

TEACHER ATTRITION

WHY DO TEACHERS STOP TEACHING IN UTAH AND WHAT POLICIES WILL ENCOURAGE THEM TO STAY?

HIGHLIGHTS

- Low salaries and unfavorable working conditions (such as large class sizes) are significant contributors to teacher attrition.
- Student enrollment is growing, the number of college students studying to become teachers is decreasing, and the rate of teacher attrition is rising, all contributing to a shortage of teachers in Utah's public schools.
- High teacher attrition can cause problems with educational quality, equity and efficiency. Schools with high-minority, high-poverty, and low-performing students have higher teacher attrition rates.
- The most prominent reasons for teacher attrition are retirement, pursuit of another career, and better salary or benefits. Men are more likely to leave for better salary or benefits, while women are more likely to leave for pregnancy and child rearing.
- Utah Foundation recommends focusing on more comprehensive mentoring and new teacher induction programs as well as providing higher pay for teachers, especially in subjects and locations that are more difficult to staff.
- Class size reduction would improve teacher working conditions but would worsen the teacher shortage if attempted at this time.

The mission of Utah Foundation is to promote a thriving economy, a well-prepared workforce, and a high quality of life for Utahns by performing thorough, well-supported research that helps policymakers, business and community leaders, and citizens better understand complex issues and providing practical, well-reasoned recommendations for policy change.

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Increasing teacher attrition in Utah public schools places our education system at risk for lower teacher quality, greater inequity in student opportunities, and increased inefficiency as more funds are diverted to recruiting and training new teachers. With the current surge in Utah's student population, a wave of baby boomer retirements coming soon, and teachers being drawn away to other states or other careers, the stakes are high for solving this problem. If teacher attrition is not reduced, Utah will experience increasingly severe teacher shortages.

A number of public policy changes can be pursued to try to reduce teacher attrition and avoid these impacts, and this report examines four of the most promising alternatives: higher salaries for all teachers, differentiated pay for hard-to-fill teaching positions, smaller class sizes to improve working conditions, and comprehensive mentoring and induction programs for new teachers. Utah Foundation analyzes how each alternative would perform with regards to cost-effectiveness, equity for students, equity for teachers (with two alternative definitions of equity), and ease of implementation. The analysis shows some clear distinctions among the four policies examined, placing them in the following order of desirability:

1. Mentoring programs rate most favorably, with high ratings for efficiency and all equity measures, and a moderate rating for administrative feasibility.
2. Providing differentiated salaries based on working conditions and skills also rates favorably, with moderate efficiency, strong ratings for equity, and moderate administrative feasibility.
3. Higher salaries for all teachers scores fairly well, with moderate efficiency and high feasibility, but it was not as positive as differential pay in the equity ratings.
4. Reducing class sizes does not rate well, with low efficiency, generally less equity for students and teachers, and low administrative feasibility.

INTRODUCTION

During a Utah Foundation forum on public education funding in September 2006, Utah State Superintendent of Public Instruction Patti Harrington suggested that Utah was losing promising young teachers to neighboring states like Wyoming because of relatively low teacher salaries.¹ Recent articles in Utah newspapers have also emphasized the relatively low teacher salaries and poor working conditions (e.g., larger class sizes, fewer classroom resources) in Utah as important causes of teacher attrition.²

A look at recent figures confirms that Utah has low relative salaries and high relative class sizes. In 2000, Utah's average teacher salary ranked fifth of the eight mountain states. In 2005 (the latest interstate comparisons) Utah ranked sixth, and lagged even further behind its neighboring states, since almost all of the mountain states increased salaries at a faster rate than Utah after 2000 (see Figure 1). Between 2000 and 2005, average teacher salaries in Utah increased by about 14 percent, while all the mountain states but Nevada increased salaries by between 16 and 21 percent.³

These data do not account for education budget increases in the most recent two legislative sessions, which have likely led to significant salary increases and may change Utah's rankings compared to other states in this region. However, other mountain states are also experiencing strong economic growth and may have increased their teacher salaries at the same time.

When comparing teacher compensation, it is also important to review differences in the cost of living, employee benefits provided to teachers, and the average level of experience of teachers in the state.⁴ In 2006, the U.S. Department of Education developed a Comparable Wage Index (CWI) to facilitate education finance comparisons. The CWI takes into account both cost of living and amenities or lack thereof. It does this by comparing recent college graduates' starting salaries in various occupations to the national average starting salary. In places with higher costs of living or low amenities levels, graduates require higher salaries. Utah's CWI is below the national average

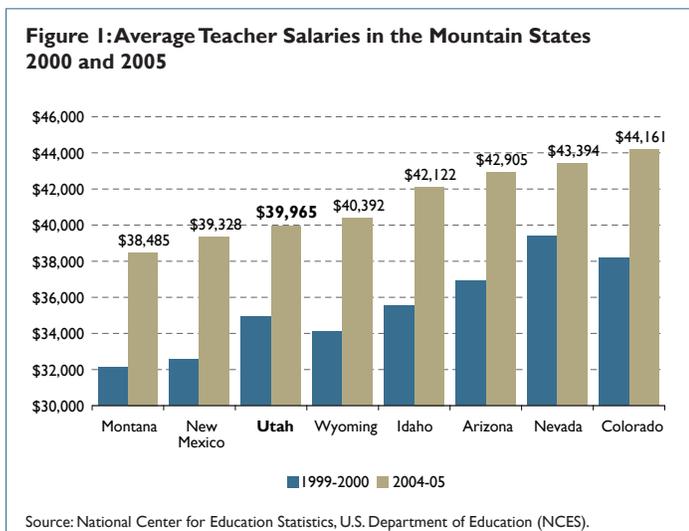
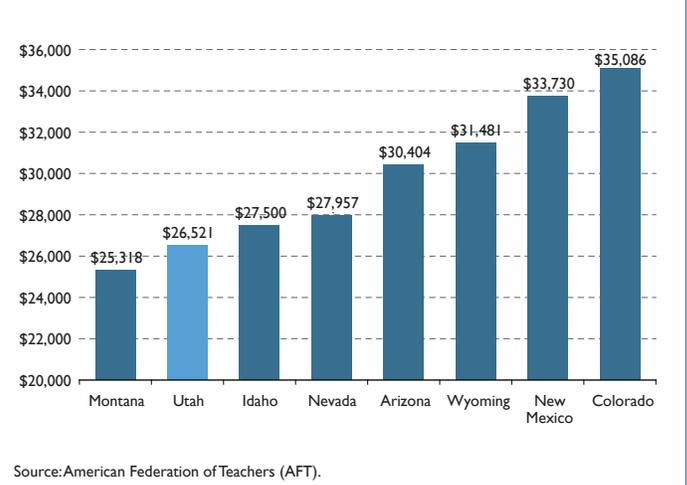


Figure 2: Beginning Teacher Salaries in the Mountain States, 2004-05



but still third highest among the mountain states, surpassed only by Nevada and Colorado. Adjusting average teacher salaries by the 2006 CWI actually ranks Utah last among the eight mountain states.⁵

According to the American Federation of Teachers' 2005 Survey and Analysis of Teacher Salary Trends, Utah also has relatively low beginning teacher salaries. AFT reports that Utah ranked 45th in the nation and next to last in the mountain states for 2004-2005 beginning teacher salaries (see Figure 2).⁶ If these figures were adjusted by the Comparable Wage Index described above, Utah would still have the next-to-lowest beginning salaries.

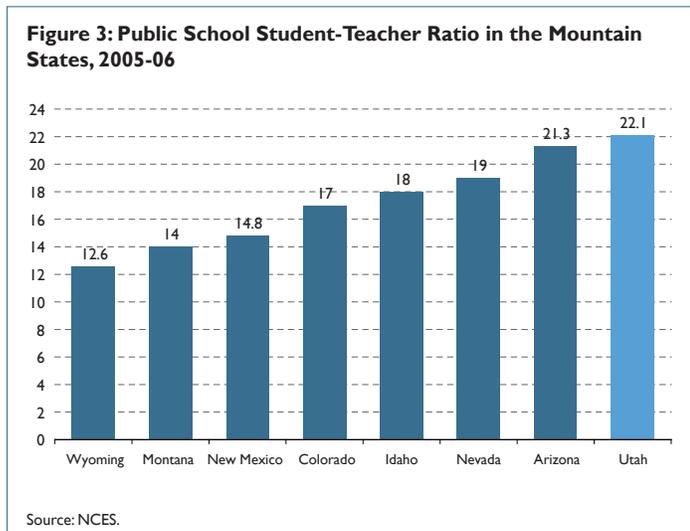
Utah's lower salary levels may also be influenced by a younger, less experienced teaching corps. According to U.S. Department of Education data, in 1999-2000, teachers in Utah had the third lowest level of teacher experience within the mountain states, with an average of just below 13 years. New Mexico and Nevada ranked lower, but the other five mountain states had average levels of experience ranging from just above 13 years (Arizona) to nearly 16 years (Wyoming). Data from 1999-2000 also demonstrate that Utah teachers are more likely than teachers in neighboring states (except Montana) to have only a bachelor's degree as their highest degree.⁷

Although we identified no interstate comparison of average levels of teacher salaries plus benefits, a rough idea of benefit levels in states can be determined by comparing the percentage of instructional expenditures for compensation that are devoted to benefits (it should be noted that instructional expenditures include the wages of staff, such as aides, who do not receive benefits). Using this measure, Utah appears to have the highest benefit levels of the mountain states, devoting about 26 percent of total instructional expenditures to benefits, while other mountain states devote as little as 15 percent of total instructional expenditures to benefits.⁸

These data show that comparing teacher salaries is complicated. Utah's average and starting salaries are low compared to other states in the region, although the importance of this low ranking is moderated by recognizing that Utah teachers are generally less experienced and that

Utah teachers probably receive more generous benefits than those in surrounding states. And recent budget increases will likely improve Utah's rankings on salaries compared to nearby states. Therefore, the effect of Utah teacher salaries on teacher attrition is uncertain, although salary deficiencies are probably most acute for new teachers, as Figure 2 shows a much wider gap between Utah and surrounding states on starting salaries than Figure 1 shows with average salaries.

