WHO'S TEACHING WASHINGTON'S CHILDREN?

What We Know – and Need to Know – About Teachers and the Quality of Teaching in the State

A Report Commissioned by the Center for Strengthening the Teaching Profession

August 2003

Margaret L. Plecki
Ana M. Elfers
Michael S. Knapp

University of Washington

With the assistance of:
Hilary Loeb
Caleb Perkins
Beth Boatright

WHO'S TEACHING WASHINGTON'S CHILDREN?

What We Know – and Need to Know – About Teachers and the Quality of Teaching in the State

A Report Commissioned by the Center for Strengthening the Teaching Profession

August 2003

Margaret L. Plecki
Ana M. Elfers
Michael S. Knapp

University of Washington

With the assistance of:
Hilary Loeb
Caleb Perkins
Beth Boatright

Suggested citation:

Plecki, M. L., Elfers, A. M., Knapp, M. S., Loeb, H., Perkins, C., Boatright, B. (2003). Who's Teaching Washington's Children? What We Know – and Need to Know – About Teachers and the Quality of Teaching in the State. Seattle, WA: University of Washington.

ACKNOWLEDGEMENTS

The research presented in this report was made possible by the generous support of the Stuart Foundation. We would like to thank Kris Mayer and Ellen Hershey for their interest in this project and the suggestions which have helped to shape the work.

We gratefully acknowledge a number of individuals from across the state who have contributed to the development of this research. Among them, we would like to thank Lynn Beck, Brian Benzel, Peter Bloch Garcia, Jane Goetz, Don Eismann, Kyle Kinoshita, Laura Kohn, Bill McDiarmid, Steve Mullin, Nancy Murphy, Michael Riley, June Rimmer, Greta Salmi, Michael Silver, Lorna Spear, Carol Rava Treat, Jennifer Vranek and Doris McEwen Walker.

We also wish to thank the Washington State Office of the Superintendent of Public Instruction for their assistance and provision of state documents and information essential for the analysis. In particular, we would like to thank Dawn Billings, Ross Bunda, Pete Bylsma, Jeanne Harmon, Mary Alice Heuschel, Allen Jones, Mickey Lahmann, Rick Maloney and Pam Peppers. Additionally, we are grateful to Sylvia Soholt and Andy Plattner of KSA-Plus Communications for their thoughtful critiques. We thank Michele Ferguson and Angie Windus of the Center for the Study of Teaching and Policy for their assistance as well.

The findings and conclusions contained in this report are the sole responsibility of the authors.

EXECUTIVE SUMMARY

Nearly a decade ago, Washington state embarked on an ambitious school reform effort which set high expectations for student learning. Increasing expectations for students have also had a significant impact on teachers, since teachers shoulder the primary responsibility for ensuring that students meet those learning goals. As attention has focused in recent years on teacher quality and strategies aimed at improving instruction, Washington state has run squarely into questions about whether and how teachers have the means, knowledge, and skills to meet the varied learning needs of all students. Though often framed as a problem of "teacher quality," three distinct yet interrelated aspects are involved: the quality of *teaching*, the quality of the *teaching force,* and the quality of *support for teachers' work*.

In this report we provide Washington educators and policymakers with a portrait of the state's current teacher workforce. As a starting point for understanding the nature and distribution of the state's teaching force, we have chosen to focus on indicators for which data are currently available in Washington state. The report is organized around three central themes: characteristics of the current teacher workforce, teacher supply and demand, and retention of teachers.

Data and Methods

A good place to start looking for information about the state's teaching force is in the data already collected by the state, though not assembled for analytical purposes of this type. Using a number of these existing state data sources, the research team constructed a new database in order to include the demographic, fiscal and student achievement information necessary for desired analyses. The core data for this research comes from the Washington state personnel database (S-275) for the years 1996-97 to 2001-02. While the S-275 is designed to provide data for determining state school funding levels, it contains much that is useful for studying issues related to teacher quality.

Analyses were conducted on teacher characteristics at state, district, and school levels. The district-level analysis includes all school districts in the state for the 2000-01 school year. In order to illustrate what could be learned by looking more carefully within districts, a sample of ten districts was selected based on factors (poverty rate, enrollment size, and region of the state) which might impact the composition of the teacher workforce. Initial school-level analyses were conducted to provide insight into the distribution of the teaching workforce across a sample of schools serving students with widely varying educational

needs and circumstances. Analysis were also conducted regarding the retention of beginning teachers over a five year period. The analyses of teacher characteristics, supply and demand, and retention are briefly summarized as follows.

Findings Regarding the Teaching Force

Teacher Characteristics: Who is in the state's current teacher workforce?

Washington's teacher workforce consists of over 55,000 classroom teachers. In 2000, the majority were white (93 percent), had five or more years of experience (75 percent), held a master's degree or higher (54 percent) and were over 40 years of age (64 percent). While an examination of aggregate, statewide statistics tend to reflect little variation in the workforce, differences do exist, particularly at the district and school levels. There are few clear and consistent patterns when examining teacher characteristics by district size or region of the state. However, our examination of data in 2000 indicate that districts serving students with the highest percentages of students in poverty tend to have teachers with less experience and fewer advanced degrees than other districts in the state.

Based on proxies such as level of education and certification status, Washington's teachers hold similar qualifications to teachers nationally. Virtually all Washington teachers possess at least a bachelor's degree and slightly over half, 54 percent, hold an advanced degree (master's degree or higher). Few teachers in Washington hold emergency or conditional certificates.

Teacher Supply and Demand: Do we have enough teachers to meet the state's needs?

Based on what we can know from existing data, the overall available teacher workforce statewide currently is sufficient to fill most positions. However, the state may experience shortages in certain subject areas and in particular regions of the state. Statewide student enrollment is projected to continue to grow through 2012, but at a much slower rate than the previous decade. While the number of teachers eligible to retire in the near future is expected to increase, there is also a sizeable group of experienced educators to take their place in subsequent years. However, the ethnic profile of the state's workforce is not particularly well-matched with the student population. As the student population has grown ever more diverse, the rate of growth for teachers of color has been much slower.

Retention: How long do teachers stay in their school or district?

Patterns of retention for Washington's teachers resemble national trends. New teachers leave at higher rates than those who remain in the profession through

the middle career years. Approximately 72 percent of beginning teachers in 1996 were still in the Washington education system five years later. Districts differed considerably, however, in the extent to which their teachers moved among schools, left for other districts or private schools, or exited the Washington education system. Of those who remained, 93 percent were still classroom teachers five years later.

In short, existing data sources can reveal a number of useful things about the state's teaching force. However, analysis of existing sources necessarily stops short of capturing all that matters in providing important facts about the teacher workforce and teaching quality.

Policy Implications

The goal of this work is to provide accurate and useful information about the teaching force that can inform policymaking. A central question for policy makers is: what can and should be done to enhance the quality of teaching, the teaching force and support for teachers' work in pursuit of high learning standards for all students? Even given its limitations, the current analysis contains some important messages for policymaking. These concern, first, the meaning of a relatively stable, well-educated teaching force; second, the often overlooked inequities in the distribution of teachers at the school level; and third, the importance of good information for setting and adjusting policies that relate to teachers, teaching and support for teachers' work.

