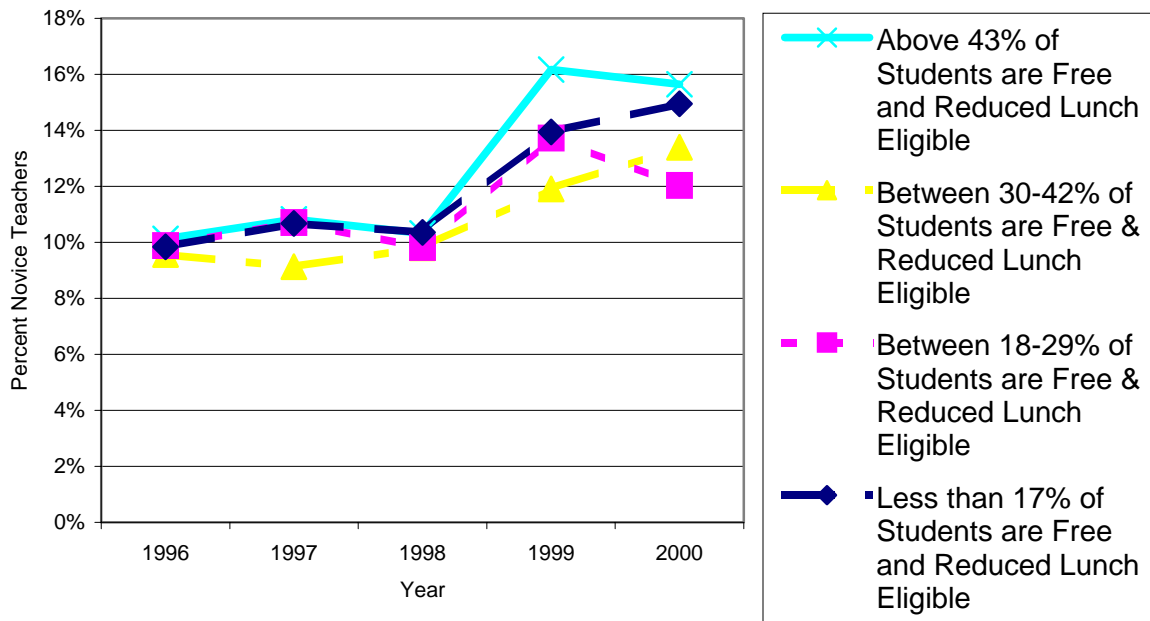


Figure 5: Novice Teachers by Free- and Reduced-Lunch Eligibility

Source: WDE Professional Staff List Report & School Enrollment Reports

Table 8 shows the proportion of novice teachers by job. The proportion of novice teachers was highest in 2000 for social science, foreign language, and computers at 18 percent, and lowest for language arts, PE, vocational and driver’s education, and general education at 12 to 13 percent. The jobs with the largest increase in proportion of novice teachers were computers, social sciences, general education, and PE.

Table 8: Proportion of Novice Teacher by Job

	1996	1997	1998	1999	2000
Language Arts	11%	12%	11%	13%	12%
Math and Science	12%	12%	12%	15%	16%
Social Science	11%	11%	14%	17%	18%
PE	7%	8%	7%	12%	13%
Humanities	14%	14%	12%	14%	14%
Voc & Driver's Ed	12%	10%	10%	12%	13%
Foreign Language	16%	17%	11%	16%	18%
Computers	11%	14%	12%	14%	18%
Special Education	13%	14%	12%	15%	15%
Remediation	12%	10%	10%	16%	17%
General Education	7%	8%	9%	14%	13%
Total	10%	10%	10%	14%	14%

Source: WDE Professional Staff List Report

INDICATORS OF TEACHER SHORTAGE

TEACHER CREDENTIALS

The presence of teachers without full certification in schools can be caused by several factors. For example, those teachers working toward an endorsement in collaboration with another fully certified teacher are certified, but not endorsed in the subject area they are teaching. In individual cases, this may simply be a product of local happenstance. When analyzed in the aggregate, teacher certification can represent the level of teacher qualifications in the state, or can be an indicator of teacher shortages. Here, the pattern of teachers who are not fully certified is interpreted as an indicator of a teacher shortage⁴. The link between certification and student achievement is hotly debated. One reason it is difficult to find a link between certification and student achievement is the huge variation in the skills and knowledge teachers gather as part of the certification or re-certification process. This is due to changes over time in certification requirements and the great variety in the coursework taken by teachers to receive and maintain their certification.

⁴ This perspective rests on the assumption that districts will hire a fully certified applicant for a position before hiring an applicant who is not fully certified.

This analysis uses data produced and released by the Wyoming Professional Teaching Standards Board (PTSB) for 1996 through 2000 on the number of education professionals with temporary, transitional, or collaboration certification, or certification waivers or exceptions. Education professionals who fall into these groups will be called “not fully certified.” The data do not provide information on the schools teachers work in, but do provide information on districts and the subject areas. Complete details on the information shown here are located in Appendix F.

Table 9 shows the proportional increase between 1996 and 2000 of education professionals working with less than full certification. Education professionals are shown by where they work (i.e., as classroom teachers, special education or remediation teachers, and administration or student services).

Table 9: Proportion of Not Fully Certified Education Professionals by Work Area

	1996	1997	1998	1999	2000	% change 1996–2000
Classroom Teachers	2%	2%	3%	3%	4%	109%
Special Education or Remediation	2%	2%	2%	5%	5%	149%
Administration or Student Services	3%	2%	2%	4%	8%	205%
Total	2%	2%	3%	4%	5%	135%

Source: PTSB School Year Reports & WDE Professional Staff List Report

The largest increase in the number of not fully certified education professionals was in classroom teachers, from 107 to 228. But the largest proportional increase was in people who work in administration or student services. Student services include guidance counselors, school psychologists, and speech pathologists. Further analysis of the issue of administrative certification will be left to a separate report.

Table 10 shows the proportion of teachers without full certification by subject.

Table 10: Proportion of Not Fully Certified Classroom Teachers by Subject

	1996	2000
Computers	2%	3%
Foreign Language	2%	7%
General Education	2%	3%
Humanities	1%	5%
Language Arts	4%	5%
Math and Science	1%	6%
PE	3%	5%
Social Sciences	3%	5%
Voc & Driver's Ed	1%	2%

Source: *PTSB School Year Reports & WDE Professional Staff List Report*

The largest change was in foreign language teachers, where the proportion of not fully certified teachers grew from one of the lowest (two percent) in 1996 to the highest (seven percent) in 2000. The foreign language teacher job type includes teachers working at all grade levels. The second largest growth in the proportion of not fully certified teachers was four percentage points for math and science, and humanities teachers (due to rounding, the math and science percentage appears higher). Vocational and driver's education teachers started with few uncertified teachers and had relatively small increases in their proportion of not fully certified teachers⁵.

Table 11 shows the proportion of not fully certified special education and remediation teachers. The proportion of not fully certified special education teachers was two percent in 1996 and increased to six percent in 2000. This pattern is similar to that seen for math and science teachers.

Table 11: Proportion of Not Fully Certified Special Education and Remediation Teachers

	1996	2000
Special Education	2%	6%
Remediation	1%	3%

Source: *PTSB School Year Reports & WDE Professional Staff List Report*

As shown in Table 12, the proportion of not fully certified teachers grew the most in western regions and in districts serving rural areas between 1996 and 2000. The smallest growth was related to teachers working in districts that mainly serve cities or large towns and in the eastern part of the state.

⁵The very small group of driver's education teachers was grouped with vocational education teachers to facilitate the overall analysis in this report. Driver's education teachers no longer require certification.

Table 12: Proportion of Not Fully Certified Teachers by Region

	1996	2000
Rural	2%	8%
Small Town	2%	6%
City/Large Town	2%	4%
Northwest	2%	8%
Northeast	2%	4%
Southwest	2%	8%
Southeast	1%	3%
Central	2%	6%

Source: PTSB School Year Reports & WDE Professional Staff List Report

Between 1996 and 2000, districts serving large towns or cities had the lowest proportion of not fully certified teachers. The southwest had relatively higher proportions of not fully certified teachers. In later years, the northwest and southwest had equal proportions of not fully certified teachers. The fact that the sole university is in the southeast may contribute to this region consistently having the lowest proportion of not fully certified teachers.

TEACHER SHORTAGE SURVEY

A district survey conducted by the PTSB during the 2000–2001 school year provides the FTE counts of positions that were left unfilled. Districts reported 48.5 unfilled positions. Of the 48.5, 33 were classroom positions and 16.5 were positions outside the classroom. Of the vacant positions outside the classroom, the large majority (15.5) were in student services (e.g., counseling, psychologists, and speech pathologists). Table 13 shows the breakdown of vacant teaching positions by subject and vacancies as a proportion of employees in those subjects.

Table 13: 2000 Vacancies and Teachers by Subject⁶

Position	Vacant Positions	Teachers	Proportion of Vacancies to Teachers
Computers	0	107	0.0%
Foreign Language	4	155	2.6%
General Education	4	2716	0.1%
Humanities	4	538	0.7%
Language Arts	0	475	0.0%
Math and Science	4	720	0.6%
PE	1	403	0.2%
Social Sciences	0	336	0.0%
Voc & Driver's Ed	5	503	1.0%
Special Education	11	1038	1.1%
Remediation	1	204	0.5%
Student Support Services	16	649	2.5%
School Build Admin	1	311	0.3%

Source: *PTSB Shortages Survey & WDE Professional Staff List Report*

The proportion of vacancies to teachers provides a scale to judge the relative severity of the vacancies in that area. For example, there were four vacancies in foreign language and general education. But there were many more general education than foreign language teachers (2,716 compared to 155). The end result is that about 2.6 percent of foreign language positions were vacant compared to .1 percent of the general education positions.

The proportion of foreign language teacher and student services vacancies was double that of any other subject. In these subjects, the proportion of vacancies was more than 2.5 percent. In all other areas, the proportion of vacancies was generally one percent or less. Computers, social sciences, and language arts do not show any vacancies. Vacancies in student services appeared to be as big or bigger an issue than vacancies inside the classroom.

⁶ Vacant positions were measured in FTEs. To allow comparison of vacant positions and employees, vacancies of less than one FTE have been rounded to one. "Teachers" does not include collaborative teachers.

Table 14 shows the geographic distribution of vacancies in 2000. As was seen with certification, the highest concentration of vacancies is in rural schools and schools in the western portion of the state. The lowest concentration is in cities and large towns and the southeastern portion of the state.

Table 14: Geographic Distribution of 2000 Vacancies

	% Teachers
Rural	0.9%
Small Town	0.5%
City/Large Town	0.2%
Northwest	0.7%
Northeast	0.4%
Southwest	0.7%
Southeast	0.3%
Central	0.4%

Source: *PTSB Shortages Survey & WDE Professional Staff List Report*

The shortage survey also provides information from districts on the apparent reason for the shortage. The results of this non-scientific survey are shown in Table 15. The two reasons for the shortage that were most often given were low salaries and lack of qualified candidates.

Table 15: Reasons Provided by Districts for Vacancies in 2000

Reason given for Vacancy	# Responses	% Total Responses
Non-competitive/low salaries	30	41%
Lack of qualified candidates	24	32%
Late resignations	4	5%
Isolation	7	9%
Certification requirements	4	5%
Specialized areas, e.g., music	1	1%
Cost of living	2	3%
Lack of housing	2	3%

Source: *PTSB Shortages Survey*

Taken together, the vacancy and certification data indicate concerns over supply in the areas of foreign language teachers and student services professionals. Concerns also arose in other areas, including math and science, special education, and vocational and driver's education,

but these appear to be lesser issues. These concerns are consistently found in rural areas and in districts in the western part of Wyoming.

WORKFORCE ATTRIBUTES

TEACHER SALARIES⁷

Salaries are one tool that can be used to increase teacher supply by making teaching more attractive than other work (or leisure). Although there is lessening disagreement about the importance of teachers to student achievement, it has been very difficult for researchers to find statistical relationships between teacher salaries and student achievement (Hanushek, Kain, & Rivkin, 1999). Higher salaries have been shown to retain experienced teachers and theoretically should increase the applicant pool of new teachers. A larger applicant pool should allow districts to select higher quality new teachers.

Each district in Wyoming is able to set its own salary level, with salaries increasing as teachers gain experience and education. Teacher starting salaries and increases due to education and experience vary by district. The average salaries reported here are total salaries (i.e., salary that includes pay for additional activities). As shown in Table 16, Wyoming's average total teacher salary has slowly increased between 1993 and 2000. Some increase should be expected because, as shown above in Figure 3, the overall experience level of the workforce is increasing. The largest salary increase, five percent, was between 1997 and 1998. Prior to 1997, increases averaged about one percent.