With respect to class size, Utah has the highest student-teacher ratio in the nation. This ratio, though different from the number of students in the average class, is directly related to class size. Utah's student-teacher ratio (22.1) far surpasses that of its neighbors, which, with the exception of Arizona, all enjoy a student-teacher ratio under 20.⁹



How big a problem is teacher attrition in Utah? Do teachers leave because of low salaries and large class sizes? What other factors are driving teachers' labor market decisions? This report attempts to define the problem of teacher attrition in Utah from the state perspective, and then evaluates policy options for addressing the problem.

When studying teacher attrition, it is important to keep in mind that not all teacher attrition is the same. Some attrition, such as the attrition of ineffective teachers, may be acceptable or even desirable. Some attrition, such as teachers leaving to retire, is inevitable, and some attrition may be only temporary, as when teachers leave to raise children or pursue additional education with the intention of returning to education. Ideally, we would focus our efforts on decreasing the rate of attrition among the highest-quality teachers. Unfortunately, the research that addresses both teacher attrition and teacher quality together is extremely limited.¹⁰ Therefore, in this report we focus simply on teacher attrition in general.

THE PROBLEM

National Rates of Teacher Attrition

According to data from the Schools and Staffing Survey, a national

survey conducted by the U.S. Department of Education, the percentage of public school "leavers" (public school teachers who left teaching) increased from 5.1 percent in 1991-1992, to 8.4 percent in 2004-2005.¹¹ Perhaps of greater concern to many policymakers is the very high rate of attrition among the newest teachers. A national study for the Center for the Study of Teaching and Policy by Richard Ingersoll concludes that 14 percent of first-year teachers leave, one-third of new teachers leave within three years, and nearly half of new teachers leave teaching within their first five years of teaching. National researchers have suggested that teacher shortages are mainly the result of high teacher attrition and not the result of insufficient supply. According to the Ingersoll study, the data demonstrate that "there are more than enough prospective teachers produced each year in the U.S." to fill the demand for new teachers. He suggests that the teacher supply problem is due neither to growing student enrollment nor teacher retirement, but instead to teacher turnover.¹²

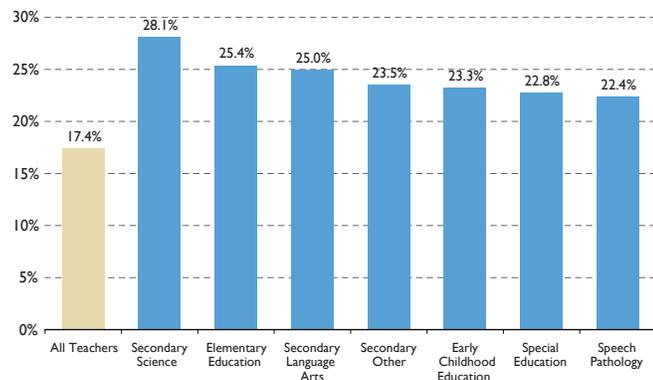
National trends in teacher supply and demand are important to Utah not just for comparison purposes, but because Utah and other states are essentially competing for the same teachers. As shortages increase in other states, districts outside of Utah will increasingly recruit from Utah's education schools to fill their ranks or use higher salaries to lure away existing teachers working in Utah's public schools. In fact, both Nevada and Wyoming, which have relatively fewer teacher education institutions, already rely heavily on hiring teachers trained out-of-state. In 2004, for both states, more than 60 percent of their initial certificates were granted to teachers trained in another state.¹³

Teacher Attrition in Utah

According to the Utah Educator Supply and Demand Study 2004-2005, 6.3 percent of all K-12 public school teachers left Utah public schools in the 2003-2004 school year, compared to 4.5 percent in 2000-2001 and about two percent in 1993-1994.¹⁴ Of the nearly 9,000 graduates who were granted teaching licenses in Utah from 2000 to 2004, less than half were teaching in Utah public schools by the 2004-2005 school year. As is the case nationally, in Utah, the largest proportion of attrition occurs after one to three years of experience. From 2000-2004, a quarter of the approximately 6,500 public school "leavers" had just one to three years of experience, while an additional six percent of the "leavers" left without even finishing their first year. In contrast to the nation, for which the youngest and oldest age brackets have the highest attrition rates, Utah teacher attrition is highest among the 30-39 age bracket (based on 2000-2004 data).

Utah teacher attrition rates vary significantly by teaching position. Among all Utah teachers hired between the years 2000 and 2002, about 17 percent left education in the first three years (see Figure 4). For secondary science, however, the field with the highest attrition rate, 28 percent of teachers left in the first three years. Elementary education and secondary language arts teachers also had attrition rates over 25 percent for this time period.

Figure 4: Utah Teacher Attrition in the First Three Years of Teaching by Field



Source: Utah State Office of Education (USOE) and Utah State Board of Regents (USBOR).

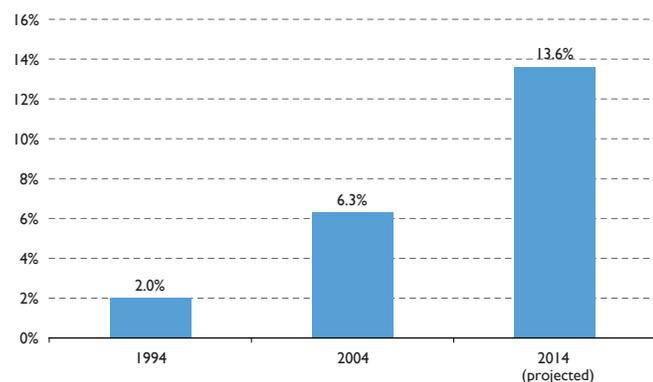
Projections of Teacher Attrition and Teacher Demand in Utah

The Utah Educator Supply and Demand Study 2004-2005 also projected future teacher attrition rates. Based on historical data and the growing proportion of teachers eligible for retirement, the study projects that annual teacher attrition will likely reach nearly 14 percent by 2014 (see Figure 5).

Over the next decade, the state also anticipates dramatic growth in the public school student population. According to a presentation by Pamela S. Perlich of the Bureau of Economic and Business Research at the University of Utah at the Utah Education's Colloquium in December 2006, Utah is already in the midst of a boom in student enrollment growth. Perlich explained that Utah is projected to experience enrollment growth of over 10,000 students per year between 2006 and 2018. According to the 2005 GOPB Baseline Projections, Utah's school-age population will reach nearly 700,000 by 2015, up from less than 540,000 in 2005 (an increase of nearly 30 percent in a decade).¹⁵

In addition, the 2005-2006 Supply and Demand study also notes that the number of students completing programs in Utah colleges

Figure 5: Utah Annual Teacher Attrition Rates



Source: USOE and USBOR.

of education in 2005-2006 was down 13 percent from the number completing a program in education in 2002-2003. Thus, while student enrollment is growing, the number of college students studying to become teachers is decreasing and the rate of teacher attrition is rising, all contributing to a shortage of teachers in Utah's public schools. The 2005-2006 study also notes that a majority of Utah public school districts reported difficulty or extreme difficulty in finding and hiring teachers to start the 2006-2007 school year and that 17 of Utah's 40 school districts reported lacking a full contingency of teachers at the start of the 2006-2007 school year.¹⁶

Why Worry About Teacher Attrition?

High teacher attrition can cause problems with educational quality, equity and efficiency. By contributing to teacher shortages and the number of inexperienced teachers in Utah's classrooms, teacher attrition negatively impacts teacher quality and limits children's access to a high-quality education. Teacher attrition also tends to contribute to the unequal distribution of teacher quality across student populations. Typically, the most disadvantaged students attend schools with the highest teacher attrition rates and the lowest quality teachers. Additionally, the broad consensus among educational researchers is that teacher quality has a larger impact on student achievement than any other school-related factor, and that the quality of individual teachers varies widely.¹⁷ Because of the large impact of teachers on student achievement, unequal teacher quality conflicts with our democratic commitment to equal educational opportunity. Finally, high teacher attrition is costly.

High teacher attrition forces schools to spend greater amounts of school resources on recruiting, hiring and inducting new teachers. Many schools scramble each year to replace the positions left vacant by departing teachers. Various efforts have been made to estimate the cost of teacher attrition to states and school systems. For example, based on the Department of Labor's estimate that attrition costs an employer 30 percent of the leaving employee's salary, the Alliance for Excellent Education in 2005 estimated the cost related to teachers leaving the profession in Utah (not including retirements) to be over \$18 million per year.¹⁸ A recent study on the Boston Public Schools estimated the actual costs of recruiting, hiring, providing professional development, and processing job terminations (but not including the effect of attrition on student achievement) to equal from about \$11,500 for a first-year teacher to nearly \$27,000 for a third-year teacher.¹⁹ The National Commission on Teaching and America's Future estimates that the true cost of teacher attrition is much higher, closer to \$50,000 per teacher lost for non-retirement reasons.²⁰ In addition to the direct costs (recruiting, hiring, inducting, processing terminations, etc.), high teacher attrition is disruptive to school communities, an indirect cost that affects student achievement and school culture.

Causes of Teacher Attrition in the U.S.

RAND review of research literature

A 2004 review of research on teacher recruitment and retention by RAND Corporation researchers, prepared for the Education Commission of the States, summarized research on teacher attrition from nearly 100 empirical, rigorous, high-quality studies published since 1980.²¹ The RAND report begins by framing the issue of teacher supply in terms of an economic labor market: researchers explain that teachers will

“remain teachers if teaching represents the most attractive activity to pursue among all those activities available to them. By *attractive*, we mean desirable in terms of. . . overall compensation (salary, benefits, working conditions, and personal satisfaction). These elements of attractiveness are the policy levers that can be manipulated at the school, district, or state levels in order to bring supply in line with demand.”²²

In this report, we are particularly concerned with policy levers that can be manipulated at the state level in order to decrease the rate of teacher attrition.

Who is likely to leave and who is likely to stay? RAND researchers report that the research on teacher attrition consistently supports several conclusions. First, research demonstrates that the youngest and least experienced teachers, as well as the oldest and most experienced (near retirement) teachers are the most likely to leave teaching, producing a U-shaped pattern of attrition with respect to age or experience. In addition, research reveals the following patterns with respect to age, race, ability, and teaching field: females have higher attrition rates than males; whites have higher attrition rates than minorities; teachers with higher measured ability (on the SAT or teacher certification tests) are more likely to leave than teachers with lower ability; and science and math teachers are more likely to leave than teachers in other fields.