Given the relative stability of the state's teacher workforce, policy aimed at supporting teachers presently in the classroom may be an important place to focus energy and resources. The majority of the state's teachers remain in the profession over the course of their career. Recent state reforms have expected more of teachers in providing a higher quality of learning experience. Unlike some other states, Washington is not faced with a crisis in attracting a teaching force with the right credentials (though there appear to be pockets of shortage), nor the prospect of a huge exodus of veteran teaching talent. But do teachers have the means, knowledge and skills to realize the intent of the reforms in their classrooms? If not, what policy strategies can be considered to ensure that teachers have ample and effective support throughout their careers?

While all indicators point to an adequate overall supply of teachers, certain subject matter fields and regions of the state may consistently face a shortage of qualified candidates. As elsewhere in the nation, there is an important concern about the distribution of teaching talent between hard-to-staff schools and schools viewed as more desirable places to teach. While data about teacher assignment in individual schools is currently contained in state databases, the

information is not readily accessible nor has it been systematically analyzed. State policy has not addressed the issue, leaving the question of how to equitably distribute teaching talent as a matter for local districts to address.

State-level policymakers need a better base of information about teaching, the teaching force, and support for teachers' work. Some analyses undertaken by various organizations have taken us part way into this territory, but they stop short of assembling in a systematic and on-going way the kind of information that would illuminate these conditions and state initiatives aimed at improving them. More dynamic and integrated databases can be designed to examine questions of teaching quality and its relation to student learning.

Improving statewide capacity to collect and analyze data regarding the teaching force can help address a number of unanswered questions. Among these questions are matters pertaining to attracting, rewarding, and retaining teachers; developing support for teachers' professional learning; and capturing how teachers are responding to reform in their classroom practice. These issues are particularly important to examine in schools that are high-poverty, hard-to-staff or low-performing.

At the close of each section of this report, we have tried to note where other types of analyses could help to address these kinds of unanswered questions. Given better information on teacher retention, professional development and classroom practice, among other topics in its agenda for improving learning and teaching, the state policy community will be in a better position to appraise and interpret the results of the state's student performance results and thereby imagine courses of action that are likely to support high-quality teaching. Washington's continued engagement with issues of teaching quality will require an enhanced capacity for answering these questions and efforts to provide the policy community with useful information regarding the conditions that affect the improvement of teaching and learning.

CONTENTS

LIST OF FIGURES

INTRODUCTION

Who is teaching Washington's children and why it matters

It matters who is teaching our children. Most would agree that a good teacher in the classroom plays a critical role in supporting and encouraging student learning. An ever growing body of research supports the belief that the quality of the teacher is one of the most important factors in improving student learning. As attention has focused in recent years on teacher quality and strategies aimed at improving instruction, new federal and state policies have been enacted to ensure that every child has a highly qualified teacher in the classroom.

Who are Washington's teachers? What qualifications do they hold? Are they adequately prepared with the knowledge and skills to help students reach Washington's high learning standards? Does Washington have an adequate supply of qualified teachers or is the state losing teachers to other states? Do novice teachers choose to stay in the profession? Are teachers appropriately and equitably assigned to teach children with diverse needs? These are among the questions that policymakers and the public in Washington state are asking during a period of intense concern about the quality of education and attempts to improve it. There is strong public support for Washington's education reform, now a decade old, and modest evidence of improvement, yet concerns linger about the slow pace of progress and the persistent gap between current levels of performance and the high standards set by the reform.

These questions beg another: where is the policy community to turn for answers? What sources of information will yield a state-wide picture of the teaching force and reveal its capacity for realizing the ambitious goals of the state's reform? An obvious answer is to start with existing data sources, the information about state personnel and schooling routinely collected by the state for administrative purposes, yet rarely analyzed in search of answers to address these specific kinds of questions. Though such sources have distinct limitations and will not get at all important questions concerning the state's teaching force, they offer a systematic and as yet untapped information source worthy of our attention. A first essential step towards developing the right kind of information base for sound educational policy is to understand what existing sources of information can tell us.

This report offers one such look at existing data about the nature of the teaching force in Washington state. Using data from the state's personnel system, combined with demographic and performance information about Washington's student populations, the report explores what is known about the characteristics of the teaching force, supply and demand, and retention. The report also notes unanswered questions about these and other facets of the teaching force and teachers' work and points the way towards other means for developing more comprehensive information related to these questions.

To provide a context for this analysis of the state's teaching force, we first review how the quality of teachers and teaching relate to Washington's educational reform, what is known about the measurement of teaching quality, and how the quality of teachers and teaching are linked to the changing nature of the student population.

Education Reform and Teaching Quality in Washington State

Strengthening the quality of teaching and teachers in Washington state is a complex challenge. The analyses presented in this report assume that the contexts and expectations of teaching have changed dramatically in recent years. Expectations for student achievement have significantly increased, and the learning needs of students have become more varied and complex. Consequently, different sets of skills and knowledge are now required of teachers if they are to be successful in contributing to the learning of every child.

Reform policy in this state has set the stage for the challenges now facing the state's teaching force. A decade ago, Washington state made a long-term commitment to improve the quality of learning in its schools through the passage of the Education Reform Act, HB 1209. Since that time, the journey Washington has taken parallels that of many other states which have sought to strengthen the learning experiences for all students and produce results that meet ambitious learning standards. While the reform in this state has proceeded with broad professional and public support, and there have been modest achievement gains that can be attributed to the reform effort, the evidence to date suggests that the state is still far from reaching the goals it set for itself. The trend is up in all currently tested areas of the curriculum (reading, mathematics, writing, and listening) and at all grade levels, yet the overall gains are generally small and the absolute level of performance still hovers between one and two thirds of all students meeting proficiency on state standards.

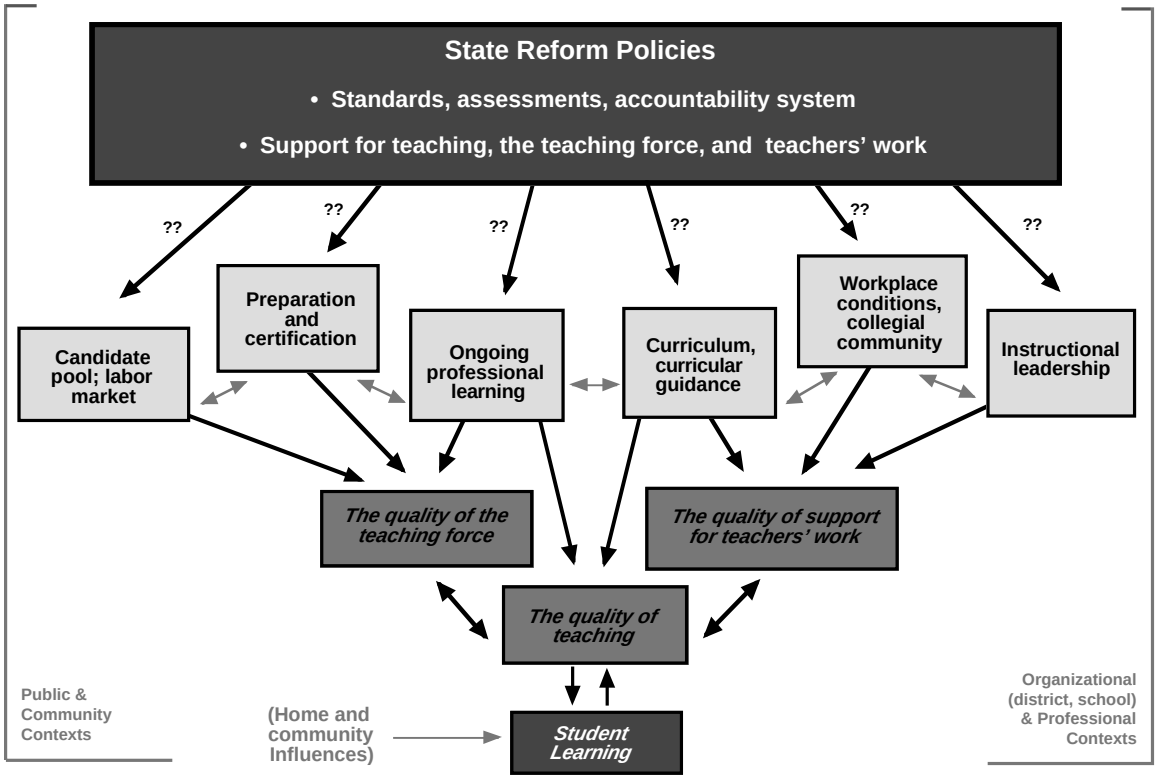
There are many explanations for the current state of affairs, among them, incomplete implementation of the reform as originally envisioned. But another set of explanations, more focused on the teaching force, deserves attention. What many have come to realize is that the reach for critical student learning standards brings with it an ambitious task for the state's teacher workforce. Inescapably, the state has run squarely into questions about whether and how teachers have the means, knowledge and skills to realize the intent of the reforms in their classrooms.