Table 16: Average Teacher Salaries

	Average Total Salary	Rate of Increase
1993	\$ 31,896	
1994	\$ 32,136	1%
1995	\$ 32,546	1%
1996	\$ 32,663	0%
1997	\$ 33,020	1%
1998	\$ 34,578	5%
1999	\$ 35,325	2%
2000	\$ 35,979	2%

Source: WDE Professional Staff List Report

⁷ The salary information in this section is for teachers who work at least full time.

Examining average salaries can result in misleading information about the experiences of individual teachers. When comparing salaries, it is important to compare similar individuals, that is, people with the same experience and education⁸.

Since teachers with no experience are least likely to have master’s degrees, this group makes for more controlled comparisons between years. The experience data, shown in Table 17, go back to 1996. These data show the same pattern as the average teacher salary data — small increases before 1998, with a large increase in 1998 and a slightly smaller increase in 1999.

Table 17: Average Salaries for Teachers with No State Experience

	Average Total Salary	Rate of Increase
1996	\$ 23,270	
1997	\$ 23,594	1%
1998	\$ 24,996	6%
1999	\$ 25,893	4%
2000	\$ 26,100	1%

Source: WDE Professional Staff List Report

Average salary data in 2000, for teachers with similar education and experience, reveal differences between regions and locales that are not revealed in the state averages as shown in Table 17. The first row of Table 18 shows the average salary for three different groups — all teachers, teachers with no state experience and no master’s, and teachers with 18 years’ state experience and a master’s degree⁹.

The remaining rows show the average salaries by locale and region. High and low salaries for each grouping are noted. For example, when looking at locale, the highest average salary is in the City/Large Town grouping, but for teachers with no experience and no master’s (new teachers), this grouping had the lowest average salary.

⁸Since 1995 teachers have been able to transfer experience credits within the state between district salary schedules. This makes state experience the appropriate experience measure.

⁹ These groupings were selected to maximize the number of individuals in each group. There were 763 teachers with no experience or master’s, and 161 with 18 years’ experience and a master’s.

Table 18: Average Salaries in 2000

	All Teachers		No State Experience, No Master's		18 Years' State Experience, With Master's	
Average	\$ 35,979		\$ 25,439		\$ 44,355	
City/Large Town	\$ 36,979	High	\$ 24,569	Low	\$ 45,668	High
Small Town	\$ 36,383		\$ 25,591		\$ 44,151	
Rural	\$ 34,101	Low	\$ 25,964	High	\$ 42,264	Low
Northwest	\$ 34,346	Low	\$ 25,554		\$ 42,606	Low
Northeast	\$ 35,987		\$ 25,682		\$ 44,350	
Southwest	\$ 36,960	High	\$ 25,818		\$ 45,012	
Southeast	\$ 36,119		\$ 25,923	High	\$ 42,761	
Central	\$ 36,340		\$ 23,787	Low	\$ 46,282	High

Source: WDE Professional Staff List Report

The relative salary levels may be related to the main sources of supply for these regions. (See Appendix C for average experience levels.) The areas with the highest salaries for new teachers, the southeast and rural areas, are also the areas with the lowest average experience levels. The low experience level suggests that the main source of teacher supply for these areas are new teachers. Cities and large towns have the highest salaries for experienced teachers and have the most experienced teachers. The central region of the state has high salaries for experienced teachers and is second to the southwest in average experience. The southwest has the second highest salaries for experienced teachers.

Comparing salaries between subjects raises the same need to look at teachers with similar experience and education as comparing salaries between regions. Since the number of people with 18 years' experience is relatively small, it is difficult to compare similar groups of teachers with master's degrees between subjects. Table 19 shows average salaries, average salaries for teachers with no state experience and no master's, and the relative ranking within these two groups. For example, when looking at the average salary for all teachers, the subject with the highest average salary is computer teachers, and the lowest salary is remediation teachers.

Table 19: Average Teacher Salaries by Subject in 2000

	All Teachers	Rank All Teachers	No State Experience, No Master's	Rank – No State Experience, No Master's
Language Arts	\$ 36,665	4	\$ 26,292	4
Math and Science	\$ 36,414	6	\$ 25,613	7
Social Science	\$ 36,618	5	\$ 25,912	6
PE	\$ 38,964	2	\$ 26,851	3
Humanities	\$ 35,706	8	\$ 24,349	9
Voc & Driver's Ed	\$ 37,316	3	\$ 25,981	5
Foreign Language	\$ 35,490	9	\$ 23,065	12
Computers	\$ 40,520	1	\$ 37,135	1
Special Education	\$ 34,988	11	\$ 26,929	2
Remediation	\$ 34,640	12	\$ 23,952	11
General Education	\$ 35,408	10	\$ 24,256	10
Total	\$ 35,979	7	\$ 25,439	8

Source: WDE Professional Staff List Report

Comparing salaries for all teachers is not appropriate given the differences in experience and education for teachers in different jobs. Comparisons between teachers with no experience and no master's show very few differences between jobs, with the exception of computer teachers, who have higher salaries than teachers in all other jobs. Computer teachers may also have technical duties outside of the classroom, which may raise their salaries.

An additional look at the data does not clearly reveal lower salaries in areas with significant concerns over teacher shortages, such as rural districts and districts in western Wyoming. This does not mean that higher salaries would not increase the pool of qualified applicants for positions in these districts. Instead, it suggests that lower than average salaries do not appear to be reducing the supply of teachers in these districts.

A concern is whether Wyoming can compete with adjacent states for quality teachers. Central to this concern is the question, "What attracts teachers to Wyoming to work?" Clearly, teachers working in Wyoming must value living and working in smaller cities and towns or rural areas. Someone attracted to an urban lifestyle is not likely to consider Wyoming a first choice for a place to live.

Although there has been an extensive statistical analysis of the role salary plays in teachers' employment decisions, there has been less research into other factors. When it comes to retaining teachers, it is clear that personal concerns are a large, if not the largest, reason that teachers quit (Ingersoll, 1999). These personal reasons include child rearing and family moves. It is very possible that some of these personal reasons, such as a desire to live near other relatives or the consideration of a locale's attractiveness for raising a family, are more important than salary when teachers choose whether or not to work in Wyoming. The data used in this analysis do not shed any light on the role of these personal factors in attracting teachers to Wyoming.

Information provided by the American Federation of Teachers (AFT) (Nelson, Drown, & Gould, 2000) allows comparisons of average teacher salaries between states for salaries in the 1999–2000 school year. Since an issue before the legislature is whether Wyoming can compete with other states for new teachers, comparisons are listed for Wyoming and its six neighboring states — Colorado, Idaho, Montana, Nebraska, South Dakota, and Utah.

The average salary information must be examined while keeping in mind that average salaries do not provide good information about the experiences of individual teachers. The AFT provides multiple comparisons of teacher salaries. Table 20 shows three comparisons — average salary adjusted to cost of living, average beginning teacher salary, and the ratio of average salary to annual earnings in the private sector.

Table 20: Comparison of Wyoming and Neighboring State Teacher Salaries

	Average Adjusted by AFT Cost of Living Index	Rank	Average Beginning Teacher Salary	Rank	Ratio of Average Salary to Annual Private Sector Earnings	Rank
U.S.	\$ 41,820		\$ 27,989		1.25	
Wyoming	\$ 36,646	5	\$ 24,168	2	1.36	2
Colorado	\$ 39,816	1	\$ 24,875	1	1.14	7
Idaho	\$ 38,467	2	\$ 20,915	7	1.36	2
Montana	\$ 34,741	6	\$ 20,969	6	1.44	1
Nebraska	\$ 37,358	3	\$ 22,923	4	1.26	5
South Dakota	\$ 33,190	7	\$ 21,889	5	1.24	6
Utah	\$ 37,269	4	\$ 23,273	3	1.27	4

Source: Nelson, Drown, & Gould, 2000

Generally, Wyoming teacher salaries are slightly above average when compared with teacher salaries in these neighboring states. Colorado salaries generally rank higher, and salaries in South Dakota and Montana generally rank lower. The ratio of average salaries to private sector earnings serves as a gross measure of teacher salaries relative to other opportunities within the state. This comparison is important given the fact that many college graduates can choose to enter teaching or work in another occupation. When using this comparison, Wyoming ranks a little higher; Colorado ranks much lower. Complete information on state comparisons provided by AFT can be found in Appendix H.

TEACHER ATTRITION

Teacher attrition plays an important role in teacher supply and demand. High levels of attrition can lead to increased demand. Low levels of attrition can lead to increased teacher supply.

There is a clear link between teacher age or experience, and attrition rates. The “U” shaped relationship shown in Figure 6 is very similar to findings from other researchers (Kirby, Grissmer, & Hudson, 1991). The figure shows relatively high rates of attrition for younger teachers and for teachers as they near retirement age and low levels of attrition for middle-aged teachers.

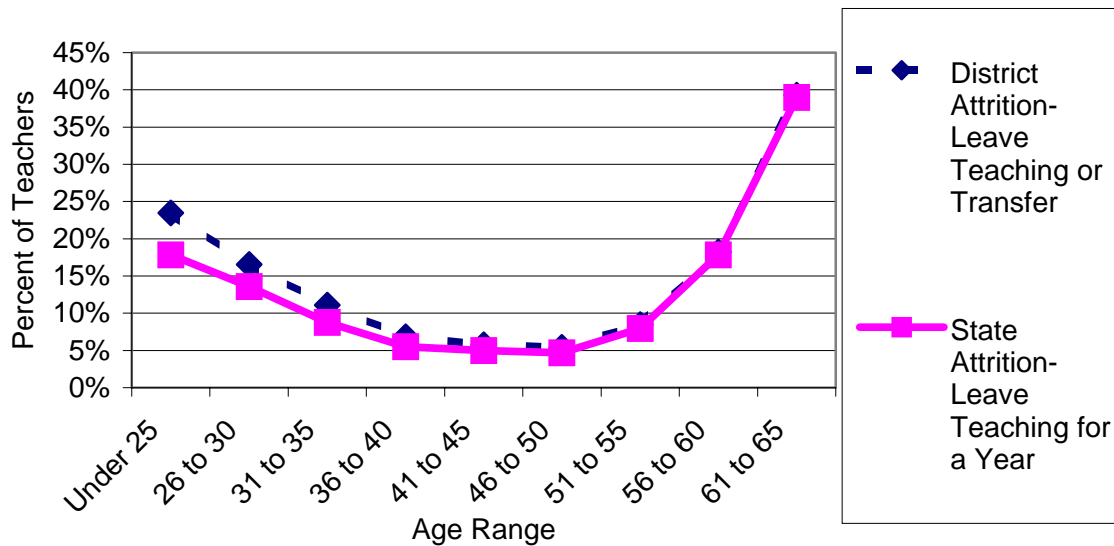


Figure 6: 1996–1999 Average District and State Attrition Rates by Age

Source: WDE Professional Staff List Report

Figure 6 also illustrates the two different types of attrition: attrition from a district workforce and from the state workforce. These two attrition rates differ in that a transfer from one district to another is a loss as far as the originating district is concerned, but that teacher is not a loss from the state teacher workforce. The fact that the two rates are different only for younger teachers indicates that almost all transfers involve younger teachers.

Table 21 shows the state attrition rates by region and the total attrition rates for 1996–1999 (complete data are located in Appendix I). A loss for a given year is a teacher who worked in the school year that began that year, but did not return the next school year. There are differences in attrition between regions; with the highest rates are in the northwest and the southwest, and the lowest rates are in the northeast region.

Table 21: Teacher Attrition Rates by Region

	Northwest	Northeast	Southwest	Southeast	Central	Total
1996	11.3%	7.5%	9.2%	8.5%	7.8%	8.9%
1997	9.0%	6.6%	9.7%	8.5%	9.6%	8.7%
1998	11.2%	9.0%	9.1%	9.6%	8.8%	9.5%
1999	12.1%	9.1%	11.9%	10.6%	9.9%	10.8%

Source: WDE Professional Staff List Report

The “Total” column on the far right shows that the attrition rate has been increasing. Most of this increase is due to the increasing age of the teacher workforce.

Rural schools also have generally higher attrition rates, but the rates by locale in recent years have become more similar, as shown in Figure 7.