The RAND report explains that studies on the relationship between the external characteristics of schools and districts and the teacher attrition rate also provide some fairly consistent findings. These findings suggest that schools with high-minority, high-poverty, low-performing students have higher teacher attrition rates. In addition, urban schools districts have higher attrition rates compared to non-urban (suburban and rural) districts. The authors conclude that “research suggests that hard-to-staff schools must devise adequate compensatory policies to attract and retain teachers.”

The RAND literature review also discusses research that focuses upon specific policies to promote retention (or decrease attrition) of teachers. In general, higher salaries, nontraditional teacher education programs, mentoring and induction programs, greater autonomy and administrative support, better school discipline, teacher discretion

over discipline policies, and smaller class sizes are all associated with lower attrition rates.

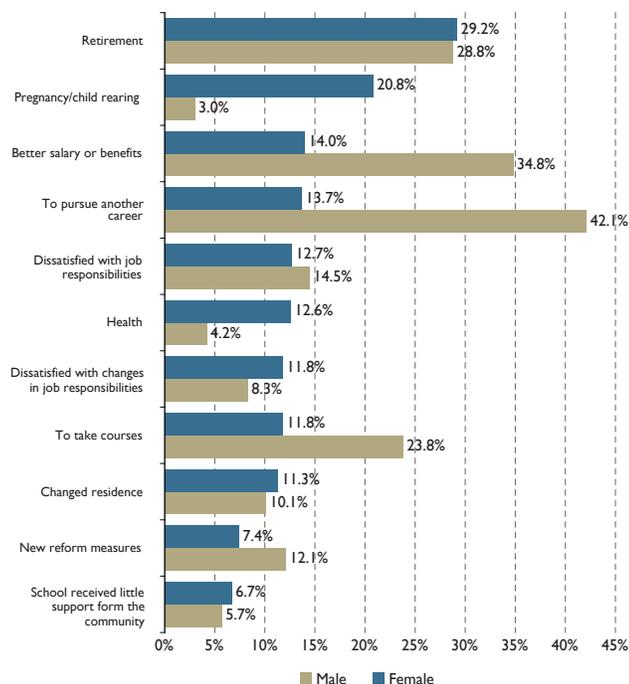
Some teacher attrition is temporary. Teachers that leave teaching to have children, pursue a master’s degree, or to take a sabbatical may return to teaching. The fact that female elementary teachers seem to experience a smaller wage penalty for temporary leave than women in other careers partly explains why teaching is a female-dominated profession, and also suggests that there exists a significant reserve pool of former teachers who could reenter the teacher labor force at any time. The exact rates at which teachers reenter teaching is not entirely clear, but studies have suggested that as many as a third of teachers who leave eventually reenter the profession. In the 1980s, reentrants constituted a significant proportion (as much as 40 percent in some studies) of newly hired teachers. More experienced teachers and elementary teachers were the most likely to return, while math and science teachers were the least likely to return.

Researchers disagree regarding whether attrition rates for new teachers are significantly different from the attrition rates of new graduates in other professional fields. RAND’s report identifies three high-quality studies that address this topic. Using 1992 to 2001 data from the Current Population Survey, economists Doug Harris and Scott Adams concluded in a 2005 study that teachers were more likely to leave their profession than accountants and nurses, but less likely to leave their profession than all the other college graduates. Based on a comparison of teacher turnover rates in the Schools and Staffing Survey in the early 1990s and turnover rates in all occupations published by the Bureau of National Affairs, teacher policy expert Richard Ingersoll concluded in a 2001 study that teacher turnover was relatively high. On the other hand, based on data on 1993 college graduates from the Baccalaureate and Beyond Longitudinal Study, a 2001 U.S. Department of Education report concluded that teacher attrition rates were similar to rates for employees in health, law enforcement, the military, engineering, science, and legal support, but lower than rates for graduates entering all other occupations. The RAND researchers conclude that the three studies suggest that the teaching profession may have higher attrition rates than the nursing profession but not significantly different attrition rates from the general group of occupations pursued by college graduates. Comparisons to attrition rates in other professions may help us understand how much rising attrition rates are related to generational shifts in employment patterns, but ultimately do not demonstrate that attrition levels cannot be mitigated through policy reforms. Many teachers cite reasons, such as lack of administrative support, for leaving the profession which could almost certainly be influenced by teacher retention strategies.

Teacher follow-up survey 2000-2001

Two recent reports on teacher attrition by the National Center for Education Statistics provide information on the reasons teachers leave the profession over time.²³ These reports are based on analysis of the Teacher Follow-up Survey (TFS) 2000-2001. TFS collects information about teacher mobility and attrition through a one-year follow-up of a sample of about 8,400 teachers who were originally

Figure 6: Reasons for Leaving the Teaching Profession Rated Very or Extremely Important by Leavers, 2000-01, Male and Female

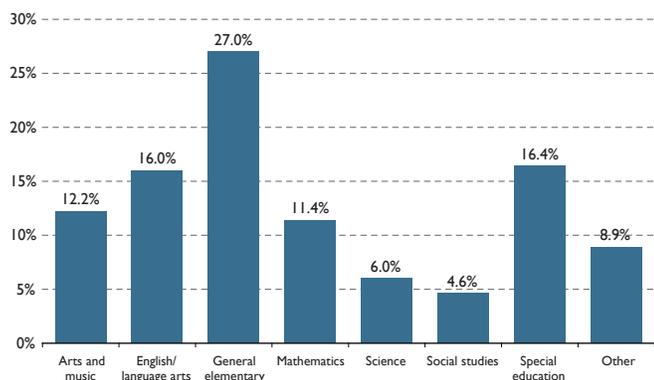


Source: NCES.

selected for participation in the Schools and Staffing Survey (an integrated survey of schools and school personnel throughout the U.S.). This survey provides detailed information on the reasons that teachers leave and their sources of dissatisfaction for specific segments (different teaching fields, different genders, and different regions of the nation) of the teacher labor force.²⁴

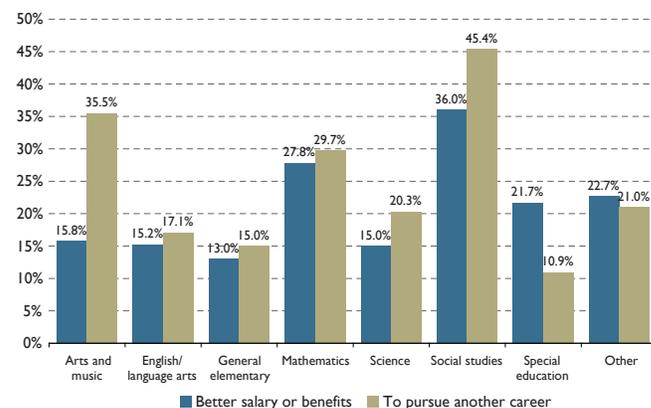
TFS 2000-2001 reports that the reasons most often rated as highly important (“very important” or “extremely important”) by public school teachers who had left the teaching profession were retirement (reported as highly important by 29 percent of “leavers”), pursuit of another career (21 percent), and better salary or benefits (19 percent). Men were more likely than women to rate better salary or benefits

Figure 7: Percent of Teachers Rating Pregnancy/Child Rearing as a Very or Extremely Important Reason for Leaving, 2000-2001



Source: NCES.

Figure 8: Percent of Teachers Rating Better Salary/Benefits or Pursuit of Another Career as a Very or Extremely Important Reason for Leaving, 2000-2001

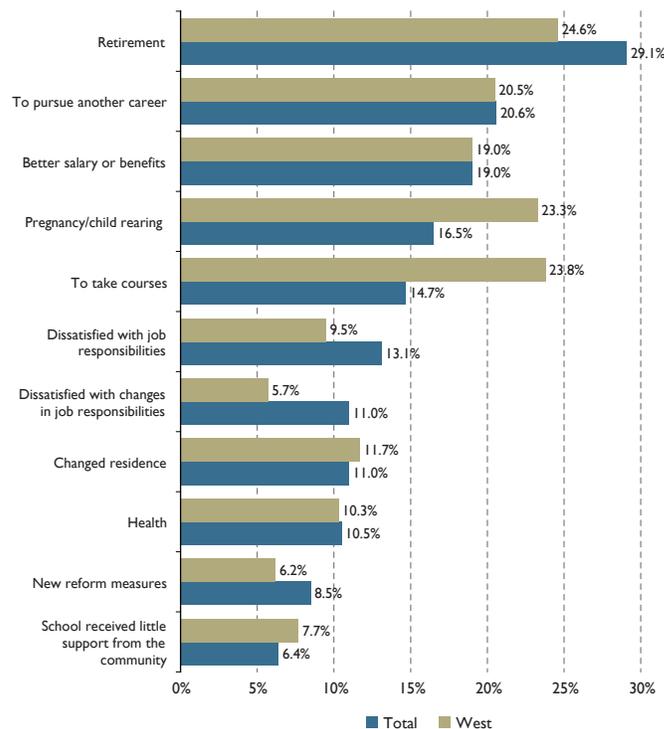


Source: NCES.

as a highly important reason for leaving (35 percent for men versus 14 percent for women), while women were much more likely to rate pregnancy/child rearing as a highly important reason (21 percent for women versus three percent for men) (see Figure 6).²⁵

Of the different assignment fields, general elementary teachers (who are predominantly female) were the most likely to rate pregnancy/child rearing as highly important (27 percent). After retirement, pregnancy was the reason most likely to be rated as highly important by general elementary teachers.

Figure 9: Reasons for Leaving the Teaching Profession Rated Very or Extremely Important by Leavers, 2000-2001, U.S. Total and West



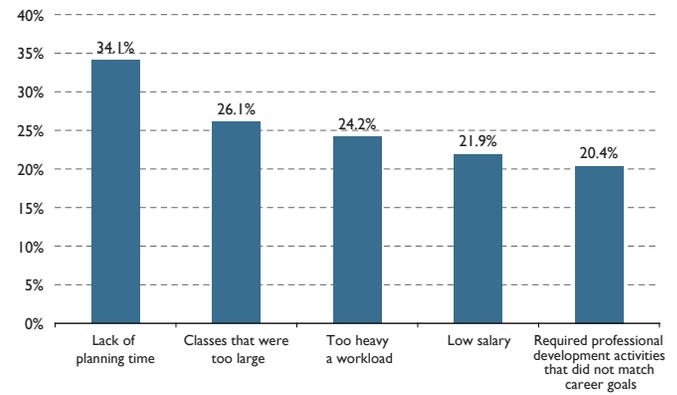
Source: NCES.