Often referred to as a matter of "teacher quality," the issue actually concerns three distinct yet interrelated things: the quality of *teaching*, the quality of *the teaching force*, and the quality of *support for teachers' work*. The quality of teaching refers to instructional delivery and pedagogical strategies which support student learning. The quality of the teaching force involves the personal characteristics and qualifications of teachers that contribute to their effectiveness in the classroom. The quality of support for teachers' work denotes workplace

conditions conducive to student and teacher learning over time and in which teachers are provided opportunities for continued professional development.

Among these, the quality of teach*ing* is what ultimately matters most, as shown schematically in Figure 1, for it, along with the capabilities and aspirations for learning brought by the students themselves, offers the most immediate input to student learning. The knowledge, skills and commitments of the teaching force (what is generally meant by "teacher quality") is one major contributor to the quality of teaching, and there are particular state policies that contribute directly to these attributes of the teaching force. As noted in Figure 1, state policy may affect who is teaching Washington's children through certification and teacher preparation, requirements for continuing education, incentives for entering or staying in the candidate pool or a teaching position, and compensation policies, among others. Along with other measures that relate more to the ongoing support for teachers' work, the state is in a position to provide an extensive web of support for teachers' work and student learning.

Figure 1. How State Reform Policies Can Reach Teaching and Learning



Attributes of the teaching force are often taken as proxy measures for the quality of teaching itself, a much more elusive matter to define and measure. These attributes appear in definitions of "qualified teachers," as federal guidelines and in numerous studies that have tried to demonstrate the connections between

qualifications and the ultimate outcomes of teaching. Under current federal guidelines, for example, a highly qualified-teacher[1] is one who has the appropriate state certification, a minimum education level of a bachelor's degree, and subject matter competence in the areas in which the individual teaches.

In studying the quality of the teaching force, scholars have generally relied on things that are easily counted or seem most susceptible to state action – years of experience in teaching, degrees and credentials earned, and levels of education and/or training beyond certification (e.g., as indicated by continuing education credits). While the results are mixed and in some dispute, research using these measures does offer some insights into the relevance or impact of investments in teacher quality aimed at improving student learning. For example, several studies have demonstrated positive relationships between teachers' ability levels (usually a measure of verbal aptitude) and student achievement (Ehrenberg & Brewer, 1995; Summers & Wolfe, 1977). Teacher's college entrance exam scores, the percentage of teachers with master's degrees, and small class size have also been positively associated with student test scores (Ferguson & Ladd, 1996). Other research attributes gains in student achievement to teacher preparation and certification (Darling-Hammond, 2000). One of the study's specific findings was that state-level measures of the percent of fully certified teachers with a major in their academic field is a stronger positive correlate of student achievement than the percent of teachers with a master's degree.

The measures used in these studies underscore the potential importance of paying attention to the teaching force, while stopping short of offering a full account of teachers' capacities and performance (Hanushek, 1986). As proxies for teaching quality, the commonly used measures of the teaching force focus too much attention on what is easily counted, are only loosely connected to instructional quality, and, to a large extent, ignore how skills and knowledge are applied in classrooms (Plecki, 2000). Thus, the extent to which these factors are valid and useful depends on how closely teachers' education and training connects with the knowledge and skills that are needed *and* used in the classroom context. Nonetheless, it is clearly important to understand the nature of the teaching force, and currently available measures offer a starting point for building that understanding.

Who Teaches Whom in Washington State and With What Results

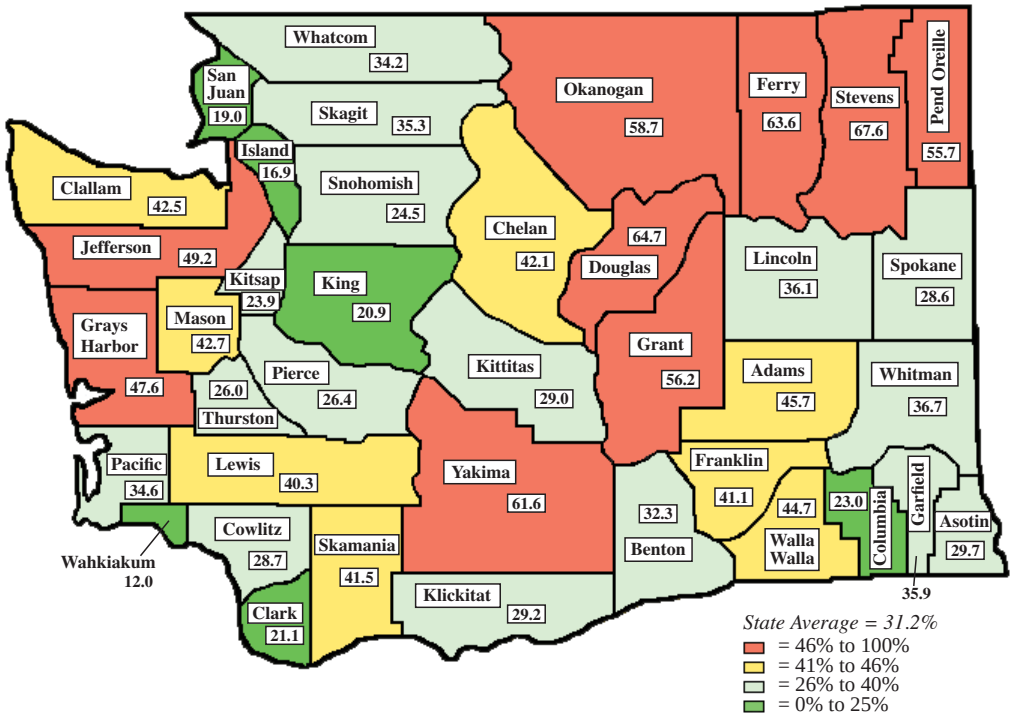
In considering the nature of Washington's teaching force, it is well to remember that student learning is the goal of teaching and that learning comes about through the interaction of teachers, students and content. The student

[1] The U.S. Department of Education defines "highly qualified" in the following way: 1) "Has obtained full State certification as a teacher or passed the State teacher licensing examination and holds a license to teach in the State, and does not have certification or licensure requirements waived on an emergency, temporary or provisional basis; 2) Holds a minimum of a bachelor's degree; 3) Has demonstrated subject area competence in each of the academic subjects in which the teacher teachers, in a manner determined by the State and in compliance with Section 9101(23) of ESEA" (U.S. Department of Education, 2003).

population in the state's schools has changed dramatically in recent years. National as well as state trends indicate that children entering public schools, on average, have become poorer, ethnically and linguistically more diverse and face more disadvantages that can affect their learning. These trends are likely to continue. High academic standards and state assessments have focused attention on disparities in student achievement and questions of how to help all students reach a minimal level of proficiency.