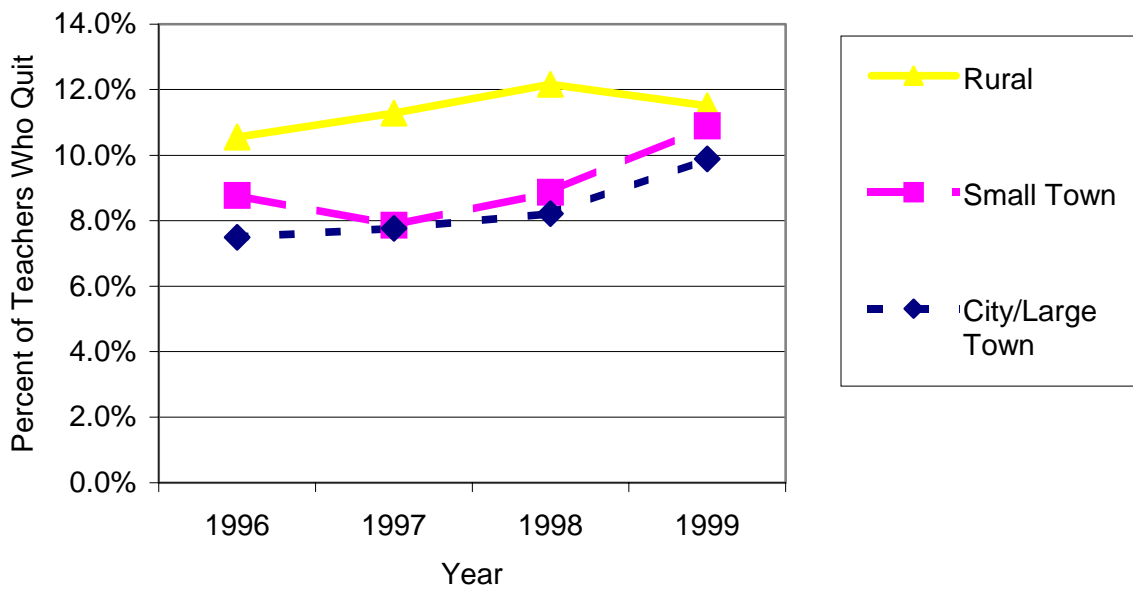


Figure 7: Attrition Rates by Locale

Source: WDE Professional Staff List Report

Table 22 shows the average attrition rate by subject between 1996 and 1999. Differences between jobs are relatively small — three percentage points. The jobs with the lowest attrition rate, eight percent, are general education and PE. Five jobs — language arts, math and science, social sciences, computers, and special education — share the highest attrition rate of 11 percent.

Table 22: Attrition Rates by Subject Area

	1996–1999 Average
Computers	11%
Foreign Language	10%
General Education	8%
Humanities	10%
Language Arts	11%
Math and Science	11%
PE	8%
Remediation	9%
Social Sciences	11%
Special Education	11%
Voc & Driver’s Ed	10%
Total	9%

Source: WDE Professional Staff List Report

Interestingly, even between 1997 and 1998, when salaries in Wyoming increased significantly, overall teacher attrition continued its upward climb. When comparing like groups of teachers (e.g., teachers with no experience) the story is similar. Salaries increased by 5.9 percent, but attrition rates continued to increase very slightly, from 19.5 percent to 20 percent. This does not prove that higher salaries do not reduce attrition; it does indicate there are limitations to the use of higher salaries to reduce attrition. During this period, Wyoming and the nation were undergoing a rapid economic expansion. Wyoming’s unemployment rate declined from 5.1 percent to 4.8 percent (Wyoming Department of Employment, 2001), and average wages increased by 3.5 percent (U.S. Department of Commerce: Bureau of Economic Analysis, 2001). These factors may have reduced the effectiveness of salary increases in lowering teacher attrition.

STUDENT-TEACHER RATIOS

District student-teacher ratios are one measure of working conditions that are contained in the data. The ratio was calculated as the ratio of FTE in teaching assignments to enrollment. It does not include FTE working in student services or administrative assignments. This is the one measure in this report calculated using FTE instead of the number of individuals since so many Wyoming education professionals work both inside and outside the classroom. Using individuals would artificially decrease the ratio because those who work part time in the classroom would be counted as full time. Student-teacher ratios are a measure of the workload teachers face. A higher ratio indicates that a teacher must work with more students; and a lower ratio indicates that a teacher works with fewer students. The student-teacher ratio is a relatively imprecise measure of workload because it is an average for a district and may not reflect the working conditions of any single teacher (Reichardt, 2000). Figure 8 shows the student-teacher ratio by locale. Additional data are located in Appendix J.

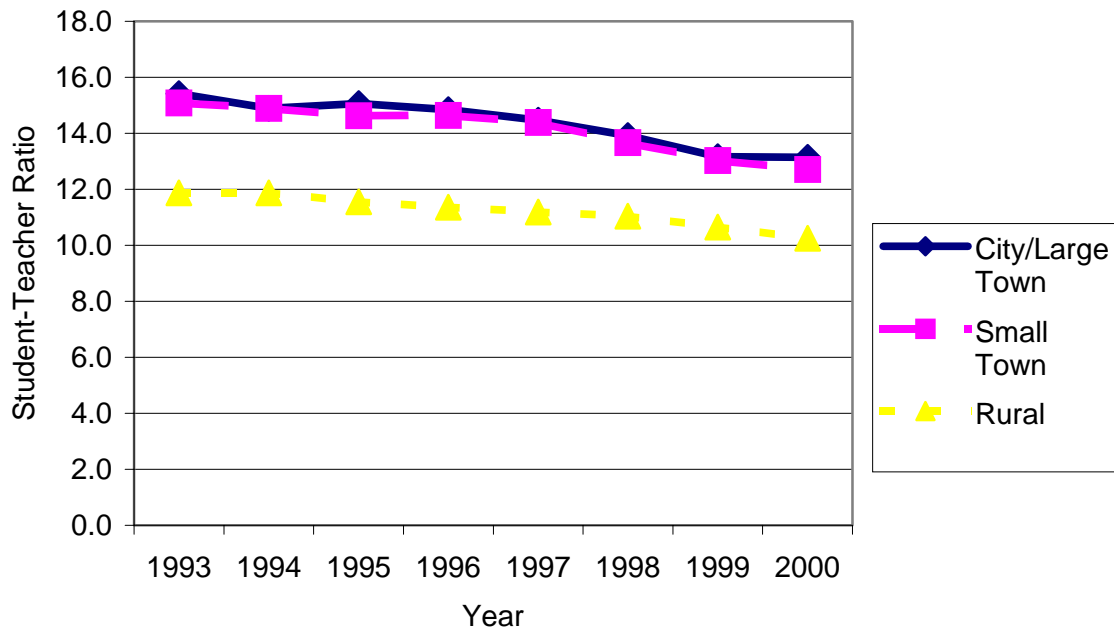


Figure 8: District-Level Student-Teacher Ratios

Source: WDE Professional Staff List Report & Student Enrollment Report

Figure 8 shows that the student-teacher ratio is consistently lower in rural districts than either districts in cities/large towns or small towns, by 19 to 22 percent. The student-teacher ratio consistently declined between 1993 and 2000. In districts that serve cities/large towns and small towns, the student-teacher ratio declined by between 17 to 19 percent, from 15.1 to 15.4 in 1993 to 12.7 to 13.1 in 2000. In rural districts the student-teacher ratio declined from 11.9 to 10.3, or by 16 percent. These rates of decline are similar, resulting in little change in the relative differences in student-teacher ratios between rural districts, small towns, cities and large towns.

Comparing the attrition rates shown in Figure 7 with the student-teacher ratios presented in Figure 8 shows that rural schools have higher attrition and lower student-teacher ratios. This does not mean that workloads (as measured by student-teacher ratio) are not a factor in attrition. Instead, it may indicate that within Wyoming, locale may play a larger role in attrition decisions than does workload. The two figures also show increasing attrition as student-teacher ratios decline. Here again, other factors, such as the aging of the workforce, may be playing a greater role in attrition than workload.

Figure 9 shows the student-teacher ratios at the regional level. The southwest consistently has the largest student-teacher ratio, ranging from 15.3 in 1993 to 12.9 in 2000. The student-teacher ratios in the southeast, northeast, and northwest were very similar, starting at between 12 and 13 in 1993 and ending at about 11 in 2000.

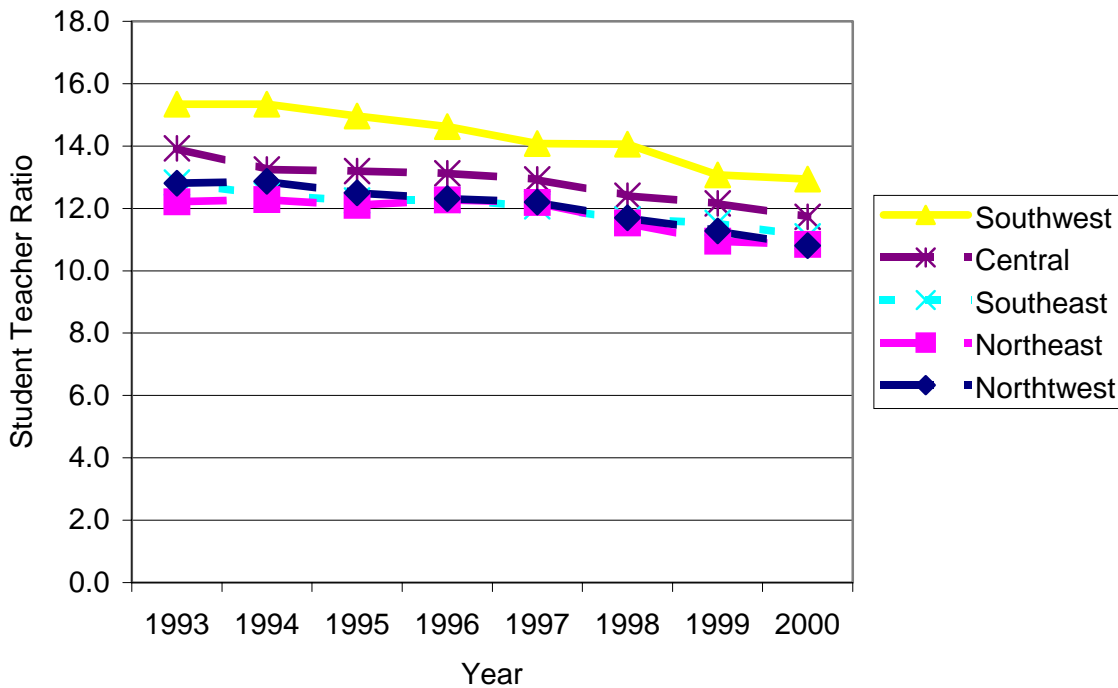


Figure 9: District Student-Teacher Ratio by Region

Source: WDE Professional Staff List Report & Student Enrollment Report

Over time, the student-teacher ratios by region have become more similar. The northeast started with the smallest ratio in 1993 (12.2) and had the smallest decline (13 percent). Three regions, central, northwest and southwest, had the same amount of decline (19 percent).

The U.S. Department of Education calculates a student-teacher ratio to allow interstate comparisons. Its latest calculations shown in Table 23, are for the 1998 school year. The reported Wyoming student-teacher ratio is 14.2. This is .5 higher than the ratio calculated for this report. This difference is most likely due to the use of different definitions of teaching assignments when the data were formatted. As shown in Table 23, Wyoming’s student-teacher ratio was lower than the U.S. average and all of its adjacent states. The largest differences result when comparing Wyoming to Utah (22.4), Idaho (18.2), and Colorado (17.7); the smallest differences result when comparing Wyoming to South Dakota and Nebraska (14.3).

Table 23: 1998 Pupil-Teacher Ratios

	Pupil - Teacher Ratio
United States	16.5
Wyoming	14.2
Colorado	17.7
Idaho	18.2
Montana	15.7
Nebraska	14.3
South Dakota	14.3
Utah	22.4

Source: U.S. Department of Education, 2001

TEACHER HIRES

The number of teachers hired by districts is a product of teacher attrition and district goals (stated or unstated) for student-teacher ratio or class size. A teacher hire for a given year is a teacher who is new to a district for that school year. Teacher hires can be individuals who are new to the profession, teachers who are returning to work after taking time off from the profession, or transfers from other districts within or outside the state. Table 24 shows the number of teachers hired by Wyoming districts between 1996 and 2000.

Table 24: Number of District Teacher Hires

	1996	1997	1998	1999	2000
Number of Teacher Hires	580	654	741	809	670

Source: WDE Professional Staff List Report

The number of teacher hires increased between 1996 and 1999 by between nine and 13 percent a year. The peak number of hires was in 1999, which was also the high point in the total number of Wyoming teachers (see Table 1). The number of hires then declined significantly, by 17 percent between 1999 and 2000. Additional details are in Appendix K.

Appendix K contains new teachers hires by job. Between 1994 and 2000, computer, remediation, foreign language and math & science teaching were the job types that generally had higher proportions of new teacher hires. Over the same period, general education and PE usually had low proportions of new hires.

TEACHER TRANSFERS

As was shown in Figure 6, transfers between districts account for the difference between district and state attrition rates. The fact that Wyoming transfers occur more often among younger teachers is also noted in the literature (Murnane, Singer, & Willett, 1989). The number of transfers in any one year is rather low, between 57 and 101 teachers, or about one percent of the total workforce. When looking at only the youngest teachers, the rate is not particularly stable, ranging from three to seven percent.

The flow of teachers from transfers generally is to the southeast portion of the state, with the largest numbers coming from the southwest, as shown in Table 25. Each cell shows the net flow from a region (i.e., transfers in minus transfers out). A negative number indicates that more teachers moved out of a region than into a region. For example, between 1996 and 1997, seven more teachers transferred out of the northwest than into the northwest.