Relative to teachers in other fields, mathematics and social studies teachers were the most likely to report better salary and benefits as a highly important reason for leaving teaching. In addition, nearly half (45 percent) of social studies teachers who left public school teaching reported pursuit of another career as highly important. Arts and music teachers and mathematics teachers were also more likely to rate this reason as highly important.

More than all other fields, special education teachers reported dissatisfaction with job responsibilities or changes in job responsibilities as a highly important reason for leaving. Compared to other regions (and the nation overall), teachers in the West were more likely to rate pregnancy/child rearing and taking additional courses to improve career opportunities and less likely to report retirement as highly important reasons for leaving.²⁶

In January 2007, the National Center for Education Statistics released selected findings from the latest Teacher-Follow Up Survey, administered during the 2004-2005 school year.²⁷ These preliminary results allow us to compare how “leavers” in the 2000-2001 and 2004-2005 surveys rated various reasons for leaving the teaching profession. Figure 10 demonstrates that in the 2004-05 survey, about five percent more of “leavers” rated the pursuit of another career as highly important in their decision to leave the teaching profession as compared to “leavers” in the 2000-2001 survey (25.3 percent of “leavers” in the 2004-05 survey versus 20.6 percent of “leavers” in the 2000-01 survey), while about five percent less of the 2004-05 “leavers” than the 2000-01

Figure 11: Sources of Strong Dissatisfaction Among Public School Leavers, 2000-2001

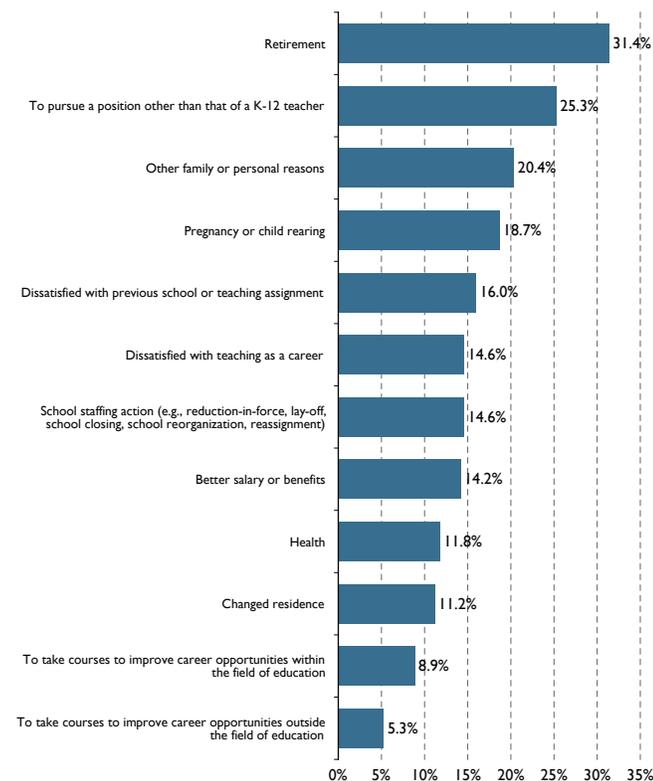


Source: NCES.

“leavers” rated salary and benefits as highly important (19 percent versus 14 percent). In addition to pursuit of another career, “leavers” in the 2004-05 survey were also more likely to cite retirement, pregnancy/child rearing, and health as highly important reasons for leaving the teaching profession, as compared to “leavers” in the 2000-01 survey.

Finally, in the 2000-2001 TFS, among both public school movers (teachers who switched schools) and “leavers,” teachers were most often strongly dissatisfied with the following job features of their former schools: a lack of planning time, classes that were too large, too heavy a workload, low salary, and required professional development activities that did not match career goals.²⁸

Figure 10: Reasons for Leaving the Teaching Profession Rated Very or Extremely Important by Leavers, 2004-05



Source: NCES.

State studies

Several states and districts have conducted their own studies to identify causes of attrition among their teachers. A telephone survey of nearly 3,000 New York City teachers in 2004 revealed that teachers were most dissatisfied with salary and benefits, and school safety and discipline. New teachers (one to five years of classroom experience) were also dissatisfied with class size and the availability of instruction materials and supplies. In addition, nearly 30 percent of new teachers said it was unlikely they would still be teaching in New York City in three years. New York City loses 18 percent of teachers in the first year, compared to 14 percent nationally.²⁹

In Tennessee, researchers mailed a questionnaire to teachers who had left teaching positions at Tennessee public schools with 10 or fewer years of experience. Of the 487 teachers who responded (1,354 teachers were contacted – a 36 percent response rate), 68 percent were no longer teaching, and 32 percent were teaching in another setting (private school, college, university, public school outside Tennessee). Questions were modeled after the questionnaire from the NCES report *Progress Through the Teacher Pipeline*. The survey revealed that former Tennessee teachers were most dissatisfied with professional prestige and salary and benefits. The most common reasons identified for leaving the profession included childrearing/pregnancy (ranked as the primary reason by 29 percent of respondents), lack of support from administration (17 percent), and dissatisfaction with salary

and benefits (eight percent). Of the top six reasons for leaving, only childbearing/pregnancy was unrelated to job environment. In addition to concerns about teacher attrition from Tennessee public schools, Tennessee leaders are also particularly concerned that they are losing newly prepared teachers to other states, stating that “anecdotal evidence suggests that Tennessee graduates are highly regarded and aggressively recruited and hired by other states.”³⁰

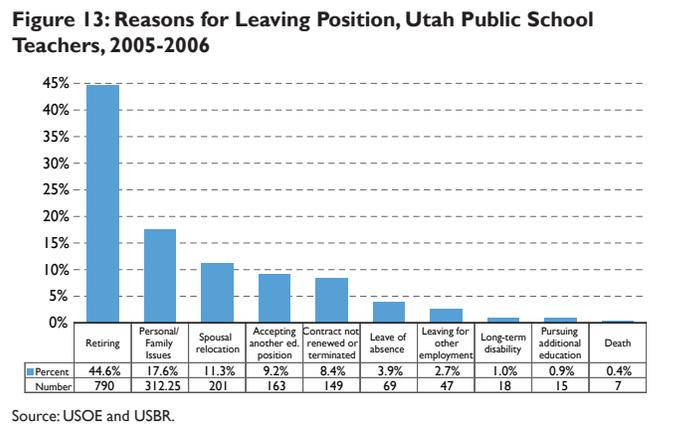
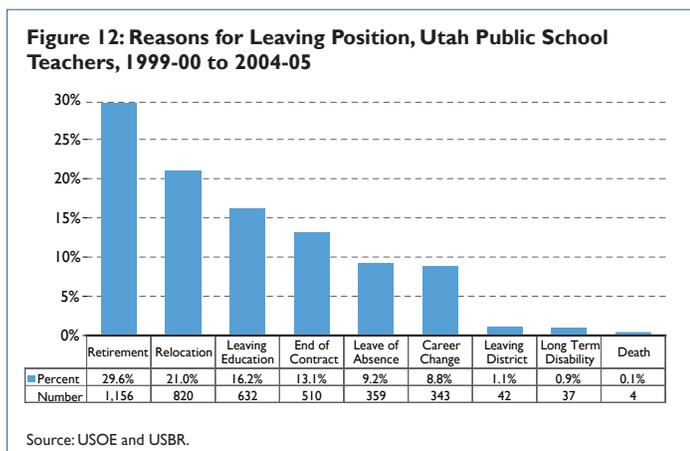
Causes of Teacher Attrition in Utah

Utah Educator Supply and Demand Studies

Currently, there is no consistent statewide system for collecting information on the causes of teacher attrition. Some districts collect information regarding the reasons why teachers leave employment within their district and report it to the state, while other districts do not. Based on termination reasons for both “leavers” and movers reported in CACTUS (the Utah State Office of Education teacher licensure database) for the previous five years, the Utah Educator Supply and Demand Study for 2004-2005 reports that some of the most frequent reasons specified for teacher turnover (which includes teacher attrition and teacher mobility) include: retirement (30 percent of teachers for whom a reason was specified), relocation (21 percent), and leaving education (16 percent). However, termination reasons were specified for just 61 percent of all teachers who left their school or district during the five-year period (reasons were not specified for 39 percent of teachers who left their school or district).³¹

The latest Utah Educator Supply and Demand Study (2005-2006) reports that the top three reasons for teacher turnover in Utah public schools during 2005-2006 include: retirement (45 percent of teachers for whom a reason was specified), resigning due to personal or family issues (18 percent), and spousal relocation (11 percent). These figures account for just 62 percent of the total reported turnover, as not all districts collected and reported the data to the state.³²

These statewide figures have limited usefulness to policymakers for a number of reasons. First, the data is not collected for all teachers who leave their jobs. Second, the categories of termination reasons are neither consistent nor particularly informative. Because the categories reported in the 2004-2005 and 2005-2006 studies differ slightly, it



is difficult to discern any type of pattern or trend across years. In addition, the categories themselves are problematic, since each district is selecting and reporting its own particular reasons which the state must then somehow combine into a set of statewide categories. In particular, it is notable that the reason “pregnancy/childbearing,” which was a significant reason for attrition in the national data, is absent from the 2004-2005 study, and lumped together with other “personal & family issues,” including lack of affordable housing, in the 2005-2006 study. Policymakers could also benefit from being able to differentiate between teachers who are moving to other schools or districts within Utah, teachers who are leaving Utah schools to teach in private schools or public schools in other states, and teachers who are leaving education all together.

Informal survey

In order to better understand teacher attrition in Utah, we administered a survey to five districts and the Utah State Office of Education (USOE). The survey collected information regarding the method (if any) of data collection on teacher attrition at the district level, causes of teacher attrition, attributes of “leavers,” district programs to address attrition, and opinions regarding the most promising reforms to prevent attrition. The results from this small survey demonstrate how districts and state officials may perceive the teacher attrition problem differently.

We contacted five districts (Salt Lake, Jordan, Alpine, Provo, and Washington County) and spoke with their human resource directors to see if they would be willing to participate in the survey. These districts were selected due to their size, locality, and forecasted growth and teacher needs. We also contacted the USOE human resource department. We received completed surveys from three of the five districts (Alpine, Jordan, and Washington) and USOE.