To understand teachers' work and what results from it, we need a clear picture of who is being taught and how teaching talent is distributed among students. In 2000, three quarters of the state's public school students (75.3 percent) were enrolled in Western Washington, more than half of them enrolled in the four-county Puget Sound area (King, Pierce, Kitsap, and Snohomish). The largest districts held the majority of the students, with more than half of Washington's public school pupils (54.4 percent) in the 30 largest school districts, each of which maintained an enrollment above 10,000 pupils. A substantial number of all students live in poverty – close to a third (31.2 percent) qualified for the Free or Reduced Price Lunch program. Increased racial and ethnic diversity has accompanied enrollment growth. Between 1972 and 1999, the percentage of school enrollment represented by racial and ethnic minorities increased from 7 percent to 24 percent, with the greatest increases among Asian/Pacific Islander and Hispanic populations. While still predominantly white, the racial/ethnic composition of students varies considerably among districts and counties in the state (for more information, see Appendix A). Poverty rates in some counties (Yakima, Stevens, Douglas and Ferry Counties) exceed 60 percent, as Figure 2 demonstrates.

Figure 2: Percent of Students in Free and Reduced Price Lunch by County in 2000



The make-up of the student population has important implications for understanding levels and trends in student performance. Using a statewide performance-based assessment system, the Washington Assessment of Student Learning (WASL) – the primary metric of the current reform – students are tested in grades 4, 7 and 10 , and have been since 1996. While WASL data indicate a general upward trend, the results reveal continuing disparities among groups of students defined by poverty or racial/ethnic group. Analyzing WASL data by racial/ethnic subgroup demonstrates that the average performance of African-American, Native American, and Hispanic students fall well below that for white and Asian students (see Appendix B). However, racial and ethnic differences tell only part of the story. As numerous studies have documented, both nationally and in Washington state, the correlation between poverty and student achievement is strong, and has been so for years. A recent study by Abbott and Joireman (2001) found that student performance on the WASL and the ITBS was most strongly linked to family income. They explain that "across a variety of grade levels, instruments (WASL, ITBS) and subscales… low income explains the bulk of the variance in academic achievement (12-29 percent) when compared to ethnicity (0.6 percent)." These researchers also observe that the relationship between ethnicity and student achievement appears to be indirect, as race and ethnicity are often linked to low-income status.[2]

The distribution of teaching talent, and indeed the capabilities of all teachers working with students who are culturally different or economically disadvantaged, may be an important part of the story, as well. While some of the variation reflects enduring socioeconomic differences that no educational reform can quickly or easily erase, mounting evidence from Washington and elsewhere suggests that the most needy students are often taught by the least qualified teachers. Numerous studies have shown that teacher qualifications are generally lower in Title I, disadvantaged, high-poverty and high-minority schools (Henke et al, 1997; Ingersoll, 2002; Lankford, Loeb & Wyckoff; 2002; Haycock, 1998; Shields, et al., 2001). Teachers in advantaged schools, on the other hand, are more likely to have graduate degrees and full certification not to mention more teaching experience and a better fit between preparation and teaching assignment on average. In advantaged schools, "just over one tenth of all public school teachers are beginners (three years or less) and just under one third are senior (more than 20 years of experience). In disadvantaged schools, twice as many teachers are beginners, and fewer teachers are senior than in advantaged schools" (Ingersoll, 2002, p. 164).[3]

---

[2] Similarly, an analysis of 4th and 8th grade ITBS results in 1996-97, by the Washington State Joint Legislative Audit and Review Committee (Washington State, 1999) reported that student achievement declines as poverty increases. The Office of the State Superintendent of Public Instruction, in a study of the Learning Assistance Program (OSPI, 2001b), also reported that percentage of student poverty in a school was a stronger predictor of test scores than the percentage of minority students.

[3] Perhaps the most glaring source of inadequate access to qualified teachers, according to Ingersoll, is not a lack of education but rather, "a lack of fit between teachers' preparation and teachers' class assignments: the phenomenon of out-of-field teaching. Whereas most teachers, even in disadvantaged schools, have a bachelor's degree and a regular teaching certificate, many teachers at both elementary and the secondary levels are assigned to teach classes in fields that do not match their educational background" (Ingersoll,

High poverty schools also have higher turnover rates (15.2 percent) than more affluent schools (10.5 percent). Constant teacher turnover in a school may reflect deeper workplace issues. Hard-to-staff-schools may lack staff stability, continuity and cohesion or adequate resources to meet the challenges they face. In some cases, schools within the same district may not receive equal access to human or fiscal resources (Roza & Hill, 2003). These and other factors can impact student learning and teacher efficacy in the classroom.

These national patterns appear to be playing out in Washington state as well, as data about teaching characteristics and poverty status of schools suggests (see Section 3). An initial analysis of a sample of six districts in Washington indicates some disproportionality in the placement of novice teachers in high-poverty elementary schools. To the extent that attributes of the teaching force contribute to the quality of teaching for a diverse array of students, these matters are of concern to state and local policy.

Data and Research Methods

This report examines existing data that are uniformly available for every school and district in Washington state. These data include information on K-12 school personnel, district fiscal data, and demographic and student achievement data. While a number of state databases are used in this report, the core data for this research comes from the Washington state personnel database (S-275) for the years 1996-97 to 2001-02. The personnel data are based on annual personnel reports (Form S-275) submitted by each school district, which primarily support school apportionment services. It includes all certificated and classified persons employed by public school districts, ESDs and private schools in the state. Data includes personal information, certification number, academic credits, years of experience, assignment, salary and benefits and other information. Because the primary purpose of the state's personnel database is to track fiscal information, other information is not stored in a manner that is easily accessible, nor is it designed to study issues of teacher quality. However, an advantage of the S-275 database is its uniformity, its longitudinal nature and its accuracy for a database of this size.[4]

Despite the wealth of information contained in this repository of teacher records, there are significant challenges in working with the data. The S-275 is non-relational and at present cannot be shared or integrated with other key databases. To get at even basic questions about the state's teaching force

---

2002, p. 165). Out-of-field teaching is a concern generally, but especially because beginning teachers in elementary schools are more prone to be teaching out-of-field than experienced teachers. Ingersoll notes that "elementary teachers in poor schools and schools serving predominantly minority student populations are less likely to have a major or minor in the field" (p. 165).