Table 25: Regional Flow of Teachers

	Northwest	Northeast	Southwest	Southeast	Central
1996 to 1997	-7	5	-3	2	3
1997 to 1998	-3	-2	-7	7	5
1998 to 1999	-5	7	-10	5	3
1999 to 2000	6	-3	-15	8	4
Net transfers in and out between 1996 and 2000	-9	7	-35	22	15

Source: WDE Professional Staff List Report

Similar calculations are shown for locale in Table 26. This clearly shows that teachers are transferring from rural schools into schools located in cities or large towns. There is little net change from transfers in or out of small towns.

Table 26: Flow of Teachers Between Locale*

	City/Large Town	Small Town	Rural
1996 to 1997	4	2	-6
1997 to 1998	17	4	-21
1998 to 1999	9	0	-10
1999 to 2000	18	0	-18
Net transfers in and out between 1996 and 2000	48	6	-55

Source: WDE Professional Staff List Report

*Note: Rows do not sum due to missing data on school locale.

This net flow represents a movement of skills and experience out of rural schools, but accounts for a very small proportion of the rural teacher workforce. For example, the 18 teachers lost by rural schools between 1999 and 2000 accounted for about one percent of all teachers in rural Wyoming schools.

The data for salaries and transfers do not show teachers transferring for higher salaries. Teachers who transferred generally received less of a yearly raise than teachers who continued to work in the same district. Table 27 illustrates the point, by comparing average salary increases for teachers with five years' or less experience who stayed in the same district, to teachers with five years' or less experience who transferred.

Table 27: Average Increase in Salary for Teachers with Five Years' or Less Experience

Salary Increase Between Years	Stay	Change District
1996–1997	\$ 1,231	\$ (303)
1997–1998	\$ 2,256	\$ 2,007
1998–1999	\$ 1,710	\$ 218
1999–2000	\$ 1,436	\$ 705

Source: WDE Professional Staff List Report

For example, between 1998 and 1999, average total salaries increased \$1,710 for teachers with less than five or fewer years' experience who stayed in the same district. This can be compared to the average salary increase of \$218 for teachers with the same amount of experience who transferred.

MOVEMENT OF FORMER TEACHERS

Collaboration between the Wyoming Department of Education and the Wyoming Department of Employment allows tracking of salaries for individuals who have left teaching.

This is done by matching social security numbers (SSNs) for teachers who have quit teaching with their unemployment insurance records maintained by the Department of Employment. The unemployment insurance records provide information on the wages received during a quarter and the industry sector where those wages were paid (i.e., goods producing, services, state government, or local government). The Wyoming Department of Employment has formed partnerships with departments of employment in South Dakota, Utah, and Colorado that provide similar information for people who've moved into those states. The Department of Employment cannot share individual records due to federal privacy laws, but can share statistical information for groups of observations of five or larger. In this case the Department of Employment shared mean wages, standard deviation, and number of observations for matches in records.

These data show movements out of the state, but do not show movements into the state. A recent analysis by MAP (Wolkoff & Podgursky, 2001) suggests that the flow of teachers into the state is about equal to the flow out of the state. In other words, there is no net loss of teachers due to interstate transfers.

The SSNs for 502 people who left education between 1999 and 2000 were provided to the Department of Employment. In order to filter out people who entered retirement, only SSNs for those under age 55 were used. These SSNs were batched by where people worked (locale, Laramie County and Albany County) and by job (special education and math/science). The Department of Employment was asked to look for information three months after the end of the school year, that is, during the fourth quarter of 2000. Table 28 shows the number of matches. In cases where fewer than five matches were found for any of the border states (Colorado, South Dakota, and Utah) these matches were grouped as All States.

Table 28: Movement of Teachers Who Quit After the 1999 School Year

	All States	Rural	Urban	Small Town	Laramie County	Albany County	Math/ Science	Special Education
Number of Quits	502	125	129	237	73	30	61	70
Number of matches	224	53	57	108	27	17	26	31
Proportion of matches in:								
Wyoming	71%	62%	74%	74%	81%	59%	77%	74%
Colorado	18%	15%		16%		41%		
South Dakota	5%	9%		5%				
Utah	6%	13%		6%				
Combination of States			26%		19%		23%	26%

Of the 502 people who left teaching around June of 2000, 224 had non-farm employment sometime between October and December 2000 in Wyoming, Colorado, South Dakota, or Utah. The remainder could have been looking for employment, working in other states, working on farms, or not seeking employment. Many who quit teaching may have left the workforce to raise children.

The large majority (71 percent) of those who were working remained in Wyoming, with 18 percent going to Colorado, five percent to South Dakota, and six percent to Utah. The number of special education and math/science teachers who left the state was about the same as all subjects. This suggests that interstate movement is not the main source of shortages in these positions.

Schools in Albany County and rural schools had larger proportions of teacher quits moving out of state. The destination of these interstate movers was different. Rural movers went in almost equal proportions to Colorado and Utah. Albany County interstate movers went to Colorado. Conversely, Laramie County had fewer teacher quits leaving the state, with 81 percent remaining in Wyoming.

These differences support the findings noted elsewhere in this report that schools in different locations face different pressures to retain teachers. Rural schools lose teachers through higher numbers of transfers to other locations within the state and to other states. The differences between two adjacent counties in the southeastern portion of the state, Albany and Laramie, are particularly interesting. They show that former teachers from schools in similar parts of the state, both with a majority of their teachers working in large towns or cities, behaved very differently. First, a larger proportion of former teachers from Albany County (17 out of 30, or 57 percent) had reported employment compared to Laramie County (27 of 73, or 37 percent). Also, former teachers from Albany County have a higher propensity for moving to Colorado, with 41 percent from Albany moving to Colorado compared to no more than 23 percent moving to Colorado from Laramie. This is not due to differences in the ages of quits from these two counties. As was seen with the transfer data noted earlier in the report, younger teachers are more likely to move. But the average ages of teacher quits from these two counties were very similar: 39 in Albany and 40 in Laramie. This suggests that factors affecting teacher retention may be more localized than the measures of region and locale used in this report.

Table 29 shows the estimated expected salary those who quit would have received if they had remained in teaching, and the estimated annual salary of those who quit and were employed in the fourth quarter of 2000. The row marked “Expected 2000 Teaching Salary” shows the average salary of teacher quits in 1999 increased by four percent, which was the average increase for those who did not quit. The rows marked “Estimated 2000 Salary” contains the total wages received in the fourth quarter of 2000, multiplied by four to create an annualized salary.

Comparing these two sources of earning data requires a bit of caution. The estimated 2000 salary uses wage data from the Department of Employment that includes people who were employed for any part of the fourth quarter. However, this data are treated as if individuals were employed for the whole quarter. It is likely that the Department of Employment wage data include people who were employed for only a portion of that quarter, for example, one or two months. The end result is that the Estimated 2000 Salary is probably lower than what people who were employed for all of 2000 would receive. On the other hand, the Expected 2000 Teaching Salary does not include any wages teachers could earn working during the summer months when school is out, which means that the Expected Teaching Salary column may not reflect total earnings for those who remain in teaching.

Generally, the Estimated Salary is lower than the Expected 2000 Teacher Salary. The Expected Salary is \$31,226, while the Estimated Salary for all those who were employed was \$21,123. The breakdown by state shows that the lowest estimated salaries were in Wyoming and South Dakota, while the highest estimated salaries were in Colorado and Utah. The Estimated Salaries in Colorado and Utah are higher than the Expected Teacher Salary, but statistical tests show no difference.

Table 29: Expected Teaching Salary and Estimated Salary for Teacher Quits

		N	Mean Salary	Difference w/ Expected Teaching Salary
Expected 2000 Teaching Salary	1999 Quits	502	\$ 31,226	
Estimated 2000 Salary by State	All States	224	\$ 21,123	*-10,102
	Colorado	40	\$ 31,736	510
	South Dakota	12	\$ 22,793	*-8,433
	Utah	13	\$ 35,232	4,006
	Wyoming	159	\$ 17,174	*-14,052
Estimated 2000 Salary by Sector	CO-Local Gov.	27	\$ 30,043	-1,183
	CO-Other	13	\$ 35,253	4,027
	SD-Local Gov.	7	\$ 20,399	*-10,827
	SD-Other	5	\$ 26,145	-5,081

**Indicates statistically different from the Expected Salary at the .05 level.*

Data on Estimated Salary by sector show that about two-thirds of the employed teacher quits in Colorado and South Dakota worked in the Local Government Sector. This sector includes public school teaching. In other words, no less than a third of those who moved to these other states worked outside of teaching the next year. Those who did not work in teaching generally received higher salaries than those who worked in the sector that includes teaching.

The Department of Employment data provide employment and wage information for former Wyoming public school teachers who worked in Wyoming, Colorado, South Dakota, and Utah. These data do not support the general argument that people leave teaching for higher salaries. But those who left teaching in Wyoming for other states, especially those who moved to other states and did not teach, did appear to receive higher salaries than they would have had they remained in teaching.

Most (71 percent) of the employed former teachers remained in Wyoming and generally received lower salaries than if they had remained in teaching. Former special education and math/science teachers are not leaving the state at higher rates than the average, suggesting that interstate movements is not a source of shortages for these job areas. The data show that about a third of employed teachers left the state for Colorado, South Dakota, or Utah. Those who went to Colorado or Utah did not, on average, receive lower salaries and may, on average, have received higher salaries than they would have if they had remained in teaching in Wyoming. Of those who went to Colorado and South Dakota, at least a third did not go into teaching, and these people

received higher salaries than the group that included people who went into teaching. The data support the finding that different areas within the state face different pressures to retain teachers; generally rural schools had higher rates of teachers leaving the state.

TEACHER SUPPLY AND DEMAND

Rough estimates of teacher demand and supply from the existing workforce can be made using information on population forecasts, teacher counts, teacher attrition and new teacher characteristics.

The demand forecast is made using the ratio of age-group-populations-to-teachers by county. This allowed the forecast to capture differences in teacher attrition rates by age and differences in population growth rates by county. The population estimates were made for even years (i.e., 1998, 2000, 2002, 2004, 2006, and 2008) because population forecasts were made in these years. Demand estimates for odd years are the average of the adjacent years. Three forecasts of total teacher demand were made based on the total number of teachers working in 1998 and 2000, and the average for those two years. The total demand forecast made using the 2000 student-teacher ratios is the larger demand forecast; the one using the 1998 student-teacher ratio is the smaller demand forecast; and the average between these two years is the intermediate forecast.

These forecasts should be interpreted as rough estimates, not exact predictions. The base assumptions behind the forecasts are that the student-teacher ratios from past years will be maintained (not reduced) and that the population forecasts are correct. The student-teacher ratios used to make these forecasts may not reflect future student-teacher ratios. The key issue is policymakers' responses to changing enrollments. If enrollment declines and schools and districts do not reduce the number of teachers, then these forecasts are too low. If schools and districts consolidate as enrollment declines, then the forecasts may be too high.

In other words, this forecast assumes districts will begin to reduce the number of teachers as enrollment declines. Given past increases in teachers as enrollment has declined, this may not be an accurate assumption. The accuracy of the population forecasts is limited by the fact that they were made before information from the 2000 census was available and before changes in energy prices affected Wyoming's economy.

Figure 10 shows the teacher demand forecast. All of the forecasts predict reduced numbers of teachers between 2000 and 2006 as a result of population declines. After 2006, the total demand for teachers is expected to remain steady or grow slightly.