The three districts reported a method of collecting information about the reasons why teachers leave their districts, but no district had a method of tracking where teachers go after leaving the district. In contrast to information in the 2004-2005 Supply and Demand Study, the three districts and the state reported that teachers under 30 years of age were the most likely to leave. As expected, teachers with the least experience (one to three years) were also reported the

Figure 14: Top Five Reasons for Leaving District

Alpine	Jordan	Washington County	USOE
1. Changed residence	1. Changed residence	1. Child rearing/pregnancy	1. Changed residence
2. Child rearing/pregnancy	2. Retirement	2. Retirement	2. Other: personal reasons
3. Better teaching opportunity	3. Child rearing/pregnancy	3. Other: spouse relocation	3. Further education
4. Further education	4. Personal health	4. Better salary/benefits	4. Retirement
5. Retirement	5. Transfer to other district	5. Better teaching opp.	5. Better salary/benefits

Source: Utah Foundation.

Figure 15: Top Five Policies to Decrease Teacher Attrition

Alpine	Jordan	Washington County	USOE
1. Better salary and benefits			
2. Smaller class sizes	2. Smaller class sizes	2. Smaller class sizes	2. Better mentoring programs
3. Better student discipline	3. Better student discipline	3. Other: housing, child care	3. Differential pay
4. Better professional dev.	4. Differential pay		4. Smaller class sizes
5. Better teacher education			5. Better professional dev.

Source: Utah Foundation.

most likely to leave by all survey respondents. The three districts reported elementary teachers as the most likely to leave teaching, while the state ranked special education teachers first (most likely to leave) and elementary teachers second. Two of the districts ranked special education second.

When presented with four broad categories of reasons for leaving teaching (besides retirement), all survey respondents selected personal reasons (childbearing, health, etc.) over salary/benefits, working conditions, or dissatisfaction with career. In selecting the top five reasons from a list of more specific reasons for leaving their districts or the state, all three districts included retirement, child rearing/pregnancy, and changed residence (if one considers spouse relocation as a type of changed residence). The state also mentioned retirement, changed location, and personal reasons (see Figure 14).

The three districts and the state responded that the most effective way to decrease teacher attrition would be better salary and benefits. All three districts ranked smaller class sizes as the second most effective method (the state ranked smaller class sizes fourth). The state reported that better mentoring programs and differential pay would be more effective than smaller class sizes. Figure 15 lists the five most effective ways to decrease teacher attrition selected by each respondent.

All survey respondents stated that knowing the reasons why teachers are leaving would help them to better prevent teacher attrition. The three districts also responded that they would like to know the leaving teachers' attitude toward teaching as well. The state reported that it was interested in teachers' plans after leaving their teaching positions.

CURRENT POLICY TRENDS

Utah Initiatives

Entry Years Enhancement

Utah's current mentor or induction program for new teachers is called Entry Years Enhancement (EYE) and began in 2003. The program is designed to help novice teachers develop effective teaching skills and

strategies, as defined by the Utah Professional Teacher Standards, with assistance from experienced colleagues. All novice teachers must complete the three-year EYE program in order to move from a Level 1 to a Level 2 of licensure. EYE requirements include working with a trained mentor for three years, completing a portfolio review, three years of satisfactory evaluations, and passing an exam in their educational area. EYE involves the collaboration of the novice teacher, mentor, school, district, USOE, UEA, as well as higher education. In creating the induction program, the state consulted extensively with the New Teacher Center at the University of California Santa Cruz, which served as a resource on induction models and research.³³

Within the broad guidelines of EYE, districts have significant latitude with respect to how they implement and how much funding they devote to the induction program. For example, some districts may choose to give classroom teachers a small stipend (for example, \$300 per novice teacher) for also taking on mentoring duties, while other districts may employ the much more costly model of a full-time mentor (who has no classroom duties) to oversee a group of novice teachers. Some districts employ a formal application process for mentoring positions, while others simply rely on principal recommendations. In several districts, the implementation of EYE includes weekly or biweekly training for mentors. In general, the program is district-directed with the state serving as a resource (for example, the state offers training for mentor trainers, who then return to their districts to train the mentors).

Districts have several sources for funding their mentoring programs, such as the state block grant for teacher quality, and federal Title II funds, but these funds are also used for numerous other programs. Many districts devote minimal amounts of funding to the induction program. Even those districts which have devoted considerable funding to their induction programs (as much as \$4,000 per first-year teacher) in order to employ full-time mentors report having difficulty maintaining their target ratio of novice teachers to mentors. With no state funds specifically earmarked for mentoring programs, districts may choose to spend widely varying amounts on teacher induction. In discussions with district-level EYE coordinators from Davis, Granite, and Washington County districts, all stated that additional funding would be used to move more fully toward the employment of full-time mentors and towards a smaller ratio of novice teachers per mentor to insure weekly interactions between expert and beginning teachers. District officials also expressed the desire to provide larger stipends and more training for mentors, as well as specialized support for novice special education teachers.

The state and some districts have been gathering retention data for the EYE policy, although funds for data collection on the program are also very limited. A preliminary analysis of CACTUS data comparing teachers hired before and after the implementation of EYE suggests that retention of new teachers has improved significantly, perhaps by as much as 20 percentage points (from around 50 percent retention of new teachers to over 70 percent). State officials emphasize that they will have more solid data in several more years, when the

program has been in effect for at least five years. District officials report high levels of teacher satisfaction with EYE, based on teacher satisfaction surveys, which are also used to collect feedback and make improvements to the program.³⁴

ProExcel

In September 2006 the Utah State Board of Education adopted Professional Excellence, or ProExcel, as its educator quality initiative. The three-part framework includes a focus on teacher retention, as well as effective school leadership and professional compensation. To address teacher retention, the ProExcel model would maintain EYE, evaluate mentoring programs and disseminate best practices, and collect data to monitor the impact of mentoring on teacher retention rates and student performance. In addition, the initiative addresses assessment of the relationship between workplace conditions and new teacher performance and retention. The professional compensation component of the initiative proposes both higher across-the-board salaries and significant reform of the traditional single salary schedule. The reformed compensation system would include financial incentives to work in hard-to-staff schools and critical shortage areas, rewards for enhancement of professional skills, multiple career paths, and expectations for student performance growth.³⁵ The State Board originally sought \$50 million to help attract and retain Utah teachers through its ProExcel program.³⁶

The Professional Excellence Programs bill (HB 381) was introduced in the 2007 legislative general session, was favorably recommended by the House Education Committee, passed the House with a vote of 70 to five, but ultimately was not adopted by the Utah Legislature. The bill would have allocated \$28.5 million in on-going funding to the program, with \$5 million specifically used for beginning teacher induction programs, and the bulk of the remainder going towards market incentives to address educator shortages. The bill also included a requirement that the State Board of Education collect and maintain information relevant to “board and legislative decision-making in recruiting and retaining quality teaching candidates.”³⁷

Education initiative by Utah’s K-16 Alliance

In March of 2007, the Special Task Force on Teacher Shortages from Utah’s K-16 Alliance proposed an Education Initiative for the State of Utah to address Utah’s growing shortage of K-12 teachers. The Special Task Force concluded that “the single most important reason” that persons choose whether or not to become a teacher or remain in teaching is related to compensation. Based on a study by the Utah Department of Workforce Services, the Task Force concluded that Utah’s K-12 teacher salaries lag behind market wages in occupations requiring similar education and training by about 10 to 15 percent, and by as much as 30 percent for positions requiring a math or science background.

The Task Force generated five sets of recommendations, with the first two most directly related to teacher attrition. The first recommendation is to maximize the use of the existing K-12 teacher workforce through “efficiency models” that utilize longer instructional days and longer

school years, providing teachers with a variety of work contract models from which to choose. The Task Force asserts that this reform would “almost overnight make teaching a much more attractive and financially competitive occupation” by creating a full-time job with a competitive salary, eliminating the need for teachers to find summer and after-school work to supplement income, and increasing the professional attributes of employment in teaching.

Second, the Task Force recommends that the state seek to close the salary gap between teaching and similar occupational groups, implement differentiated salaries for hard-to-staff positions, and consider alternative salary models, such as the State Board’s ProExcel Program. The other three sets of recommendations are more focused on recruitment and address scholarships and loans, the capacity of public colleges of education, and flexibility in licensing and hiring (including the attempt to convert possible permanent attrition into temporary attrition by encouraging former teachers back into the classroom).³⁸

Initiatives in Other States

In general, states and districts are attempting to improve teacher retention using a variety of strategies, including differential pay for teaching in hard-to-staff positions, merit pay based upon student achievement gains, better professional development, opportunities to earn advanced certification, and mentoring programs for new teachers.³⁹

In an attempt to make the teaching profession more attractive, states and districts are increasingly experimenting with differentiated pay and pay-for-performance, in addition to using across-the-board salary increases. Some districts provide additional or differential pay to teachers who perform differentiated work, such as mentor teachers, coaches, and curriculum specialists. Other districts and states provide supplemental pay for hard-to-staff schools or subjects prone to shortages. For example, the Teach Louisiana First program provides qualified teachers from \$4,000 to \$6,000 per year for four years to work in low-performing and disadvantaged schools.⁴⁰ According to *Education Week’s Quality Counts 2005*, during the 2004-05 school year, 26 states offered incentives (bonuses, education aid, or housing assistance) for teachers to work in hard-to-staff subjects, and 14 states offered incentives for teachers who work in high-poverty or low-performing schools.⁴¹ Pay-for-performance systems reward teachers for meeting specific goals with respect to skills and expertise or with respect to student achievement. Data systems, such as Tennessee’s Value-Added Assessment System (TVAAS) aim to link student learning gains to individual teachers, but much debate still exists about its appropriateness and fairness for use in evaluation and pay systems. Many experts caution that such data should be “only one component of a more complete and robust teacher-evaluation system.”⁴²

Denver’s Professional Compensation System for Teachers (ProComp), implemented in 2006 after a four-year pilot program, includes elements of differentiated pay and pay-for-performance. ProComp replaces the single salary structure with a salary system based on

demonstration of knowledge and skills, professional evaluations, students' academic growth, and incentives for working in hard-to-staff positions. About 13 states are participating in the Teacher Advancement Program (launched by the Milken Family Foundation in 1999 and now administered by the National Institute for Excellence in Teaching), which also involves both differentiated roles and differentiated pay for teachers. TAP includes multiple career paths for teachers, school-based professional development, evaluations partly based on student performance, performance-based pay, and incentives for teachers to work in low-performing schools.⁴³