[4] The Office of the Superintendent of Public Instruction (OSPI) estimates a mean error rate of 3.1 percent (OSPI, 2002c), however specific elements unrelated to funding appear to be less carefully reported by some districts.

necessitates the importation of data from other sources, which is not always easy or possible to do.[5]

The research team essentially created a new database using the S-275 and other existing state databases in order to include the demographic, fiscal and student achievement information necessary for desired analyses. The breadth of information provides analytical flexibility not possible with smaller datasets or survey research. For example, multiple years of data on all teachers in the state make possible longitudinal analyses and the ability to assess whether a trend is a recent phenomenon or one that has persisted over time. By merging databases, the team was able to look across several dimensions including teacher characteristics, district fiscal information, region of the state, student demographics and student performance on state assessments in ways that have until now been unexamined.

For these analyses, the research team examined teacher characteristics at state, district and school levels, providing a base from which to begin addressing some key policy issues related to improving the quality of teaching and learning. District-level analysis of the characteristics of the teaching workforce includes all school districts in the state for the 2000-01 year. To illustrate what comparative analysis between and within districts could yield, a sample of ten districts in the state was selected based on factors which might influence the composition of the teaching workforce, namely poverty rate, enrollment size and region of the state. Though these factors are not typically influenced by district or state education policies or policymakers, they represent important conditions that affect how policy plays out and may need to be anticipated in fashioning a fully successful reform strategy. Within the ten-district sample, the research team examined variation in teacher characteristics among individual schools to reveal how the teaching force is distributed across schools serving students with widely varying education needs and circumstances.

Organization of This Report

This report is organized around three central facets of the state's teaching force: the characteristics of the current teaching force, supply and demand, and retention. We introduce each facet by providing background information and recent findings from national studies. Each section then presents what can be learned from available database sources in answer to questions that are

[5] Individual teacher data appear on multiple lines which require complex and cumbersome strategies in order to extract. Because the state's personnel database primarily provides the basis for fiscal tracking, it is also limited in what it contains. It does not include specific grades taught, specific courses taught, the characteristics of students taught by individual teachers or local funding and how it is used. In addition, it would be useful to be able link certification data with personnel data. Unfortunately, certification data are maintained by the state in several repositories, none of which are easily accessible. At present, it is not possible to map teacher endorsements (bilingual, math, science, etc.) with personnel data. While the personnel data are richer in their descriptions of teachers than other administrative datasets, it lacks critical elements that are necessary to better understand teaching quality issues.

commonly asked about the teaching force in the state. We also note important unanswered questions – many of which currently cannot be answered with the kinds of information collected in state databases – and suggest other means for building the right kinds of information. A concluding chapter reflects on what this kind of analysis can yield, and what might be done to capture more fully the import of state-level initiatives on the teaching force and what it is able to do to guide student learning in the state.

WASHINGTON'S CURRENT TEACHER WORKFORCE

What do we know about Washington's teachers that may impact student learning?

Based on proxies such as level of education and certification status, Washington's teachers hold similar qualifications to teachers nationally. Virtually all Washington teachers possess at least a bachelor's degree and slightly over half, 54 percent, hold an advanced degree (master's degree or higher). Teachers who have between 10 and 25 years of experience hold the highest percentage of advanced degrees. Few teachers in Washington hold emergency or conditional certificates.

Understanding Teacher Workforce Characteristics from a National Perspective

Teaching quality can be described as having three distinct yet interrelated aspects: the quality of *teaching*, the quality of the *teaching force*, and the quality of *support for teachers' work*. This conceptual framework assumes that teachers bring a particular set of skills and knowledge to the task, which can translate in the classroom into effective teaching and learning. In this section, teacher quality is examined primarily through the lens of teacher workforce characteristics that are commonly used to assess whether qualified individuals occupy the state's classrooms.

What teachers know and are able to do can make a difference for student learning, but the skills and knowledge that teachers possess are not fixed in time. We expect that teachers will enter the profession with a certain level of proficiency, but also that they will have the capacity to learn and innovate in order to improve their practice. In this regard, two types of teacher knowledge are generally recognized: instructional or pedagogical knowledge (e.g., teaching strategies that enable teachers to respond to students' needs and learning styles), and subject matter knowledge (e.g., expertise in their subject). In this section, we discuss teachers' pedagogical and subject matter knowledge, as well as standards and licensing as policy strategies for influencing teachers' knowledge and skills.

A growing body of research suggests that the effects of well-prepared teachers on student achievement can be stronger than the influences of school or student background factors such as poverty, language and minority status. Several studies (Sanders & Rivers, 1996; Wright, Horn & Sanders, 1997) have found that differences in teacher effectiveness significantly contributed to differences in student learning, and in fact, were a more powerful indicator of student

outcomes than differences in class size or some student characteristics. Sanders and Rivers (1996) also found that students who experience a series of ineffective teachers have significantly lower achievement scores than those assigned highly effective teachers in sequence. For children assigned a series of ineffective teachers, the effect is both cumulative and negative. The factors generally examined with regard to teacher competency and student achievement include such measures as years of experience, level of education, assessments of subject matter and pedagogical knowledge, and certification status.

Advanced degrees and student achievement

Surprisingly little is known about whether teachers holding advanced degrees significantly impact student learning outcomes. A recent National Center for Education Statistics (NCES) study (Lewis et al., 1999) based on data from the Fast Response Survey System found that nearly all teachers held a bachelor's degree and slightly less then half (45 percent) held a master's degree. In a study combining Schools and Staffing Survey (SASS) data, data on student characteristics and student assessments in reading and mathematics administered by the National Assessment of Educational Progress (NAEP), Darling-Hammond (1999) found "teacher quality characteristics such as certification status and degree in the field to be taught significantly and positively correlated with student outcomes. Characteristics such as education level (percentage of teachers with master's degrees) show positive but less strong relationships with education outcomes" (p. 27).

However, other studies have proved less conclusive in documenting the link between advanced degrees and student outcomes.[6] Using advanced degree as a proxy for teacher knowledge is not particularly straightforward because of the possibility that the degree may not have been of sufficient quality or may not correspond to what the person is actually teaching. Indeed, one could raise the question, what is an appropriate master's specialty for an elementary teacher? This may in part explain why some studies do not find a particularly strong relationship between advanced degrees and student achievement.

Subject knowledge and teaching effectiveness

In order to communicate what they know, teachers must have a strong understanding of the subject matter and be able to communicate it in multiple

[6] For example, in a study of tenth grade teachers using data from the National Educational Longitudinal Study (NELS), Goldhaber and Brewer explain, "We found no evidence that a teacher with an advanced degree in a subject other than the one he or she teaches was any more effective than a teacher without an advanced degree. This is striking in that, in most schools systems, teachers receive a substantial bump in salary with an advanced degree, regardless of whether it is in their subject matter or not. However, in two subjects, math and science, subject-specific training for teachers was found to have a statistically significant impact on student test scores" (1998, p. 135; see also Goldhaber & Brewer, 1997).

ways for diverse learners. Effective teachers build on their students' knowledge and skills and connect this with new information (Elmore, 1996; Ball & McDiarmid, 1990). However, the findings are not as consistent and robust as one might suppose.[7] For example, early work based on teachers' scores on the National Teacher Examinations (NTE) revealed minimal relationships between this test and supervisory ratings, pupil ratings and student achievement (Ayers, 1988).

In an effort to study the effects of mathematics and science subject matter preparation of secondary school teachers on students' performance, Monk (1994) used the Longitudinal Survey of American Youth. In this investigation, coursework in the subject field was used as a measure of teachers' content preparation. Results of the study suggest that teacher knowledge of the subject matter has some positive effect on student learning gains.