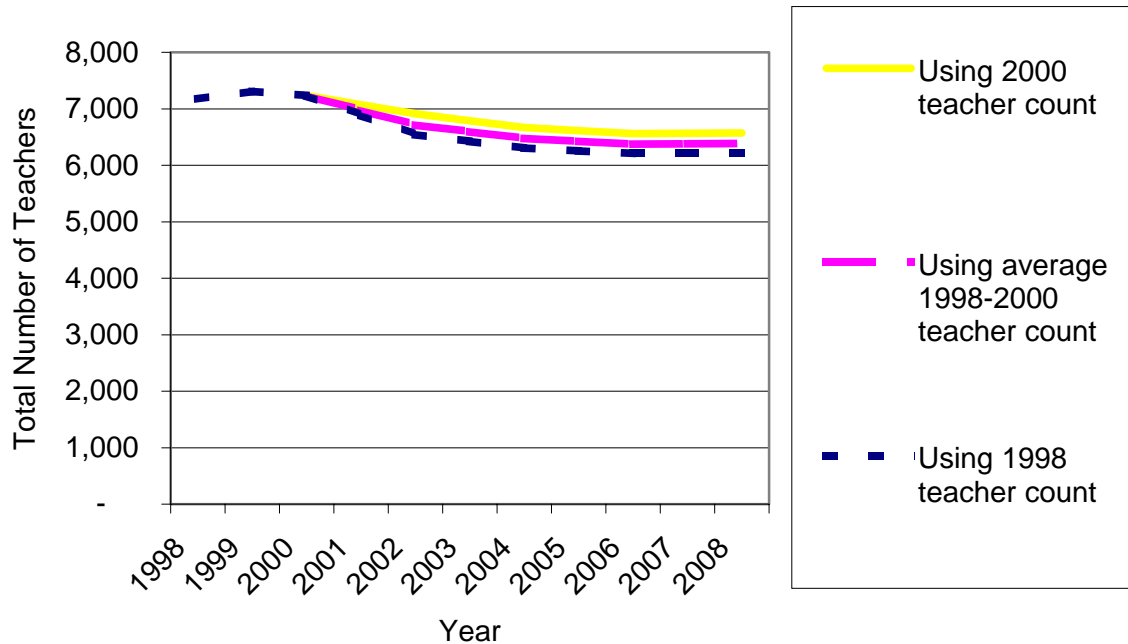


Figure 10: Total Teacher Demand Forecasts for Wyoming

Source: Analysis of WDE Professional Staff List Report & Wyoming Department of Administration and Information, Economic Analysis Division 1999

The demand for new hires can be estimated using the total demand forecasts shown in Figure 10, attrition rates, and the age distributions of the existing workforce, new hires, and quits. These estimates take into account the aging of the workforce and any increased attrition due to retirement. The estimates assume that the age distribution of new teachers in the future will be the same as in the past. State attrition is used here since this forecast is at the state level. Because the attrition rates are slightly unstable, three estimates were made. The average rate between 1996 and 1999 is used for a mid-level rate forecast; the 1996 attrition is used for the low attrition forecast; and the 1999 rate is used for the high attrition forecast. Table 30 shows the actual and estimated total attrition between 1998 and 2007. The highest attrition forecasts are a product of the high total demand estimate and the high attrition rates; and the lowest attrition forecasts are a product of the low total demand forecast and the low attrition rate.

Table 30: Actual and Estimated Attrition from the State Teacher Workforce

	Year	Attrition
Actual	1998	580
Actual	1999	689
Forecast	2000	598–690
Forecast	2001	622–731
Forecast	2002	593–717
Forecast	2003	590–709
Forecast	2004	586–700
Forecast	2005	588–700
Forecast	2006	589–698
Forecast	2007	594–702

Source: Analysis of WDE Professional Staff List Report & Wyoming Department of Administration and Information, Economic Analysis Division, 1999

Table 31 shows the estimated demand for new teachers by year. The forecasts all estimate a decline in the number of teachers hired between 2000 and 2002. During this period, the total number of teachers is expected to decline, reducing the demand for new teachers. In other words, the peak demand for new teachers was in 1999 and that the decline in new hires seen between 1999 and 2000 should continue through 2003.

Table 31: Actual and Estimated Hires for State Teacher Workforce

	Year	Hires
Actual	1998	741
Actual	1999	809
Actual	2000	670
Forecast	2001	270–548
Forecast	2002	276–569
Forecast	2003	477–594
Forecast	2004	473–586
Forecast	2005	536–649
Forecast	2006	538–648
Forecast	2007	594–704
Forecast	2008	599–708

Source: Analysis of WDE Professional Staff List Report & Wyoming Department of Administration and Information, Economic Analysis Division, 1999

The fiscal impact of the changing workforce can be predicted using the average salary paid to each age group in 2000. Figure 11 shows the estimated total expenditures on teacher salaries between 1998 and 2008. The decline in the size of the teacher workforce will reduce the total cost of teacher salaries to the state.

The decline in salary costs for the middle ground and minimum estimate are not due to an increased proportion of younger, lower paid teachers working in the state. The forecasts do predict increases in the proportion of younger, lower paid teachers, but also predict an increase in the proportion of older, higher paid teachers. The end result is that these factors balance each other out, and thus the reduction in the total salary costs is mainly due to reductions in the overall size of the teacher workforce. The maximum estimated salary expenditures are the result of low levels of attrition and high teacher demand. The low attrition rate leads to an increase in the number of older, higher paid teachers.

Since the salary figures used are for 2000, the fiscal impact is measured in constant 2000 dollars. This analysis assumes that the current relationship between teacher's age and salary does not change. It also assumes that the proportion of teachers working part time will continue into the future. These assumptions seem reasonable based on the fairly constant relationships between salary levels and age cohorts between 1993 and 2000.

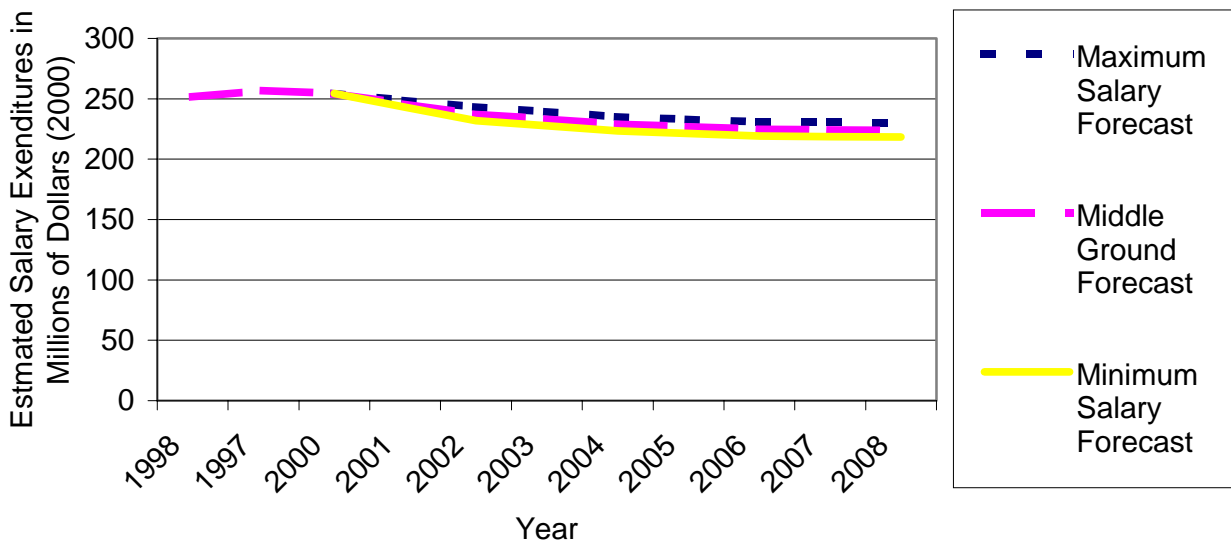


Figure 11: Total Expenditures on Teacher Salaries

Source: Analysis of WDE Professional Staff List Report & Wyoming Department of Administration and Information, Economic Analysis Division, 1999

Current state allocations to education are based on the Management, Analysis, and Planning Associates (MAP) funding formula that was created to meet the requirements for adequate funding laid down by the Wyoming Supreme Court. This funding formula takes into account teacher salary levels at the district level. These forecasts estimate that the allocations that are required from this formula will go down; since the number of teachers will be reduced.

The projected reduction in salary expenditures means that if the state funds education at a constant amount, as measured in 2000 dollars, there will be extra dollars that can be used at the state's discretion. The state could use the funds to increase teacher quality through activities such as induction programs for new teachers or increased training for current teachers (Reichardt,

2001). The options open to the state include granting these extra dollars directly to the districts or creating programs to increase teacher quality. If created, an obvious place to target these programs is towards the shortage areas identified earlier.

CONCLUSIONS

As is true for the nation, Wyoming has an aging teacher workforce, which is experiencing increasing rates of attrition as more teachers retire. The Wyoming workforce has been growing despite a shrinking student population. Regionally the proportion of teachers in the southeast portion of the state grew by one percentage point and the student-teacher ratios became more alike between 1993 and 2000. When looking at locale, the change in student-teacher ratio and proportion of teachers were similar.

When looking at teacher qualifications, the proportion of novice teachers grew by four percentage points between 1998 and 1999. The concentration of novice teachers did not change by region or locale and is higher in the smallest schools. The distribution of teachers with master's degrees is clearly related to region, school size, and locale. There are fewer teachers with master's degrees in small schools, rural schools, and in the southwest. The issue may simply be the difficulty of accessing institutions of higher education.

Two indicators of teacher shortages (proportion of not fully certified teachers and vacancies) show increasing shortages of education professionals. Teacher shortages appear to be the largest in foreign language, math and science, and special education. There are also relatively large shortages outside of the classroom in student services. Geographically, the shortages were the largest and grew the most in rural districts and districts in the western part of the state.

Conclusions based on teacher attrition and transfer data are similar to those described earlier. Teacher attrition is increasing, mainly due to the aging of the workforce. There is higher attrition in the western region of the state. Rural areas show higher levels of attrition, but differences between rural areas and other locales have recently been reduced. Attrition rates by subject do not differ greatly. Teacher transfers show a small flow of teachers out of rural schools and the southwest into cities and the southeast.

Teacher salaries have slowly increased over the last five years, with relatively large increases in 1998 and 1999. Salaries are highly correlated to teacher experience and education. When these things are held relatively constant, there is no clear relationship between salaries and shortages. Differences between salaries by region and locale are small. Regions or locales that have relatively low salaries for new teachers have high salaries for experienced teachers. Compared to neighboring states, Wyoming's teacher salaries are slightly above average.

A rough forecast of teacher demand between 2000 and 2008 suggests that the number of teachers working in Wyoming will decline by between nine and 14 percent. This forecasted decline is based upon schools maintaining the existing, relatively low, student-teacher ratios as enrollment declines. This decline in total teachers will reduce demand for new teachers, from the peak in 1999 of 801 to between 300 and 570 in 2002 and back up to between 600 and 700 in 2008. During this same period, attrition is expected to remain steady at between 600 and 700 per year.

The decline in the total number of teachers working in Wyoming is estimated to reduce the cost of teacher salaries by between nine and 14 percent. This decline in salary costs can provide the state with some flexibility in education funding. The state should be able to keep total funding levels flat and have additional funds to invest in teacher quality.

POLICY RECOMMENDATIONS

This study was designed to provide information to state policymakers on the teacher workforce and to identify teacher supply issues facing the state. Issues were identified and quantified around teacher supply in rural locales, in the western portions of the state, and for teachers working in the subjects of foreign language, math and science, special education, and for professionals providing student services.

Although this analysis identifies areas with supply issues, it provides limited information to recommend policy responses that are best for Wyoming's situation. Policymakers face two questions. First, will Wyoming respond to supply shortages by trying to produce more teachers or attract more teachers? A central issue is whether geographic shortages are caused by a lack of qualified personnel, or because qualified personnel who live (or are willing to live) in these areas cannot be attracted to teaching without higher salaries or better working conditions. In other words, why do teachers choose to live and work in these areas? If teachers live and work in these areas for financial gain, then raising salary expenditures is appropriate. If teachers live and work in these areas for personal reasons (e.g., family connections, attraction to a rural lifestyle, recreation opportunities), then training more teachers in these areas may be more appropriate.

The second question facing state policymakers is if their responses to teacher supply issues are going to be targeted or global. Recently, the state was asked to raise education funding, which would allow districts to increase salaries to meet teacher supply issues. This is a global response. Current education funding from the state to districts is in the form of grants that can be used for any purpose, thus reducing the state's ability to ensure that this funding is used to deal with the identified teacher supply issues. Targeted programs can work to increase teacher supply in geographic regions or in particular subjects facing shortages.

Policy responses can involve current programs and activities or the creation of new programs. Current state-level activities that directly affect teacher supplies are generally global in nature. These activities are overall education funding, management of the teacher retirement system, the teacher certification system, and the University of Wyoming as the primary institution for training new teachers and providing continuing education to existing teachers.

A primary question is if state policies are hindering teacher supply. There are four general questions that relate to this issue:

1. Are teacher salaries and overall working conditions adequate to attract sufficient numbers of qualified teachers?
2. Does the state retirement system support interstate transfers and the entry of mid-career adults into teaching?¹⁰
3. Is the certification system a minimal burden to applicants?
4. Is the university producing adequate numbers of graduates in the shortage subject areas?

Only one of these questions was addressed in this report, the question of teacher salaries, but it was not addressed directly. The evidence reviewed does not indicate that teacher salaries are the primary factor in teacher transfers and attrition. In addition, Wyoming teacher salaries appear to be in the average range when compared to neighboring states.

New program options open to the state are more targeted in nature. The state can create new programs to attract more teachers, such as providing financial incentives — for instance, grants or loan forgiveness — to teachers who agree to work in shortage areas. The state also can create new programs to increase production in the shortage areas, particularly in geographic shortage areas. These programs include “grow your own” teacher training programs and increased access to education school coursework.

The state can also create programs to build district capacity in areas that are currently conducted by districts. This can include organizing and supporting district recruitment or creating programs that improve working conditions, such as professional learning programs.