A 2007 review of the empirical research on teacher performance pay supported by the National Center on Performance Incentives (which is funded by the U.S. Department of Education) concluded that although the "direct evaluation literature on incentive plans is slender, . . . nonetheless, it is fairly consistent in finding positive program effects," (e.g., improved student achievement and changed teacher behavior), and "sufficiently promising to support more extensive field trials and policy experiments in combination with careful follow-up evaluations."⁴⁴

States have long required teachers to complete professional development, but there is now a widespread attempt to move towards ongoing experiences that are school-specific and closely related to teachers' practice rather than one-shot workshops or conferences. Other efforts to make school environments more conducive to teaching and learning include the use of instructional coaches and subject-matter specialists, a focus on effective school leadership, the use of technology in professional development, formal and informal practice groups, and additional resources targeted to underperforming schools.⁴⁵

In the U.S., class size reduction has been a popular policy initiative intended to both reduce teachers' workload and improve student achievement. By 2002, 32 states had limited class size by law or implemented class size reduction programs.⁴⁶ As will be discussed in greater detail below, national research has found a relationship between smaller class sizes and lower rates of teacher attrition. However, researchers do not agree about the effectiveness of class size reduction in improving student achievement. Many studies purport that the beneficial effects are statistically and practically significant. For example, in a U.S. Department of Education publication, researcher Ivor Pritchard concludes that "a consensus of research indicates that class size reduction in the early grades leads to higher student achievement."⁴⁷ However, other researchers, including many economists, have concluded that class size does not have a statistically significant effect, or that class size reduction is not the most cost-effective policy, or that the class size effect is "dwarfed" by other effects, such as the effect of teacher quality.⁴⁸ Stronger evidence does seem to exist for the effectiveness of targeted class size reductions in improving the academic performance of disadvantaged (poor or minority) elementary students.⁴⁹

Although new career opportunities are generally limited for U.S. public school teachers who want to remain in the classroom, in the

last decade experienced teachers have had the opportunity to seek National Board Certification based on extensive performance-based assessments. As of 2003, more than half of the states were offering financial incentives to teachers who earn the certification.⁵⁰

According to a 2004 report on key state education policies, more than half of states now have state teacher induction programs. In 2005-2006, only fifteen states financed mentoring programs for all novice teachers, compared to fourteen states in 1996-1997. These induction or mentoring programs vary substantially in length, cost and quality, ranging from a brief orientation before school begins to a three-year program of sustained interactions between experienced and novice teachers. State-financed programs range from 30 weeks to three years and cost as much as \$3,400 per new teacher. Some states also provide special funding assistance to districts with a high proportion of poor students or high rates of teacher attrition for mentoring programs.⁵¹

Peer Assistance and Review (PAR) programs, operated under joint agreements by unions and districts in several U.S. cities, have been highlighted as models for new teacher induction. PAR features full-time mentors (released from teaching duties) who both support and evaluate novice teachers, frequent observations of and meetings with novice teachers by mentors, as well as consulting teachers who present workshops and courses for supplemental pay.⁵² The New Teacher Center at the University of California Santa Cruz, which utilizes a systematic, mentor-based teacher induction model, engages in partnerships with districts and states throughout the nation, and most especially in California, often with some funding provided by private organizations.⁵³

The U.S. Department of Education has suggested several potential strategies to ensure teacher quality that pertain to teacher attrition, including: new teacher induction and mentoring programs, reduced class schedules/teaching responsibilities for new teachers; performance-based pay, and multiple career paths/differentiated positions for classroom teachers.⁵⁴

Initiatives in OECD Nations

In 2005, the Organisation for Economic Cooperation and Development published a report reviewing teacher policies in 25 countries. In response to the report, the Aspen Institute Education and Society Program sponsored a seminar in the fall of 2006 with policymakers, researchers, and practitioners from eight OECD countries. From the 2005 OECD report and 2006 seminar, it is clear that policies affecting the supply and quality of teachers are a major concern across nations. As in the U.S., many OECD countries are experiencing teacher shortages, particularly in computer science, mathematics, technology, foreign languages, and the sciences, and these shortages are more acute in schools serving remote locations or disadvantaged students. Many OECD countries also reported problems with teacher attrition.

Challenges with recruitment and retention were attributed to the aging of the current teaching force, greater opportunities for women

and minorities, greater mobility in the workforce, low pay or low status for teaching relative to careers requiring comparable education, unsatisfactory working conditions, and the flat structure of the career for classroom teachers. In order to improve retention, many nations are implementing policies to increase pay and professional opportunities, to improve induction programs, and to improve schools as places to work and learn.⁵⁵

Nations are recognizing that their teacher policies must address teacher pay and career growth. The OECD report concludes that teachers' salaries have declined relative to other similar occupations over the last 20 years. One Aspen Institute seminar participant commented that "this notion that you have to take a vow of poverty in order to be a teacher is driving out so many of our smart young people."⁵⁶ Many nations are experimenting with differentiated roles for educators as well as differentiated pay for increased responsibilities and effectiveness. Increased investment in induction programs has in many cases provided new career opportunities for teachers, although these mentoring roles often are only temporary. Singapore utilizes three different career tracks for teachers, with advancing roles within each track. For example, teachers who select the Teaching Track can move up from senior teacher to master teacher to master teacher, level 2. As teachers move up within a track their pay rises to reflect their demonstrated expertise and additional responsibilities. Other international pay reforms include individually negotiated salaries above an increased base pay (Sweden), and performance bonuses based on multi-dimensional assessments of teachers (Singapore).⁵⁷

Reforms to induction programs include specialized training for mentors, increased compensation and/or reduced workloads for mentors, reduced workload for new teachers, ongoing seminars and skill-building courses for new teachers, as well as the formation of informal networks of experienced and novice teachers.⁵⁸ In order to better retain teachers beyond their initial years, nations are also focusing on reforming the work environment by reducing class size, reducing teachers' administrative workload and working hours, granting additional resources to underperforming schools (e.g., instructional coaches, longer instructional days, tutoring, and reduced class sizes), and facilitating better professional development (e.g., school- or subject-based professional learning communities, sabbatical leaves, and work-exchange programs). Some of these reforms are an effort to ameliorate the growing stresses on teachers caused by rapid educational reforms and increasing demands for accountability.

POLICY ALTERNATIVES

This report examines four specific policy alternatives based on their current prominence in policy discussions regarding teacher attrition in Utah. The four policies are higher salaries, differentiated salaries, smaller class sizes, and mentoring. Presently, every year many teachers are leaving Utah's public schools because they have concluded that teaching no longer represents the most attractive activity available to them. The purpose of each of these alternatives is to make teaching in Utah's public schools a more attractive employment choice to

those already teaching in Utah, and to thereby decrease the number of teachers who choose to leave Utah's public schools.

Higher Salaries

This alternative would involve an across-the-board salary increase for all teachers. This policy makes teaching more attractive by increasing the compensation that teachers receive.

Differentiated Salaries

Under this policy, teachers who accept positions in designated shortage areas would receive additional compensation. Shortages could be defined according to subject area (e.g., math, special education), geography (e.g., isolated rural areas), or student population (e.g., low-achieving, high-poverty). This policy introduces market elements into the single salary schedule by allowing compensation to reflect differences in supply and demand across various teaching positions. The aim is to improve the attractiveness of particular teaching positions in order to alleviate chronic shortages.

Smaller Class Sizes

This alternative was particularly favored by the district officials who responded to our survey. In addition, Utah's class sizes far exceed many of the neighboring states, and some national research indicates that large class sizes may encourage teacher attrition. This policy is designed to make teaching a more attractive activity by improving the working conditions of teaching.

Mentoring

This alternative is also designed to make teaching more attractive to teachers by improving working conditions and personal satisfaction. Mentoring programs improve working conditions by providing support, advice, and encouragement to new and inexperienced teachers. New teachers' access to additional resources through mentoring also improves the likelihood that they will feel successful and personally satisfied with their career choice. This policy aims to decrease the very high rate of attrition among teachers in their first five years of teaching.

CRITERIA FOR EVALUATION

In evaluating and comparing the four alternatives, this report will address the issues of efficiency (cost-effectiveness), equity, and administrative feasibility.

Efficiency

In formulating policy, efficiency is always an important consideration. Policymakers should strive to implement the best policy at the lowest cost, in order to minimize taxes or maximize funds available for other important programs. Efficiency is particularly important in

education because education represents a very large (and, in many cases, the largest) component of state and local public spending. Additionally, because Utah has the lowest level of per-pupil expenditures in the nation, Utah legislators and school officials must carefully spend every education dollar to ensure a quality education for Utah's public school students. In this report, we will evaluate the effectiveness of a given policy in reducing the rate of teacher attrition in context with the costs of implementing such a policy. It should be noted, however, that we are ultimately interested in the educational outcome of student achievement. Because high teacher attrition diminishes teacher quality, and teacher quality significantly impacts student achievement, we can be confident that decreasing teacher attrition will help improve student achievement.

Some educational researchers, particularly economists, have concluded that education funds are spent inefficiently, since many studies fail to find a consistent relationship between educational expenditures and educational outcomes.⁵⁹ Nonetheless, even those who question the existence of a strong relationship between spending and educational outcomes do not suggest that additional spending on education *could* not make a difference. Economic research simply suggests that additional spending will *not necessarily* make a difference by itself.

Therefore, as we examine alternative policies for addressing the problem of teacher attrition, we must pay attention to both the cost and the effectiveness of the policy reform. An effective policy will decrease the rate of teacher attrition. We will evaluate the four alternatives according to their cost-effectiveness, meaning the degree to which we expect the policy to decrease teacher attrition relative to its overall cost. This will illustrate which policies would likely provide the "biggest bang for the buck."

Equity

As a democratic institution, the public school system should promote equity. This evaluation considers the equitable treatment of both students and teachers.

Equity with respect to students (equal educational opportunity)

A significant body of research demonstrates that teachers are non-randomly distributed across student populations.⁶⁰ However teacher quality is measured, one finds that the most disadvantaged students are the most likely to have low-quality teachers. Specifically, researchers find that high-poverty, high-minority, low-achieving student populations have teachers with less experience, fewer qualifications, and lower quality as measured by student growth on achievement tests. Within Utah, for example, during the 1999-2000 school year, secondary classes in high poverty schools were more than five times as likely to be taught by teachers lacking a major or minor in the field as low poverty schools.⁶¹ These inequities are partly a result of the fact that disadvantaged students attend schools with the highest turnover rates. Any policy designed to decrease teacher attrition should, at a minimum, not exacerbate the current inequities

of the public school system. Ideally, the chosen policy should promote more equal rates of teacher attrition and a more equitable distribution of teacher experience across student populations.