Of particular interest has been the number of teachers assigned to teach subjects that do not match their training or education. Key findings from the NCES study, *Qualifications of the Teacher Workforce: Prevalence of Out-of-Field Teaching 1987-88 to 1999-2000* (Seastrom et al., 2002), provide evidence of the number of teachers who do not have a major, a minor or certification in the subject taught. Researchers report that "in the middle grades in 1999-2000, some 11 to 14 percent of students taking English, mathematics and science were in classes led by teachers without any of these credentials. In addition, approximately 30 to 40 percent of the middle-grade students in biology/life science, physical science, or ESL/bilingual education classes had a teacher lacking these credentials" (2002, p. 15).[8]

The role of pedagogical knowledge

In some studies, instructional or pedagogical knowledge is more consistently linked to teacher effectiveness than subject matter knowledge, specifically when methods courses are connected to the subject matter content area. Begle (1979)

---

[7] One of the reasons studies may be inconsistent is because different measures are used for what teachers know about their subjects. Sometimes what counts as subject matter knowledge is the number and types of courses taken in the field of study. Another measure often used is the general subject matter test which some states require teachers to pass for certification. Further complicating the matter is that states may allow an equivalent degree in the subject field to be substituted for certification requirements. Consequently state licensure may effectively minimize the effects of differences in teachers' education backgrounds in national studies.

[8] They reported that the high school grades fared somewhat better, with the greatest out-of-field teaching occurring in the subfields of science, noting that "Seventeen percent of students enrolled in physics and 36 percent of those enrolled in geology/earth/space science were in classes led by out-of field teachers. In addition, 31 percent of the high school students enrolled in ESL/bilingual education classes had out-of-field teachers" (p.15). A recent NCES study based on the Fast Response Survey System (Lewis et al, 1999), reported similar findings for out-of-field teaching.

found that in reviewing the National Longitudinal Study of Mathematical Abilities, the number of credits a teacher had in mathematics *methods* courses was a stronger correlate of student performance than was the number of credits in mathematics courses or other indicators of preparation. Monk (1994) also found that education coursework had a positive effect on student learning and was at times more important than additional subject matter courses for student achievement in mathematics and science.

Ferguson and Womack (1993) examined the performance of 266 graduates from a single teacher education program using multiple measures, including education and subject matter coursework, NTE subject matter test scores and GPA in the student's major. They found that the amount of *education* coursework completed explained much more (16.5 percent) of the difference in teacher performance, than content knowledge (NTE scores and GPA in the major) which explained less than four percent. Most hold that successful teachers are able to use a wide variety of teaching strategies in working with students to reach curricular goals. Teachers whose formal preparation includes methods courses that are grounded in the content area may be better able to use different teaching approaches in response to students' needs and encourage deeper conceptual learning.

Teaching experience and professional development

In studies of specific student populations, there is some evidence to suggest that teacher experience plays a role in student achievement. In a study using cross-sectional data from Boston elementary schools, Katzman (1971) found teacher experience (10 or more years) and accreditation to have positive effects on student performance. Likewise, Murnane (1975) in a study of African American inner-city children found "the effectiveness of teachers increases dramatically in the first few years of teaching, reaching a peak in the third to fifth year of teaching. There is no systematic relationship between experience and performance for teachers with more than five years of experience" (p. 78). It is important to note that both of these studies were conducted using data from specific student and teacher populations. Rozenholtz (1985) suggests that possible ceiling effects in teacher effectiveness may be due to the absence of opportunities for professional growth, which in turn may impact teachers' capacities for improvement. There is, however, some evidence to suggest that well-prepared beginning teachers can also be effective (Andrew & Schwab, 1995).

As states across the nation implement learning standards for students and performance-based assessments for teachers, much of the burden of academic success rests on the shoulders of the teacher workforce. The question remains, however, as to whether states have adequately ensured that teachers have the knowledge, skills and resources to realize the intent of the reforms, particularly when the vast majority of teachers have not recently completed a teacher

education program. In this regard, professional development may make a difference in helping teachers to continue to grow professionally and adapt to changes in their educational environment. Several recent studies have found that students benefit when professional development is grounded in content specific pedagogy and linked to the curriculum in which teachers are engaged (Cohen & Hill, 1997). Both the kind and duration of the professional development offered is important for improved instructional practice and student achievement. Others have suggested that it is not only the knowledge acquired that may be significant, but also the teacher's own intellectual engagement and enthusiasm for learning that brings about increased student learning.

Certification status

Certification or licensing provides a gate-keeping function to ensure that teachers enter the profession with a minimal set of skills, knowledge and competencies. Certification and licensure requirements vary widely from state to state. Recent studies of teacher qualifications, including scores on licensure exams, have found some influence on student learning. Ferguson's (1991) study of Texas school districts controlled for student background and district characteristics while examining a variety of teacher characteristics, including scores on a licensing examination, master's degree and experience. This combination of teachers' expertise accounted for more of the inter-district variation in students' reading and math gains than student socioeconomic status. Similarly, Shields and his colleagues (2001) found in California that students from low socio-economic backgrounds are more likely to successfully complete exit exams and graduate from high school if they have fully credentialed teachers.

Goldhaber and Brewer (1997) found that math and science teachers who are fully certificated in their subject areas have a statistically significant and positive impact on student test scores compared to those who are not certified in their subject matter area. These studies suggest that while there are aspects of teacher effectiveness that may be linked to teacher preparation, certification and experience, they do not explain what it is about teachers' work that makes the difference for student learning. Clearly, the quantifiable variables that are used as proxies provide only a rough substitute for the actual skills and knowledge that may matter for student learning.

Basic Teacher Characteristics

Who is in the state's teacher force? How are teachers distributed statewide and in illustrative districts?

Washington's teacher workforce in 2000 was composed of 55,214 classroom teachers. The majority were white (93 percent), had five or more years of experience (75 percent), held a master's degree or higher (54 percent), and were over 40 years of age (64 percent). While statewide statistics tend to minimize variation in the workforce, differences do exist, particularly at the district and school levels.

These teacher characteristics show remarkably little variation by district size. Districts in the Central Puget Sound region (ESD 121) have a lower percentage of teachers with advanced degrees and a slightly higher percentage of teachers in the 21-30 age range than the state average. Eastern Washington districts tend to have slightly more experienced teachers. On average, the highest-poverty districts (76-100 percent of students enrolled in Free and Reduced Price Lunch program) have fewer teachers with advanced degrees and a higher proportion of beginning teachers. A sample of ten districts across the state reveals considerable differences in teacher characteristics by experience, age and advanced degrees.

In recent years, the size of Washington's teacher workforce has generally hovered around 55,000. Teachers, for purposes of this report, are defined as those public school teachers whose primary assignment is the instruction of pupils in classroom situations.[9] To provide a snapshot of Washington's teacher workforce in 2000-01, we examined all classroom teachers in the state using the general characteristics of experience, age and advanced degrees (master's degree or higher). Each of these characteristics will be discussed in greater detail later in this report. As noted earlier, we believe these characteristics should not be used as a proxy for teacher quality, rather they provide information which may help us understand aspects of the teacher workforce. This analysis presents these teacher characteristics by district size, region of the state, and poverty level.

Figure 3 portrays Washington's classroom teachers by district size.[10] These teacher characteristics show remarkably little variation across the district size categories. On average, slightly over half of Washington's teachers hold an advanced degree (master's degree or higher) and more than 75 percent have five or more years of teaching experience. On average, districts with fewer than 1,000 students have slightly older, more experienced teachers and slightly fewer teachers with a master's degree (or higher). Districts with more than 10,000 students have slightly higher percentages of teachers with 0-4 years of experience.