Taking a step back from the current issues facing Wyoming, there is a larger question for state policymakers: Given the state’s growing role in education, does it have the information it needs to ensure that the state is adequately meeting its responsibilities? If policymakers do not feel that they have adequate information, they can consider requiring reports with data about teacher quality and shortages.

This report was created using existing data. All of the measures found here could be reproduced annually depending on its utility to state policymakers. There are additional existing data that were analyzed for this report that may provide important information to policymakers, including extensive teacher background data at PTSB, teacher transfer data that can be accessed through the Department of Employment, and information on education school graduates from the University of Wyoming. The state should also consider asking for the collection of additional data to help answer some key questions raised in this report:

¹⁰ For more information on retirement systems, see the Mid-Atlantic Regional Teachers Project paper *Removing Pension Barriers to Teacher Mobility in the Mid-Atlantic Region* at http://www.c-b-.org/PDF/martp/pension_barriers.pdf.

1. Why do teachers decide to enter and leave teaching?
2. How large are shortages district face in terms of number of vacancies and number of applicants for those positions?
3. What are teacher qualifications in terms of the number of National Professional Teaching Board certified teachers by district?

Regular analysis and reporting of these data can help policymakers better respond to teacher supply and quality issues facing the state.

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APPENDIX A: METHODOLOGY FOR TEACHER ASSIGNMENTS

The WDE Professional Staff List Report provides information on all professionals working in Wyoming school districts, along with information on their job assignments. At least one individual has 27 different assignments. The large majority of professionals reported less than two assignments, with almost all having fewer than 10 assignments. For each of these assignments, information was provided on the job done in that assignment, the salary for that job, and the proportion of time spent on the assignment. Assignments were also ranked based on the time spent on them. There were approximately 94 different possible jobs that could be done during those assignments.

The 94 jobs were collapsed into the following 18 different job types, which were based on subject area groupings in the WDE data. People were placed in these job types based on their first 10 assignments. Those job types that were considered teaching assignments are marked with an X. The non-teaching assignments are considered administrative assignments.

Job Type	Teacher
Language Arts	X
Math and Science	X
Social Science	X
PE	X
Humanities	X
Voc & Driver's Ed	X
Coach	
Foreign Language	X
Computers	X
Support	
Special Education	X
Remediation	X
General Education	X
Coordinators	
School Staff	
Central Office	
School Building Administration	
Collaborative	X

Individuals were given the job title of “teacher” if they spent a majority of their time in any one of the teaching job types. If they did not report time in each assignment, then job type designations were based on receiving a plurality of their salary in any combination of teaching subject areas.

If a person spent equal amounts of time in administrative and teaching assignments, that person was called a teacher for this analysis.

Once a person was assigned as a teacher, he or she was assigned to one of the job types as a main job. The main job is based on which of the above 12 teacher job types the person spends most of his or her teaching time.

GRADE ASSIGNMENTS

Teachers were assigned to a grade based on the same methodology used in the job type and main job groupings. The WDE data allows 37 different grade groupings, which are not mutually exclusive, for each assignment. The grade groupings provided a mixture of information that was not consistent across all the groupings. They contained some combination of information on the type of school (elementary, middle, or junior high school), the grades served (e.g., first grade, second grade) or a grade range (kindergarten through 12th grade). To simplify the analysis, teachers were assigned to one of the four, non-exclusive grade types shown below with the grades that are included in the grade type. As with subject assignments, these grade type designations are based on where a person spent most of his or her time:

1. Elementary: kindergarten through sixth grades
2. Middle/junior high: sixth through ninth grades
3. High school: ninth through twelfth grades.
4. All Grades: kindergarten through twelfth grades.

APPENDIX B: JOB TYPE TO WDE PARENT ASSIGNMENT CODE CROSSWALK

The parent type and parent codes are the WDE assignment groupings that were combined to make up each of the job types.

Job Type	Work Area	Parent Type (From WDE)	Parent Code (From WDE)	Additional Assignments Included in this Job Type
Language Arts	Classroom Teacher	Language Arts	G	
Math and Science	Classroom Teacher	Mathematics	H	
		Science	I	
		Life Science	IA	
		Physical Science	IB	
Social Sciences	Classroom Teacher	Social Studies/Sciences	J	
		Geography	JA	
		History	JB	
PE	Classroom Teacher	Physical Educ and Health	K	
Humanities	Classroom Teacher	Art	MA	
		Music	MB	
		Drama and Theater	MC	
Voc & Driver's Education	Classroom Teacher	Agriculture	NA	
		Marketing	NB	
		Family and Consumer Science	NC	
		Trade and Industry	ND	
		Health Occupations	NE	
		Business	NF	
		Technology Education	NG	
		Other	X	Driver's Ed
Coaching		Coaching	KB	
		Other	X	Advisor/ Sponsor Any Club Activity – Not Coaching
Foreign Language	Classroom Teacher	Foreign Language	L	
Computer	Classroom Teacher	Other	X	Computer Literacy/Lab

Job Type	Work Area	Parent Type (From WDE)	Parent Code (From WDE)	Additional Assignments Included in this Job Type
		Other	X	Computer/Tech Coordinator
		Other	X	Computer Science
Student Services	Administration or Student Services	Guidance Counselors	BA	
		Library Media Staff	BB	
		Student Support Staff - - Professional	BD	
Special Education	Special Education or Remediation	Special Education	OA	
		Gifted & Talented	OC	
Remediation	Special Education or Remediation	Remediation	OB	
		Teacher	AA	
General Education	Classroom Teacher	General/ Multidisciplinary	F	
Other Admin.	Administration or Student Services	Coordinators and Supervisors	BF	
School Staff	Not Included	Food Service Staff	CH	
		Other Staff	CN	
Central Office	Administration or Student Services	Central Office Administrators	CC	
School Building Administrators	Administration or Student Services	School Building Administrators	CA	

APPENDIX C: TEACHER WORKFORCE

Wyoming Teachers by Subject

Subject	1993	1994	1995	1996	1997	1998	1999	2000
Language Arts	6%	6%	6%	7%	7%	7%	7%	7%
Math/Science	9%	10%	10%	10%	10%	10%	10%	10%
Social Science	5%	5%	5%	5%	5%	5%	5%	5%
PE	6%	6%	6%	6%	6%	6%	6%	6%
Humanities	7%	7%	8%	7%	7%	8%	8%	8%
Voc & Driver's Ed	8%	8%	8%	8%	8%	7%	7%	7%
Foreign Language	2%	2%	2%	2%	2%	2%	2%	2%
Computers	1%	1%	1%	1%	1%	1%	1%	1%
Special Education	13%	13%	13%	14%	14%	14%	14%	14%
Remediation	2%	2%	2%	3%	3%	3%	3%	3%
General Education	41%	41%	39%	39%	38%	37%	38%	37%
Collaborative	0%	0%	0%	0%	0%	0%	0%	0%
Total	100%	100%	100%	100%	100%	100%	100%	100%

Source: WDE Professional Staff List Report

Wyoming Teachers by Region

	1993	1994	1995	1996	1997	1998	1999	2000
Northwest	1,268	1,273	1,301	1,318	1,303	1,330	1,351	1,349
Northeast	1,222	1,217	1,223	1,205	1,205	1,247	1,275	1,273
Southwest	1,503	1,498	1,512	1,502	1,510	1,508	1,552	1,486
Southeast	1,659	1,698	1,699	1,695	1,698	1,724	1,766	1,763
Central	1,318	1,352	1,342	1,331	1,326	1,346	1,363	1,346

Source: WDE Professional Staff List Report

Teachers by Age Category

	1994	1995	1996	1997	1998	1999
Under 25	216	242	214	178	188	237
26 to 30	619	636	648	666	675	665
31 to 35	802	740	721	695	702	762
36 to 40	1,225	1,204	1,110	1,038	1,003	929
41 to 45	1,610	1,558	1,516	1,445	1,368	1,317
46 to 50	1,316	1,384	1,464	1,526	1,560	1,602
51 to 55	789	863	905	970	1,102	1,197
56 to 60	314	359	387	432	465	488
61 to 65	93	83	81	85	84	99
65 to 70	2	8	5	7	8	10
Total	6,986	7,077	7,051	7,042	7,155	7,306

Source: WDE Professional Staff List Report

Average Age of Wyoming Teachers

Year	Average Age
1993	41.6
1994	42.0
1995	42.3
1996	42.6
1997	43.0
1998	43.2
1999	43.4
2000	43.6

Source: WDE Professional Staff List Report

Average Years to Retirement by Job

	1996	1997	1998	1999	2000
Language Arts	14.2	13.9	13.6	13.3	13.1
Math and Science	15.2	15.0	15.0	14.7	14.7
Social Science	14.5	14.4	14.1	14.2	14.3
PE	14.7	14.2	14.0	14.3	13.8
Humanities	15.7	15.3	14.8	14.4	13.8
Voc & Driver's Ed.	14.1	13.7	13.5	13.7	13.4
Foreign Language	14.9	14.7	13.8	13.3	13.0
Computers	14.0	13.8	14.6	13.2	13.0
Special Ed.	16.5	16.1	15.7	15.2	14.8
Remediation	13.8	13.6	12.9	13.8	13.6
General Ed.	13.7	13.3	13.3	13.4	13.1

Source: WDE Professional Staff List Report

Average Years to Retirement by Region

	1997	1998	1999	2000
Northwest	14.3	14.1	14.0	14.0
Northeast	14.3	14.2	13.9	13.8
Southwest	14.8	14.4	14.2	13.6
Southeast	13.7	13.5	13.7	13.5
Central	14.1	14.1	14.1	13.7

Source: WDE Professional Staff List Report

Average State Experience by Locale

	City/Large Town	Small Town	Rural
1996	12.7	12.9	11.3
1997	13.0	13.2	11.5
1998	13.2	13.3	11.8
1999	12.7	13.2	11.6
2000	12.5	13.3	11.8

Source: WDE Professional Staff List Report

Average State Experience by Region

	Northwest	Northeast	Southwest	Southeast	Central
1996	12.3	12.8	12.0	12.9	12.3
1997	12.5	12.9	12.2	13.1	12.6
1998	12.7	12.9	12.5	13.0	13.4
1999	12.2	12.8	12.4	12.6	13.1
2000	12.1	12.9	13.0	12.6	12.8

Source: WDE Professional Staff List Report

Average State Experience by Job

	1996	1997	1998	1999	2000
Language Arts	12.4	12.6	12.9	13.0	13.3
Math and Science	12.1	12.0	12.1	12.2	11.9
Social Science	13.2	13.5	13.5	13.1	12.6
PE	13.9	14.4	14.8	14.3	14.5
Humanities	11.1	11.4	11.7	11.7	12.1
Voc & Driver's Ed	13.3	13.5	13.8	13.5	13.6
Foreign Language	10.9	11.1	11.4	11.3	11.3
Computers	14.5	14.8	14.1	14.2	14.0
Special Ed.	9.7	10.0	10.3	10.4	10.6
Remediation	12.2	12.2	12.7	11.5	11.2
General Ed.	13.3	13.7	13.8	13.3	13.5

Source: WDE Professional Staff List Report

APPENDIX D: TEACHER EDUCATION LEVELS

Proportion of Teachers with Master's Degrees by School Poverty

	Proportion of Teachers w/ Master's Degrees
Less than 25th percentile free & reduced lunch	29.9%
Between 25th and 50th percentile free & reduced lunch	26.0%
Between 50th and 75th percentile free & reduced lunch	27.1%
Above 75th percentile free & reduced lunch	25.0%
Total	27.3%

Source: WDE Professional Staff List Report & School Enrollment Report

Proportion of Teachers with Master's Degrees by School Size

	Proportion of Teachers w/ Master's Degrees
Less than 25th percentile school size	17%
Between 25th and 50th percentile school size	23%
Between 50th and 75th percentile school size	25%
Above 75th percentile school size	31%

Source: WDE Professional Staff List Report & School Enrollment Report

APPENDIX E: NOVICE TEACHERS

Proportion of Novice Teacher, by Locale

	1996	1997	1998	1999	2000
City/Large Town	9%	9%	9%	16%	14%
Small Town	10%	10%	10%	12%	13%
Rural	13%	13%	13%	16%	16%

Source: WDE Professional Staff List Report

Proportion of Novice Teacher, by Region

	1996	1997	1998	1999	2000
Northwest	12%	11%	10%	12%	13%
Northeast	8%	8%	9%	13%	15%
Southwest	10%	12%	11%	13%	13%
Southeast	11%	12%	13%	16%	15%
Central	9%	9%	6%	15%	14%
Total	10%	10%	10%	14%	14%

Source: WDE Professional Staff List Report

Proportion of Novice Teacher, by School Size

	1996	1997	1998	1999	2000
Less than 25th percentile school size	21.4%	18.8%	18.8%	19.1%	21.4%
Between 25th and 50th percentile school size	9.2%	11.8%	10.2%	14.9%	14.7%
Between 50th and 75th percentile school size	8.0%	7.7%	8.2%	13.5%	14.2%
Above 75th percentile school size	9.9%	10.5%	10.1%	13.4%	13.0%
Total	10%	10%	10%	14%	14%