Equity with respect to teachers

Teachers are the direct target of these policy reforms, and the goal is to induce more teachers to remain in Utah's public schools. Equity or "fairness" from the teacher perspective can be defined in two ways. Many teachers (especially experienced teachers) may consider a policy equitable only if it maintains the current system, which recognizes experience and course credits as the determinants of teacher compensation. On the other hand, other teachers might consider the current system inequitable because it does not recognize that some working conditions (e.g., working with disadvantaged students) are more challenging and demanding than others, and that some teachers (e.g., math and science) have higher opportunity costs, meaning that they forgo larger amounts of pay in the private sector in order to be teachers. Therefore, we evaluated equitable treatment of teachers according to two different dimensions: whether a policy treats teachers equitably according to the current system, and whether a policy compensates teachers differently according to working conditions and opportunity costs.

We believe that economic theory and the realities of the employment marketplace favor the second definition of equity. In other words, policies that foster recognition of, and compensation for, teachers' skills, opportunity costs, and working conditions should be favored over policies that preserve the existing system of experience- and credits-based compensation. Many education researchers and policy experts agree that the uniform salary schedule, first adopted in the 1920s to protect women and minorities from discrimination, is poorly suited to the realities of the teacher labor market and the current demands upon the public education system.⁶²

Administrative Feasibility

We will consider how difficult it would be for the current administrative system to implement the policy effectively. Also, it is important to consider the level of discretion by implementing officials which the policy requires, since high levels of discretion may result in variable outcomes and unintended consequences.

EVALUATION OF POLICY ALTERNATIVES

Higher Salaries

Efficiency

All of the respondents in our small survey of Utah school officials selected better teacher salaries and benefits as the policy most likely to decrease teacher attrition. The national research also suggests that better teacher compensation is associated with lower teacher attrition. The 2004 RAND review of research on teacher recruitment and retention discusses a large number of studies that deal explicitly with the relationship between compensation and retention. RAND

researchers cited eighteen different high-quality studies published between 1986 and 2004 (that used data on salary levels and retention rates from as early as the 1970s and as recent as the 1990s) that offered empirical evidence suggesting that higher teacher salaries were associated with greater retention or lower attrition.

Eight additional studies (published between 1982 and 2003), which relied on self-reported data to analyze the effect of salary on teachers' reasons for staying or leaving the teaching profession, found that higher salaries tend to reduce attrition and that the prospect of high future salaries may reduce attrition as well. Based on their review of the high-quality research literature, RAND researchers conclude that the research on compensation and retention consistently finds that higher salaries are associated with lower teacher attrition, that teachers are responsive to salaries in other districts as well as other occupations, and that teachers who leave teaching often cite low salaries as an important reason for job dissatisfaction.⁶³

Although an across-the-board salary increase may be effective in retaining teachers, it may not be efficient or cost-effective. Increasing all teachers' salaries across the state would be expensive. The Utah State Office of Education reports that Utah spent approximately \$1.02 billion on teacher salaries for the 2005-2006 school year. Based on this amount, we estimate that increasing salaries in the state of Utah by 10 percent, for example, would cost more than \$100 million.

Equity

This policy would have no impact on the equitable treatment of students because it would not necessarily alter the distribution of quality teachers across student populations. With respect to teachers, the policy is equitable in terms of maintaining the status quo, but inequitable in terms of working conditions and opportunity costs, since all teachers would receive the same increase regardless of position, location, student population, etc.

Administrative Feasibility

An across-the-board salary increase would be relatively easy to implement and would involve minimal decision making by individual school officials.

Differentiated Salaries

Efficiency

The state and one district selected differential pay as one of the policies likely to impact teacher attrition. The research reviewed by RAND does not provide guidance on the relative effectiveness of differentiated teacher pay versus across-the-board salary increases. A 2006 international review of teacher compensation by the Center for American Progress concludes that, with respect to incentives for teaching in challenging schools or in shortage subject areas,

“it would appear that both we and the other countries for which we have data appear to be using incentives that only marginally affect the outcomes we are trying to achieve, but we need better

data to say that conclusively. Therefore, the obvious course of action is to try more powerful incentives, and do a better job of tracking their effects on the variables of interest.”⁶⁴

Differential pay is potentially more cost-effective than across-the-board salary increases because it directs resources towards teacher positions with shortages and the highest amounts of attrition. The cost of this policy alternative would depend on the criteria used to determine shortage areas as well as the existing salaries of teachers working in these positions (assuming that the salary differential is a proportion, such as 10 percent, of base salary levels). Clearly, differentiated salaries could be less expensive than higher salaries for all teachers, and are therefore likely to be more cost-effective.

Equity

Differential pay would promote equity with respect to students by increasing the equitable distribution of teachers across student populations if teachers receive additional compensation for working in more challenging schools, which would help alleviate the particularly high turnover rates in schools with disadvantaged student populations. Because this policy recognizes different working conditions and opportunity costs, it treats teachers more equitably in one sense, but may be perceived as unfair by teachers who expect teacher compensation policies to maintain the current salary structure.

Administrative feasibility

Differential pay is more difficult to implement than an across-the-board salary increase because it would introduce greater complexity into the payroll system. In addition, the policy would require significant decision making regarding the criteria for identifying shortage areas by school officials. Successful implementation would be largely dependent on accurate information about shortages and personnel, as well as the discretion and good judgment of state officials and district administrators.

Smaller Class Sizes

Efficiency

Based on empirical research using the Texas Education Agency's state-wide educational data base, research economists Eric Hanushek, John Kain and Steven Rivkin concluded that teacher mobility is more strongly related to working conditions than teacher salaries, suggesting that improving teaching conditions may be more effective for retaining teachers than merely improving teaching salary.⁶⁵ A recent survey of 2,000 current and former California public school teachers by the Center for Teacher Quality concluded that “teachers are less concerned with compensation. . . than they are with a whole range of particulars about their work environment.”⁶⁶ In fact, researchers concluded that the teaching and learning environment in fact “colors” the way teachers view their compensation: teachers in poor working conditions often view their compensation as inadequate, while teachers in good working conditions view their compensation as a reason for continuing in the teaching profession. Organizations such as the National Governor's

Association have emphasized that, in addressing shortages in hard-to-staff schools, financial incentives are necessary but not sufficient to solving the problem, arguing that working conditions must also be addressed and improved.⁶⁷ Both smaller class sizes and mentoring (the third and fourth policy alternatives examined here) are related to working conditions, rather than compensation.

The RAND review also examined the relationship between working conditions and teacher retention. With respect to class sizes in particular, RAND researchers identified two studies (based on data from New York and Texas) that found that larger class sizes were associated with higher attrition rates. Researchers also concluded that schools with fewer disciplinary problems also had lower levels of teacher attrition and teacher dissatisfaction. Advocates of smaller class size often assert that smaller class sizes contribute to decreased classroom interruptions and behavior problems.⁶⁸

The cost of class size reduction varies considerably based on the size, scope and design of the policy. More specifically, the actual class size, grade levels affected, school eligibility (e.g., universal versus targeted towards specific student populations), phase-in period, measurement level (i.e., class size averaged across the state, district or school level), and flexibility, as well as the initial operating conditions and enrollment growth all impact the overall price tag of the reform. In 1999, RAND researchers concluded that the cost of class size reduction nationally would vary from about \$2 billion to over \$11 billion annually, a five-fold difference, depending on the specific options chosen. Notably (in light of Utah's current situation), class size reduction is relatively more expensive to implement during a time of growing student enrollment.⁶⁹

This policy is low in cost-effectiveness because of its very high cost and limited effectiveness. Class size reduction is a notoriously expensive educational reform. In addition to the cost of additional teacher salaries, the state must consider the cost of additional land and buildings as well as the administrative costs of implementing such an ambitious reform. According to a January 2007 estimate by the State Office of Education, a reduction of just one in the pupil-teacher ratio for K-6, as well as secondary math, science and language arts teachers would cost about \$37.5 million in additional teachers' salaries and \$293 million in facilities, or more than \$330 million in additional funding.⁷⁰

Although smaller class sizes will improve teacher working conditions and are likely to decrease the rate of teacher attrition among the existing workforce, smaller class sizes would also necessitate the hiring of numerous new and possibly unqualified teachers, especially in an environment of rapid student population growth leading to teacher shortages. This would increase the overall proportion of inexperienced teachers within Utah's teacher workforce. Since inexperienced teachers have much higher rates of attrition than teachers in general, decreasing the average level of teaching experience could offset some of the gains from reducing class sizes.

Equity

This policy does not promote equity in the distribution of teachers across student populations. Disadvantaged students are likely to continue to attend schools with the highest rates of attrition and the lowest-quality teachers. Research on California's class size reduction program suggests that class size reduction may actually increase inequity. Economists Christopher Jepsen and Steven Rivkin concluded that the rapid expansion of the teaching force as a result of California's statewide class size reduction policy resulted in a dramatic increase in the percentage of unqualified teachers, who were concentrated in high-minority, high-poverty schools. The policy thus resulted in a deterioration in average teacher quality in schools serving disadvantaged students, and a larger gap in teacher quality between income and racial groups. Jepsen and Rivkin concluded that "this deterioration partially or, in some cases, fully offset the benefits," in terms of student achievement in math and reading, of smaller classes.⁷¹

Smaller class sizes would benefit all teachers. In this way the policy treats teachers equitably, because it does not disrupt the existing system of determining compensation. On the other hand, by treating all teachers equally, this policy fails to account for the different opportunity costs and working conditions that teachers face.

Administrative feasibility

Class size reduction is the most difficult of the four alternative policies to implement. In addition to recruiting and hiring new teachers, the state and districts would have to come up with additional classrooms at a time when many districts are already having difficulty producing facilities adequate for the growing student population. This would necessitate the complicated tasks of financing capital facilities, including property acquisition, construction contracts, legal preparations for bond measures, and political activities for bond elections.