[9] Certificated instructional staff with a duty root designation of 31, 32, or 33 (elementary teacher, secondary teacher, or other classroom teacher) as reported in OSPI's personnel database (S-275).
[10] In Figure 3, size is determined by the average annual FTE student enrollment.

Figure 3: Selected Teacher Characteristics by District Size[1] in 2000						
	Statewide	Districts with 20,000+ Students	Districts with 10,000-19,999 Students	Districts with 5,000 - 9,999 Students	Districts with 1,000-4,999 Students	Districts with fewer than 1,000 Students
# of Districts	296	9	19	25	96	147
Students FTE	941,508	235,533	259,547	172,084	225,726	48,618
# of teachers (headcount)	55,246	13,699	14,634	10,181	13,167	3,565
Education						
% Teachers with Masters+	53.7%	53.1%	51.2%	57.9%	54.6%	51.2%
Experience						
Less than 1 yr	5.8%	6.4%	6.5%	5.2%	4.9%	4.8%
0-4 yrs	24.8%	26.9%	26.4%	23.2%	23.3%	20.7%
5-14 yrs	34.5%	33.7%	33.2%	36.1%	35.6%	34.2%
15-24 yrs	25.5%	24.3%	25.9%	25.4%	25.8%	28.4%
25 yrs or more	15.1%	15.1%	14.5%	15.3%	15.2%	16.6%
Age						
21-30	13.2%	13.2%	15.0%	12.4%	12.6%	9.7%
31-40	22.8%	22.5%	22.8%	23.2%	23.5%	20.9%
41-50	30.4%	28.6%	30.2%	31.7%	30.9%	33.1%
51-60	30.6%	32.2%	29.0%	30.2%	30.4%	33.0%
61+	3.0%	3.6%	3.0%	2.5%	2.5%	3.3%
1 - District size is based on the average annual FTE students.						

In an effort to examine regional differences, Figure 4 represents all teachers in the state within their respective Educational Service Districts (ESD). The Central Puget Sound region is represented by ESD 121. For purposes of this study, the districts in Western Washington outside of the Puget Sound ESD 121 are represented as a group. Eastern Washington is represented by the four ESDs which roughly correspond to the eastern side of the state.

Figure 4: Selected Teacher Characteristics by Region[1] in 2000				
	Statewide	Central Puget Sound (ESD 121)	Western WA without Puget Sound (ESD 121)	Eastern Washington
# of Districts	296	35	125	136
Student FTE	941,508	359,832	352,765	228,911
# of teachers (headcount)	55,246	20,857	20,412	13,977
Education				
% Teachers with Masters+	53.7%	50.4%	55.1%	56.7%
Experience				
Less than 1 yr	5.8%	6.9%	5.4%	4.6%
0-4 yrs	24.8%	28.2%	23.7%	21.5%
5-14 yrs	34.5%	34.1%	34.8%	34.6%
15-24 yrs	25.5%	23.2%	26.5%	27.7%
25 yrs or more	15.1%	14.5%	15.0%	16.2%
Age				
21-30	13.2%	15.6%	12.0%	11.2%
31-40	22.8%	22.9%	22.8%	22.7%
41-50	30.4%	27.6%	31.7%	32.8%
51-60	30.6%	30.5%	31.0%	30.1%
61+	3.0%	3.3%	2.4%	3.2%
1 - Region as represented by Educational Service Districts. Puget Sound Region is represented by ESD 121. Western Washington (not including ESD 121) is represented by ESDs 112, 113, 114 and 189. Eastern Washington as represented by ESDs 101, 105, 123 and 171.				

The Central Puget Sound region has the lowest percentage of teachers with advanced degrees (master's degree or higher). Central Puget Sound also appears to have slightly less experienced teachers in the first four years and slightly more teachers in the 21-30 age range. In Western Washington districts outside of the Central Puget Sound, and Eastern Washington districts, there are small variations by level of experience and age. Eastern Washington districts tend to have slightly more experienced teachers.

Finally, we examined teacher characteristics among districts that serve different proportions of students enrolled in the Free and Reduced Price Lunch program (see Figure 5). While an imperfect measure, the percent of student enrollment in the Free and Reduced Price Lunch program provides a rough indicator of the comparative level of student poverty in the district. The majority of high poverty districts in Washington state are small and rural. Roughly a quarter of the state's districts in 2000 had 50 percent or more of their children enrolled in Free and Reduced Price Lunch programs. These districts represent thirteen percent of the state's children. What is not shown in this chart is the size and nature of these districts (urban, suburban and rural). Only one large urban district, Tacoma, is among the districts with 50 percent or higher Free and Reduced Price Lunch figures.[11]

Figure 5: Selected Teacher Characteristics by District Free and Reduced Priced Lunch Percentages in 2000

State average = 31.2%	Statewide	0-25% Free/Reduced	26-50% Free/Reduced	51-75% Free/Reduced	76-100% Free/Reduced
# of Districts	296	87	133	56	20
Student FTE	941,508	382,281	437,273	108,632	13,322
# of teachers (headcount)	55,246	22,062	25,526	6,779	879
Education					
% Teachers with Masters+	53.7%	54.8%	54.8%	47.7%	41.4%
Experience					
Less than 1 yr	5.8%	5.7%	5.6%	6.1%	8.8%
0-4 yrs	24.8%	24.8%	24.4%	25.7%	32.8%
5-14 yrs	34.5%	34.3%	34.6%	34.8%	33.7%
15-24 yrs	25.5%	26.0%	25.8%	23.7%	23.1%
25 yrs or more	15.1%	14.9%	15.3%	15.8%	10.5%
Age					
21-30	13.2%	13.4%	12.8%	13.1%	17.7%
31-40	22.8%	23.0%	22.7%	22.6%	24.2%
41-50	30.4%	31.1%	30.3%	29.0%	29.0%
51-60	30.6%	30.0%	31.1%	31.4%	25.5%
61+	3.0%	2.5%	3.1%	4.0%	3.5%

[11] Representing statewide statistics in this way masks variation within districts and among schools. For example, individual schools within a district may serve a significant number of students in poverty which is not reflected in the district average Free and Reduced Price Lunch statistic.

On average, districts in the highest poverty category (76-100 percent) appear to have fewer teachers with advanced degrees (41.4 percent compared to the state average of 53.7 percent) and a higher proportion of beginning teachers (8.8 percent with less than one year of experience as compared to the state average of 5.8 percent). The percentage of experienced teachers in these high poverty districts tend to decline after the first four years as compared to the state average, dropping off most sharply after 25 or more years of experience. The districts in the highest poverty category also have a higher percentage of teachers in the 21-30 age range (17.7 percent compared to the state average of 13.2 percent).

This analysis of the distribution of the teacher workforce based on level of education, experience and age reveals little variation either by district size or region of the state. Along the characteristic of student poverty, we found some differences which will be discussed in greater detail in the final section of this report. While it is useful to understand statewide conditions, a statewide analysis may mask important differences in the teacher workforce. Differences in teacher characteristics in Washington state appear primarily in schools within districts and between districts within regions. It is likely that Washington is similar to other states such as New York in terms of within district variation or differences among districts in the same region (Lankford, Loeb & Wyckoff, 2002).