Source: WDE Professional Staff List Report

Proportion of Novice Teachers, by School Poverty

	1996	1997	1998	1999	2000
Between 0 & 17% free & reduced lunch eligible	10%	11%	11%	14%	15%
Between 18% to 29% free & reduced lunch eligible	10%	11%	10%	14%	12%
Between 30 to 42% free & reduced lunch eligible	10%	9%	10%	12%	13%
Between 43 to 92% free & reduced lunch eligible	10%	11%	11%	16%	16%

Source: WDE Professional Staff List Report

Proportion of Novice Teachers, by Job

	1996	1997	1998	1999	2000
Language Arts	11%	12%	11%	13%	12%
Math and Science	12%	12%	12%	15%	16%
Social Science	11%	11%	14%	17%	18%
PE	7%	8%	7%	12%	13%
Humanities	14%	14%	12%	14%	14%
Voc & Driver's Ed	12%	10%	10%	12%	13%
Foreign Language	16%	17%	11%	16%	18%
Computers	11%	14%	12%	14%	18%
Special Education	13%	14%	12%	15%	15%
Remediation	12%	10%	10%	16%	17%
General Education	7%	8%	9%	14%	13%
Total	10%	10%	10%	14%	14%

Source: WDE Professional Staff List Report

APPENDIX F: TEACHER CERTIFICATION

Not Fully Certified Education Professionals

	1996	1997	1998	1999	2000	% change 1996–2000
Classroom Teachers	107	125	174	208	228	113%
Special Education or Remediation	24	28	30	62	65	171%
Administration or Student Services	33	30	31	51	106	221%
Total	164	183	235	321	399	143%

Source: PTSB School Year Reports & WDE Professional Staff List Report

Proportion of Not Fully Certified Teachers by Subject

	1996	1997	1998	1999	2000
Language Arts	4%	3%	4%	5%	5%
Math/Science	1%	3%	4%	5%	6%
Social Sciences	3%	3%	3%	4%	5%
PE	3%	4%	3%	4%	5%
Humanities	1%	2%	3%	3%	5%
Voc & Driver's Ed	1%	1%	2%	2%	2%
Foreign Language	2%	1%	7%	9%	7%
Computers	2%	1%	2%	4%	3%
General Education	2%	2%	2%	3%	3%
Special Education	2%	3%	3%	6%	6%
Remediation	1%	0%	1%	1%	3%

Source: PTSB School Year Reports & WDE Professional Staff List Report

Proportion of Not Fully Certified Teachers by Locale & Region

	1996	1997	1998	1999	2000
Rural	2%	3%	4%	5%	8%
Small Town	2%	3%	3%	3%	6%
City/Large Town	2%	1%	2%	2%	4%
Northwest	2%	2%	2%	5%	8%
Northeast	2%	3%	3%	3%	4%
Southwest	2%	4%	4%	5%	8%
Southeast	1%	1%	1%	2%	3%
Central	2%	2%	2%	4%	6%

Source: PTSB School Year Reports & WDE Professional Staff List Report

APPENDIX G: MEAN SALARIES FOR TEACHERS WITH NO EXPERIENCE AND NO MASTER'S

Average Salary by School Poverty

	1996	1997	1998	1999	2000
Less than 25th percentile free & reduced lunch	\$ 23,389	\$ 23,459	\$ 25,083	\$ 26,069	\$ 25,863
Between 25th and 50th percentile free & reduced lunch	\$ 22,757	\$ 22,692	\$ 24,479	\$ 24,962	\$ 24,994
Between 50th and 75th percentile free & reduced lunch	\$ 21,920	\$ 22,956	\$ 23,567	\$ 24,803	\$ 24,356
Above 75th percentile free & reduced lunch	\$ 22,482	\$ 22,851	\$ 23,682	\$ 23,655	\$ 23,565

Source: WDE Professional Staff List Report & WDE School Enrollment Reports

Average Salary by School Size

	1996	1997	1998	1999	2000
Less than 25th percentile school size	\$ 22,258	\$ 22,226	\$ 22,103	\$ 23,029	\$ 24,305
Between 25th and 50th percentile school size	\$ 24,383	\$ 23,010	\$ 24,839	\$ 24,854	\$ 24,964
Between 50th and 75th percentile school size	\$ 21,990	\$ 23,468	\$ 23,427	\$ 24,542	\$ 25,179
Above 75th percentile school size	\$ 22,610	\$ 23,007	\$ 24,770	\$ 25,562	\$ 24,759

Source: WDE Professional Staff List Report & WDE School Enrollment Reports

APPENDIX H: INTERSTATE SALARY COMPARISONS

All data from Nelson, Drown, & Gould, 2001

	Average Salary	Rank	Average Salary Adjusted by AFT Cost of Living Index	Rank	Average Beginning Teacher salary
U.S.	\$ 41,820		\$ 41,820		\$ 27,989
Wyoming	\$ 34,188	4	\$ 36,646	5	\$ 24,168
Colorado	\$ 39,073	1	\$ 39,816	1	\$ 24,875
Idaho	\$ 35,155	2	\$ 38,467	2	\$ 20,915
Montana	\$ 32,121	6	\$ 34,741	6	\$ 20,969
Nebraska	\$ 33,237	5	\$ 37,358	3	\$ 22,923
South Dakota	\$ 29,072	7	\$ 33,190	7	\$ 21,889
Utah	\$ 34,946	3	\$ 37,269	4	\$ 23,273

	Ratio of Average Salary to Annual Private Sector Earnings	Rank	Ratio of Average Salary to Per Capita Personal Income	Rank
U.S.	1.25		1.51	
Wyoming	1.36	2	1.3	4
Colorado	1.14	7	1.24	5
Idaho	1.36	2	1.54	1
Montana	1.44	1	1.46	3
Nebraska	1.26	5	1.23	6
South Dakota	1.24	6	1.16	7
Utah	1.27	4	1.5	2

APPENDIX I: ATTRITION RATES

State Quits by Age Category

	1994	1995	1996	1997	1998	1999
Under 25	26	37	34	34	31	47
26 to 30	66	66	87	87	94	93
31 to 35	48	54	63	55	64	71
36 to 40	65	59	56	49	55	62
41 to 45	63	78	77	60	61	83
46 to 50	48	65	69	62	76	82
51 to 55	42	74	70	63	86	117
56 to 60	51	55	64	80	79	94
61 to 65	31	35	31	35	32	38
65 to 70	1	5	1	1	2	2
Total	441	528	552	526	580	689

Transfers by Age Category

	1994	1995	1996	1997	1998	1999
Under 25	7	15	14	13	10	8
26 to 30	13	14	16	13	29	20
31 to 35	16	5	16	18	13	20
36 to 40	6	8	11	13	20	11
41 to 45	9	11	6	14	10	12
46 to 50	5	7	8	8	13	17
51 to 55	0	0	3	7	5	7
56 to 60	0	1	1	3	1	2
61 to 65	1	0	0	1	0	0
65 to 70	0	0	0	0	0	0
Total	57	61	75	90	101	97

District Attrition Rates by Age Group

Age Group	1994	1995	1996	1997	1998	1999	Average 96-99
Under 25	15%	21%	22%	26%	22%	23%	23.5%
26 to 30	13%	13%	16%	15%	18%	17%	16.5%
31 to 35	8%	8%	11%	11%	11%	12%	11.1%
36 to 40	6%	6%	6%	6%	7%	8%	6.8%
41 to 45	4%	6%	5%	5%	5%	7%	5.7%
46 to 50	4%	5%	5%	5%	6%	6%	5.4%
51 to 55	5%	9%	8%	7%	8%	10%	8.5%
56 to 60	16%	16%	17%	19%	17%	20%	18.2%
61 to 65	34%	42%	38%	42%	38%	38%	39.3%
66 to 70	50%	63%	20%	14%	25%	20%	19.8%
Total	7.1%	8.3%	8.9%	8.7%	9.5%	10.8%	9.5%

Source: WDE Professional Staff List Report

District Attrition Rates by Region

	Northwest	Northeast	Southwest	Southeast	Central	Total
1993	10.3%	7.9%	9.3%	7.4%	6.8%	8.3%
1994	8.6%	6.8%	8.6%	7.0%	8.1%	7.8%
1995	9.8%	7.0%	9.7%	8.1%	6.9%	8.3%
1996	11.3%	7.5%	9.2%	8.5%	7.8%	8.9%
1997	9.0%	6.6%	9.7%	8.5%	9.6%	8.7%
1998	11.2%	9.0%	9.1%	9.6%	8.8%	9.5%
1999	12.1%	9.1%	11.9%	10.6%	9.9%	10.8%
Average 96-99	10.9%	8.0%	10.0%	9.3%	9.0%	9.5%

Source: WDE Professional Staff List Report

Attrition Rates by Grade Level

	Elementary	Middle/ Junior High	High School	All Grades	Total
1993	6.5%	8.9%	10.1%	11.6%	8.3%
1994	7.0%	8.0%	8.8%	8.9%	7.8%
1995	7.0%	8.6%	10.0%	9.1%	8.3%
1996	7.6%	8.8%	10.5%	10.9%	8.9%
1997	7.2%	8.7%	10.9%	10.3%	8.7%
1998	8.2%	8.0%	12.1%	12.2%	9.5%
1999	9.2%	11.0%	12.9%	10.8%	10.8%
Average 96–99	8.1%	9.1%	11.6%	11.0%	9.5%

Source: WDE Professional Staff List Report

Attrition Rates by Locale

Year	City/Large Town	Small Town	Rural
1993	6.8%	8.6%	9.6%
1994	7.5%	7.1%	9.3%
1995	6.6%	7.8%	11.0%
1996	7.5%	8.8%	10.6%
1997	7.8%	7.9%	11.3%
1998	8.2%	8.9%	12.2%
1999	9.9%	10.9%	11.5%
Average 96–99	8.3%	9.1%	11.4%

Source: WDE Professional Staff List Report

Attrition Rates by Job

	1993	1994	1995	1996	1997	1998	1999
Language Arts	8%	8%	10%	9%	9%	12%	12%
Math and Science	10%	7%	10%	10%	9%	12%	14%
Social Sciences	9%	9%	6%	9%	10%	9%	15%
PE	10%	6%	6%	7%	7%	8%	8%
Humanities	8%	10%	12%	11%	10%	9%	11%
Voc& Driver's Educ	10%	8%	9%	8%	9%	12%	12%
Foreign Language	9%	11%	11%	8%	11%	11%	12%
Computers	13%	9%	11%	9%	10%	15%	12%
Special Education	12%	12%	10%	12%	12%	11%	9%
Remediation	7%	10%	2%	8%	8%	9%	11%
General Education	6%	6%	7%	8%	7%	8%	10%
Total	8%	8%	8%	9%	9%	10%	11%

Source: WDE Professional Staff List Report

APPENDIX J: STUDENT-TEACHER RATIOS

Student-Teacher Ratios by Locale and Region

	1993	1994	1995	1996	1997	1998	1999	2000
City/Large Town	15.4	14.9	15.1	14.8	14.5	13.9	13.2	13.1
Small Town	15.1	14.9	14.6	14.6	14.4	13.7	13.0	12.7
Rural	11.9	11.9	11.6	11.4	11.2	11.0	10.6	10.3
Northwest	12.8	12.9	12.5	12.3	12.2	11.7	11.3	10.8
Northeast	12.2	12.3	12.1	12.3	12.2	11.5	11.0	10.8
Southwest	15.3	15.3	15.0	14.6	14.1	14.1	13.1	12.9
Southeast	12.8	12.4	12.2	12.3	12.1	11.7	11.5	11.1
Central	13.9	13.2	13.2	13.1	12.9	12.4	12.2	11.7

Source: WDE Professional Staff List Report & WDE School Enrollment Reports

APPENDIX K: NEW TEACHERS

New Teachers by Year

	New District Teachers	Total Teachers
1994	702	7,038
1995	599	7,077
1996	580	7,051
1997	654	7,042
1998	741	7,155
1999	810	7,307
2000	670	7,217

Source: WDE Professional Staff List Report

New Teachers by Region

Region Teachers	Northwest		Northeast		Southwest		Southeast		Central	
	New	Total	New	Total	New	Total	New	Total	New	Total
1994	144	1,273	106	1,217	146	1,498	173	1,698	133	1,352
1995	137	1,301	89	1,223	149	1,512	127	1,699	97	1,342
1996	150	1,318	67	1,205	138	1,502	137	1,695	88	1,331
1997	137	1,303	94	1,205	157	1,510	161	1,698	105	1,326
1998	143	1,330	129	1,247	142	1,508	179	1,724	148	1,346
1999	169	1,351	135	1,275	172	1,552	202	1,766	132	1,363
2000	157	1,349	112	1,273	113	1,486	177	1,763	111	1,346