Mentoring

Efficiency

The RAND literature review included two studies (a 1992 study by researchers Sandra Odell and Douglas Ferraro and a 2004 study by education policy researchers Thomas Smith and Richard Ingersoll) that found that beginning teachers who experienced induction and mentoring support had lower attrition rates. In particular, using data from the 1999-2000 Schools and Staffing Survey and its Teacher Follow-up Survey, Smith and Ingersoll found that having a mentor in one's field reduced the risk of leaving at the end of the first year of teaching by about 30 percent, a statistically significant effect. Having a mentor outside one's field was also associated with reducing the risk of leaving (by 18 percent), but the effect was not statistically significant. A 2004 review of empirical studies on induction programs by Richard Ingersoll and Jeffrey Kralik identified 10 high-quality studies on mentoring, and all provided "some empirical support" for the claim that teacher mentoring programs for new teachers have a positive impact on teacher retention.⁷² Recent studies of induction programs in California and Chicago also suggest that mentoring results in a decline in teacher turnover and attrition.⁷³

Researchers emphasize, however, that while a large body of research provides general support for the use of mentor teachers, mentoring and induction programs vary widely in purpose, length, intensity, structure, the selection of mentors, the types of teachers they serve, the training provided to mentors, and cost. This variety makes it more difficult to draw policy conclusions about mentoring and induction from the existing research. In addition, some education policy organizations (e.g., Alliance for Excellent Education and the National Commission on Teaching and America's Future) have begun to focus more on "comprehensive induction programs," rather than mentoring alone, as the most effective way to reduce teacher attrition and improve teacher quality. Some research even suggests that the impact of mentoring can be minimal in the absence of other important induction supports.⁷⁴

Smith and Ingersoll examined a number of induction components in addition to mentoring and concluded that the likelihood of a teacher leaving or changing schools decreased as the number of induction supports increased. The induction supports most strongly associated with higher retention rates were having a mentor in the same field, having common planning time with other teachers in the same subject, having regularly scheduled collaboration with other teachers, and being part of an external network of teachers. The Alliance for Excellent Education asserts that "research demonstrates that comprehensive induction cuts attrition rates in half."⁷⁵ Based in part on the work of Smith and Ingersoll, the non-profit group defines "comprehensive induction" as a combination of high-quality mentoring, common planning time, ongoing professional development, an external network of teachers, and standards-based evaluation.

With respect to mentoring specifically, the organization asserts that "high-quality mentoring" means mentors that are effective teachers of both students and teachers, mentors that are matched with teachers in the same subject area, training for mentors on the use of formative assessments for new teachers, as well as additional support for mentors in the form of stipends, larger salaries, extra professional development, reduced workload, or release time. Based on its research and experience, the New Teacher Center defines "high quality" mentoring as involving the rigorous selection of effective mentors, sanctioned time for mentor-teacher interactions, instructional as well as logistical support, ongoing professional development for mentors, documentation of teacher progress, and multi-year (two or more years) mentoring.⁷⁶

Because no state funds are explicitly devoted to the state's induction program, and district funding varies widely, it is difficult to quantify how much money is currently being spent on mentoring

programs in the state. National researchers and state and local school officials seem to agree, however, that we are far from tapping the full potential of mentoring and induction programs. Enhanced funding to enable the implementation of comprehensive induction programs based on national research throughout the state could significantly impact the retention rate of new teachers. Because both national and Utah-specific research suggests that mentoring programs are effective in reducing attrition, and because of the relatively low cost of mentoring programs (compared to other reforms), enhanced induction programs hold the potential for being highly cost-effective.

Equity

If mentoring resources were to some degree targeted toward schools with disadvantaged populations, this policy could promote equity with respect to both students and teachers, by acknowledging differences in working conditions. This could be accomplished, for example, by providing additional funding to low-performing schools so that new teachers would enjoy a lower mentor-to-new-teacher ratio (e.g., 2-to-1 instead of 5-to-1 in regular schools). Either way (whether targeted or not), mentoring programs do not significantly disrupt the current system and are likely to be perceived as fair by all teachers.

Administrative feasibility

Although the mentoring program is already in place (suggesting that implementation will be simple and relatively easy), the success of the mentoring program in decreasing teacher attrition rates depends largely on numerous factors (training of mentors, size of stipend for mentors) that are subject to the discretion of school officials. In addition, the policy depends in large part on the existence of a pool of competent, willing and motivated teachers who can serve as mentor teachers.

Figure 16: Utah Foundation Ratings of Policy Alternatives

Criteria	Impact Categories	Policy Alternatives			
		Higher Salaries	Differentiated Salaries	Smaller Class Sizes	Mentoring
Efficiency	Cost-effectiveness in reducing teacher attrition	Moderate	Moderate	Low	High
Equity	Increased equity in distribution of teachers across student populations	No change	More equitable	Less equitable	More equitable, if targeted
	Treats teachers "fairly" according to the current system	Yes	No	Yes	Yes
	Compensates teachers differently according to working conditions and opportunity costs	No	Yes	No	Yes, if targeted
Administrative Feasibility	Ease of implementation	High	Moderate	Low	Moderate

Note: Darkest shade of blue indicates the most favorable rating for the given criterion.

EVALUATION CONCLUSIONS

Our analysis shows some clear distinctions among the four policies examined, as show in Figure 16, placing them in the following order of desirability:

1. Mentoring programs rate most favorably, with high ratings for efficiency and all equity measures, and a moderate rating for administrative feasibility.
2. Providing differentiated salaries based on working conditions and skills also rated favorably, with moderate efficiency, more equitable distribution of teachers among student populations, increased equity for teachers based on working conditions and opportunity costs, and moderate administrative feasibility.
3. Higher salaries for all teachers scored fairly well, with moderate efficiency and high feasibility, but it was not as positive as differential pay in the equity ratings.
4. Reducing class sizes did not score well, with low efficiency, generally less equity for students and teachers, and low administrative feasibility.

POLICY RECOMMENDATIONS

Utah Foundation recommends that state policymakers work to improve and expand comprehensive mentoring and induction programs for new teachers; provide funds and policies to pay teachers according to their skills, opportunity costs, and working conditions; and consider higher salaries overall for Utah teachers. At a time when the student population is growing rapidly and teachers are already difficult to recruit, we recommend not pursuing class size reduction presently, since it would exacerbate the teacher shortage and may be too expensive to implement simultaneous with increases in teacher pay.

Mentoring and Induction Programs

The USOE and some districts are already making some progress in this area, but more needs to be done. Based on the research and experience of organizations like the New Teacher Center, Alliance for Excellence in Education, and the National Commission on Teaching and America's Future, we now understand that high-quality mentoring programs require the rigorous selection of mentors who are effective teachers of both students and other teachers, on-going training for mentor teachers, mentors that are matched with novice teachers in the same subject area, sanctioned time for mentor-teacher interactions, instructional as well as logistical support for novice teachers, evaluation of novice teacher progress using standards-based assessments, and multi-year (two or more years) mentoring. In addition, mentors need additional support in the form of stipends, larger salaries, reduced workload, or release time. Some very

promising induction programs utilize full-time mentors, who are completely released from classroom duties, who are then assigned 15 or fewer novice teachers. This model ensures that mentors have adequate time and energy to provide consistent and individualized support to new teachers.

Differentiated Teacher Salaries

We encourage adoption of policies to pay teachers more in key shortage areas, whether the shortage is related to teaching subject or geographic location. This concept is increasingly receiving attention by Utah policymakers and in other states. The Utah State Board's ProExcel proposal includes a differential pay component that appears to be well designed, but the program has not received funding. Policies to reform teacher pay should be adequately funded and flexible enough to meet market demands; for example, if schools continue to have difficulty recruiting science or math teachers or if a school with large numbers of high-risk students continues to be difficult to staff, districts should have flexibility to raise pay to sufficient levels to attract skilled teachers.

Higher Salaries for All Teachers

This policy should be a lower priority than differential pay as described above. However, it appears that Utah teachers have not kept up with salary growth in many of the surrounding states, especially in starting salaries. To remain competitive and to increase the attractiveness of a teaching career, policymakers should consider raising starting salaries and average salaries for Utah teachers.

Smaller Class Sizes

Class size is an important component of teachers' working conditions, and improvements in class size could help retain teachers. However, research on the impacts of class size reduction shows mixed results in terms of student achievement. In addition to being extremely costly, reducing class size at this time will likely exacerbate the teacher shortage problem and would have an unpredictable effect on the rate of teacher attrition overall. Nevertheless, if Utah continues to allow the disparity between its class sizes and other states' class sizes to grow, teacher attrition rates will likely increase, as teachers seek better working conditions in other states or professions. We recommend that, for the near future, policymakers prevent increases in class size while considering class size reduction at a future time when teacher supply is adequate and economic conditions support increasing educational expenditures. A better time may be when the current surge in student population ends. If attempted now, class size reduction would likely aggravate the existing teacher shortage and reduce teacher quality.

Data Collection

Each of these policy changes should be augmented with resources dedicated to collecting data on the policy's ongoing costs, effects on

teacher attrition, impacts on classroom learning, and other attributes. The data should be presented publicly to the State Board and the Legislature's Interim Education Committee on an annual basis, with a report available to the public. If desired outcomes are not being achieved, policy changes should be considered.

We recommend that the state invest in systematic data collection about teacher attrition at the school level. Every teacher who leaves a school should complete a state-designed survey that collects information on the teacher (such as gender, age, experience, field of study, and educational institution), as well as the teacher's reasons for leaving and sources of dissatisfaction with teaching. The Teacher Follow-Up Survey provides an excellent starting place for determining useful categories of reasons and sources of dissatisfaction. Modifications to this basic model could be made in consultation with human resource directors and other school officials. Ideally, this information on teacher attrition would also be connected to a database on teacher effectiveness, measured by growth in student achievement. This data on teacher attrition would then be aggregated at the school, district, and state levels and disaggregated by teacher characteristics such as field of study in order to inform future policy reforms and also to evaluate the effectiveness of current policies to address teacher attrition.

In conclusion, a well-rounded package of policies designed to provide support and training to new teachers and reforming teacher compensation in ways that respond to the labor market would be most likely to reduce teacher attrition in the most cost-effective manner. These policies would also provide the dual benefit of making teaching a more attractive profession for new entrants into the field and could increase the supply of young adults willing to pursue a career in teaching. These policy changes should be accompanied by well-designed and adequately funded data collection activities to ensure that reforms are producing the intended outcomes and to provide evidence for adjusting the reforms to ensure their success.

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