Source: WDE Professional Staff List Report

New Teachers by Job

Job	1994		1995		1996		1997		1998		1999		2000	
	New Tchr	Total Tchrs	New Tchr	Total Tchrs	New Tchr	Total Tchrs	New Tchr	Total Tchrs	New Tchr	Total Tchrs	New Tchr	Total Tchrs	New Tchr	Total Tchrs
Computers	4	40	3	37	9	43	10	57	15	78	10	85	13	97
Foreign Lang	21	138	15	138	21	144	15	148	19	150	19	151	16	147
General Ed.	205	2,849	146	2,793	155	2,732	183	2,639	204	2,654	283	2,741	196	2,668
Humanities	49	521	69	532	54	523	55	525	65	540	66	550	55	545
Language Arts	42	444	50	459	44	467	46	491	56	502	55	504	47	497
Math/Science	88	676	76	709	61	710	95	724	88	746	88	746	88	734
PE	36	391	25	391	21	389	29	394	30	398	39	406	27	402
Remediation	17	154	10	172	19	183	25	215	18	212	27	209	27	220
Social Science	35	328	35	336	17	326	27	323	40	326	33	339	36	336
Special Ed.	145	933	124	947	130	976	127	978	154	1,006	126	1,023	114	1,040
Voc & Driver's Ed.	60	561	46	561	47	552	38	540	47	531	58	528	45	506
Total	702	7,038	599	7,077	580	7,051	654	7,042	741	7,155	810	7,307	670	7,217

Source: WDE Professional Staff List Report

New Teachers by Locale

	City/Large Town		Small Town		Rural	
	New Teachers	Total Teachers	New Teachers	Total Teachers	New Teachers	Total Teachers
1994	183	2,033	305	3,149	206	1,826
1995	129	2,031	254	3,181	215	1,857
1996	130	2,014	238	3,169	209	1,856
1997	158	2,007	277	3,164	218	1,862
1998	216	2,069	316	3,234	209	1,842
1999	228	2,133	327	3,286	250	1,878
2000	178	2,115	290	3,239	202	1,860

Source: WDE Professional Staff List Report

Age Distribution of New Teachers

	1994	1995	1996	1997	1998	1999	2000	Average 1996–2000
Under 25	16%	23%	19%	15%	17%	18%	18%	17.4%
26 to 30	19%	20%	23%	24%	22%	23%	24%	23.1%
31 to 35	15%	15%	13%	15%	13%	14%	12%	13.6%
36 to 40	15%	15%	14%	13%	15%	12%	14%	13.5%
41 to 45	18%	13%	15%	13%	13%	13%	11%	12.9%
46 to 50	10%	8%	9%	11%	11%	11%	12%	10.9%
51 to 55	5%	4%	4%	5%	6%	5%	7%	5.5%
56 to 60	1%	2%	2%	2%	2%	2%	3%	2.2%
61 to 65	1%	1%	1%	1%	1%	1%	0%	0.7%
65 to 70	0%	0%	0%	0%	0%	0%	0%	0.1%

Source: WDE Professional Staff List Report

Teacher Transfers

	Transfers into Districts
1994	73
1995	57
1996	61
1997	75
1998	90
1999	101
2000	97

Source: *WDE Professional Staff List Report*

APPENDIX L: DEMAND FORECASTS AND INFORMATION USED TO MAKE THE FORECASTS

Teacher Demand

		Using 1998 Teacher Count	Using Average 1998–2000 Teacher Count	Using 2000 Teacher Count
		Low Estimate	Medium Estimate	High Estimate
Actual	1998	7,172		
Actual	1999	7,306		
Actual	2000	7,235	7,235	7,235
Forecast	2001	6,888	6,976	7,073
Forecast	2002	6,542	6,717	6,912
Forecast	2003	6,425	6,597	6,789
Forecast	2004	6,308	6,477	6,666
Forecast	2005	6,257	6,426	6,614
Forecast	2006	6,207	6,375	6,562
Forecast	2007	6,212	6,380	6,568
Forecast	2008	6,217	6,386	6,574

Source: Analysis of WDE Professional Staff List Report & Wyoming Department of Administration and Information, Economic Analysis Division, 1999

Teacher Salary Expenditure Forecast

		Low Estimate	Medium Estimate	High Estimate
		Low Teacher Count- High Attrition	Average Teacher Count and Attrition	Using 2000 Teacher Count
Actual	1998	\$ 251,436,138		
Actual	1999	\$ 256,852,282		
Actual	2000	\$ 254,315,017	\$ 254,315,017	\$ 254,315,017
Forecast	2001	\$ 242,520,896	\$ 245,527,256	\$ 248,685,948
Forecast	2002	\$ 231,128,450	\$ 237,200,258	\$ 243,472,773
Forecast	2003	\$ 226,735,308	\$ 233,085,896	\$ 239,406,431
Forecast	2004	\$ 222,362,591	\$ 228,910,368	\$ 235,243,578
Forecast	2005	\$ 220,054,168	\$ 226,791,939	\$ 233,180,420
Forecast	2006	\$ 217,799,299	\$ 224,670,179	\$ 231,092,173
Forecast	2007	\$ 217,303,592	\$ 224,302,639	\$ 230,786,684
Forecast	2008	\$ 216,902,279	\$ 223,994,807	\$ 230,527,954

Source: Analysis of WDE Professional Staff List Report & Wyoming Department of Administration and Information, Economic Analysis Division, 1999

APPENDIX M: PROPORTION OF SCHOOLS IN EACH LOCALE BY DISTRICT FOR 2000

District Name	City/Large Town	Small Town	Rural	Region
Albany Co. School Dist 01	91%	1%	8%	Southeast
Big Horn Co. School Dist 01	0%	0%	100%	Northwest
Big Horn Co. School Dist 02	0%	0%	100%	Northwest
Big Horn Co. School Dist 03	0%	0%	100%	Northwest
Big Horn Co. School Dist 04	0%	0%	100%	Northwest
Campbell Co. School Dist 01	0%	87%	13%	Northeast
Carbon Co. School Dist 01	0%	87%	13%	Central
Carbon Co. School Dist 02	0%	0%	100%	Central
Converse Co. School Dist 01	0%	99%	1%	Central
Converse Co. School Dist 02	0%	0%	100%	Central
Crook Co. School Dist 01	0%	0%	100%	Northeast
Fremont Co. School Dist 01	0%	99%	1%	Northwest
Fremont Co. School Dist 02	0%	0%	100%	Northwest
Fremont Co. School Dist 06	0%	0%	100%	Northwest
Fremont Co. School Dist 14	0%	0%	100%	Northwest
Fremont Co. School Dist 21	0%	0%	100%	Northwest
Fremont Co. School Dist 24	0%	0%	100%	Northwest
Fremont Co. School Dist 25	0%	100%	0%	Northwest
Fremont Co. School Dist 38	0%	0%	100%	Northwest
Goshen Co. School Dist 01	0%	65%	35%	Southeast
Hot Springs Co. Sch Dist 01	0%	100%	0%	Northwest
Johnson Co. School Dist 01	0%	81%	19%	Northeast
Laramie Co. School Dist 01	100%	0%	0%	Southeast
Laramie Co. School Dist 02	0%	0%	100%	Southeast
Lincoln Co. School Dist 01	0%	59%	41%	Southwest
Lincoln Co. School Dist 02	0%	0%	100%	Southwest
Natrona Co. School Dist 01	97%	0%	3%	Central
Niobrara Co. School Dist 01	0%	0%	100%	Southeast
Park Co. School District 01	0%	100%	0%	Northwest
Park Co. School District 06	0%	97%	3%	Northwest
Park Co. School District 16	0%	0%	100%	Northwest
Platte Co. School Dist 01	0%	78%	22%	Southeast
Platte Co. School Dist 02	0%	0%	100%	Southeast
Sheridan Co. School Dist 01	0%	0%	100%	Northeast
Sheridan Co. School Dist 02	0%	99%	1%	Northeast
Sheridan Co. School Dist 03	0%	0%	100%	Northeast
Sublette Co. School Dist 01	0%	0%	100%	Southwest
Sublette Co. School Dist 09	0%	0%	100%	Southwest
Sweetwater Co. Sch Dist 01	0%	92%	8%	Southwest
Sweetwater Co. Sch Dist 02	0%	98%	2%	Southwest

District Name	City/Large Town	Small Town	Rural	Region
Teton Co. School Dist 01	0%	83%	17%	Southwest
Uinta Co. School Dist 01	0%	100%	0%	Southwest
Uinta Co. School Dist 04	0%	0%	100%	Southwest
Uinta Co. School Dist 06	0%	0%	100%	Southwest
Washakie Co. School Dist 01	0%	100%	0%	Northwest
Washakie Co. School Dist 02	0%	0%	100%	Northwest
Weston Co. School Dist 01	0%	95%	5%	Northeast
Weston Co. School Dist 07	0%	0%	100%	Northeast

Source: WDE Professional Staff List Report

APPENDIX N: ANALYSIS OF DEPARTMENT OF EMPLOYMENT DATA

		N	Mean Salary	Standard Deviation	Difference w/ Expected Teaching Salary	Statistical Difference
All						
Expected Teaching Salary	1999 Quits	502	\$31,226	\$10,415		
	All States	224	\$21,123	\$15,607	-\$10,102	New Salary Lower
	Colorado	40	\$31,736	\$12,070	\$510	Not Different
	South Dakota	12	\$22,793	\$8,816	-\$8,433	New Salary Lower
	Utah	13	\$35,232	\$14,091	\$4,006	Not Different
	Wyoming	159	\$17,174	\$15,052	-\$14,052	New Salary Lower
	CO-Local Gov	27	\$30,043	\$9,098	-\$1,183	Not Different
Estimated 2000 Salary	CO Other	13	\$35,253	\$16,561	\$4,027	Not Different
	SD Local	7	\$20,399	\$10,473	-\$10,827	New Salary Lower
	SD Other	5	\$26,145	\$5,012	-\$5,081	Not Different
	WY Local Gov.	80	\$13,951	\$12,630	-\$17,275	New Salary Lower
	WY Goods Produce	10	\$16,252	\$13,280	-\$14,974	New Salary Lower
	WY Services	59	\$19,703	\$17,611	-\$11,523	New Salary Lower
	WY State Gov.	10	\$28,963	\$10,599	-\$2,263	Not Different
Rural						
Expected Teaching Salary	1999 Quits	125	\$29,243	\$8,593		
	Colorado	8	\$26,198	\$15,338	-\$3,045	Not Different
Estimated 2000 Salary	South Dakota	5	\$25,146	\$4,705	-\$4,097	Not Different
	Utah	7	\$35,267	\$12,769	\$6,024	Not Different
	Wyoming	33	\$18,363	\$15,257	-\$10,880	New Salary Lower

		N	Mean Salary	Standard Deviation	Difference w/ Expected Teaching Salary	Statistical Difference
Urban						
Expected Teaching Salary	1999 Quits	129	\$31,168	\$12,026		
Estimated 2000 Salary	Wyoming	42	\$15,802	\$16,410	-\$15,366	New Salary Lower
	Other States	15	\$30,621	\$12,956	-\$548	Not Different
Small Town						
Expected Teaching Salary	1999 Quits	237	\$32,498	\$10,231		
	Colorado	17	\$33,759	\$10,972	\$1,261	Not Different
	South Dakota	5	\$23,770	\$11,752	-\$8,727	Not Different
	Utah	6	\$35,191	\$16,759	\$2,693	Not Different
	Wyoming	80	\$17,166	\$14,638	-\$15,331	New Salary Lower
Laramie County						
Expected Teaching Salary	1999 Quits	73	\$30,897	\$12,338		
Estimated 2000 Salary	Wyoming	22	\$19,453	\$18,823	-\$11,444	New Salary Lower
	Other States	5	\$19,974	\$13,573	-\$10,923	Not Different
Albany County						
Expected Teaching Salary	1999 Quits	30	\$27,850	\$11,792		
Estimated 2000 Salary	Colorado	7	\$34,718	\$15,140	\$6,868	Not Different
	Wyoming	10	\$20,062	\$14,519	-\$7,789	Not Different
Math/Science						
Estimated 2000 Salary	Wyoming	20	\$17,734	\$17,310	-\$15,923	New Salary Lower
	Other States	6	\$30,816	\$6,844	-\$2,840	Not Different

		N	Mean Salary	Standard Deviation	Difference w/ Expected Teaching Salary	Statistical Difference
Special Education						
Expected Teaching Salary	1999 Quits	70	\$32,001	\$8,665		
Estimated 2000 Salary	Wyoming	23	\$22,099	\$13,394	-\$9,901	New Salary Lower
	Other States	8	\$34,817	\$10,754	\$2,816	Not Different

Source: *WDE Professional Staff List Report, Wyoming Department of Employment*