A closer look at ten Washington districts

Upon closer examination of the available data, one can conclude that state-level analyses mask differences in teacher and student characteristics at the district-level. The district is the provider for the local labor pool, and as such is more closely linked to the composition of teachers working in individual schools than the state. In order to further examine these differences in teacher characteristics, ten sample districts were selected which reflect variation by district size, ethnic makeup of the student population and region of the state. Figure 6 provides an overview of teacher, student and district characteristics in the ten sample districts. The sample does not attempt to be statistically representative of all districts across the state; rather districts were chosen based on factors which might influence the composition of the teacher workforce, namely, enrollment size, poverty rate and region of the state. The districts reflect a wide variation in socio-economic, regional and ethnic differences.

Figure 6: Ten Sample Districts in 2000-01										
	General Characteristics				Education	Teacher Experience				
	Number of Schools	Number of Teachers (FTE)	Number of students (FTE)	% Free/ Reduced Lunch	% Masters degree or higher	% Less than 1 year	% 0-4 years	% 5-14 years	% 15-24 years	% 25 years +
WA STATE	*2,144*	*50,734.6*	*942,323*	*31.2*	*53.7*	*5.7*	*23.2*	*35.0*	*25.9*	*15.9*
ABERDEEN	10	215.8	3,685	51.7	46.6	8.1	23.8	43.0	17.5	15.7
BELLEVUE	30	801.6	14,754	14.2	49.4	12.0	37.3	30.5	19.5	12.7
EVERETT	25	868.9	17,313	23.3	42.3	6.5	23.9	34.1	27.7	14.3
OMAK	5	108.1	1,983	46.8	51.6	0.8	9.5	32.5	36.5	21.5
PASCO	13	475.0	8,139	60.4	61.3	8.2	28.5	39.2	19.9	12.4
PORTANGELES	11	260.0	4,587	28.0	50.0	4.0	14.3	36.0	28.7	21.0
SPOKANE	50	1691.0	30,036	43.9	62.8	3.9	19.0	34.1	30.3	16.6
TACOMA	53	1795.9	30,659	50.5	42.1	4.9	22.9	34.7	23.4	19.0
TUKWILA	5	134.7	2,416	58.2	45.9	16.9	43.2	30.4	12.9	13.6
YAKIMA	22	737.6	13,136	52.6	47.9	6.7	19.1	31.6	25.6	23.7

The sample consists of districts from all but one of the nine Educational Service Districts (ESDs). Of the ten districts, four are located in Eastern Washington, three are situated within the Central Puget Sound (as represented by ESD 121) and three are located in Western Washington outside of the Central Puget Sound. The districts are situated in urban, suburban, and rural communities and range in size from slightly under 2,000 FTE students to over 30,000. The percentage of students of color in six of the ten districts exceeded the 2000-01 state average. In addition, in five of the ten districts, 50 percent or more of the students received Free or Reduced Price Lunch. Seven of the ten districts received Local Effort Assistance (LEA) in 2000-01 and the assessed property valuation per pupil varied significantly among the ten districts. For more information on how these districts differed based on fiscal factors, WASL scores and other information, see Appendix C.

Teacher characteristics such as the percentage of teachers holding an advanced degree (master's degree or higher) reveal considerable differences across the ten district sample. For example in 2000-01, more than 60 percent of teachers in Spokane and Pasco held an advanced degree with 62.8 percent and 61.3 percent respectively. This is considerably above the state average of 53.7 percent. Of teachers in Tacoma and Everett, 42.1 percent and 42.3 percent, respectively, held advanced degrees.

When examining the experience levels of novice teachers among the ten districts, Tukwila and Bellevue had higher percentages of teachers with less than five years of experience with 43.2 percent and 37.3 percent (the state average is 23.2 percent). Omak and Port Angeles had fewer novice teachers than the state average, with 9.5 percent in Omak and 14.3 percent in Port Angeles. Among the ten district sample, the districts with the highest percentage of teachers with 25 or more years of experience were Yakima and Omak with 23.7 percent and 21.5

percent respectively (the state average is 15.9 percent). Tukwila and Bellevue have the lowest percentage of teachers with 25 or more years of experience in the 10 district sample with 13.6 percent of teachers in Tukwila, and 12.7 percent in Bellevue.

Professional Standards

How is Washington state setting standards for the teaching profession?

Washington has taken a series of steps to ensure adequate standards for the teaching profession. These include changes in the teacher certification system, a new policy for alternative routes to certification programs, aligning teacher preparation with student learning standards, and providing some incentive for advanced certification through the National Board for Professional Teaching Standards (NBPTS). The Washington state legislature also created the Professional Educator Standards Board to advise and make recommendations to the state regarding these issues.

Washington's evolving strategy for ensuring that teachers have the knowledge and skills needed to help students meet state academic standards includes a series of actions started in the latter part of the 1990s. These actions include aligning the teacher preparation system with the student learning standards, piloting and establishing a new tiered certification system, setting a policy on alternative routes, taking steps toward teacher assessments, and providing some incentive for advanced certification through the National Board for Professional Teaching Standards (NBPTS). The State Board of Education started the ball rolling in 1997 by establishing a performance-based teacher preparation and certification system (Washington State Board of Education, 2002). Under this new system (which went into effect in August 2000), the State Board specifically asks for an accounting from schools of teacher education as to how the skills and knowledge of their graduates are tied to the state's Essential Academic Learning Requirements (EALRs) – that is, how pre-service teachers show or represent these standards in their teaching. This type of performance-based assessment highlights the growing link between student and teacher standards. The expectation is that, within several years of being established, all of the state's 22 teacher education programs will meet these new program approval standards.

In 2000 the Washington state legislature created the Professional Educator Standards Board to advise and provide recommendations to the State Board on a variety of issues affecting education professionals such as preparation, certification, mentoring, professional growth and the new skills and subject

matter assessments required of pre-service teachers prior to certification. In addition to new standards for teacher education programs, Washington state also initiated changes in the teacher certification system. The new system set up two levels of certification – "Residency" for initial certification upon completion of an approved teacher education program, and "Professional" certification, after several years of working experience and further evidence of teaching competency – each aimed at demonstrating more fully teachers' effectiveness in the classroom (Washington State Board of Education, 2002; Harding, et al, 1999). A third level of "Career" certification, corresponding to the standards for accomplished teaching practice set up by the National Board for Professional Teaching Standards, was also identified, but so far has not been made operational (though the state has begun to encourage teachers to consider the National Board certification process). Instead, the state has focused on issues related to its first two certification levels and subject-area endorsements.

Recently the state established a policy on "alternative route" programs. This policy is meant to enable individuals to enter teaching who would be unlikely (or unwilling) to go through a conventional teacher preparation program (PESB, 2000). Alternative route programs are offered through several of the state's existing teacher education institutions (in partnership with districts and ESDs), and in this regard, are different from many other states in that Washington holds these teachers to the same standards as those in traditional preparation programs. In 2003 Washington concludes the first year of implementing new alternative routes to teacher certification. Alongside these activities, efforts related to the assessment of teachers' knowledge of basic skills, subject matter, and teaching skills are underway. The Professional Educators Standards Board is pursuing options to extend the reach of alternative route teacher preparation programs to meet specific regional teaching shortage area needs by creating regional teacher preparation consortia programs. In this way the state could potentially increase the number of locally prepared teachers to meet regional shortage areas and encourage performance based programs.

Washington recognized the need for continuing education of educators, and long before the Education Reform Act (HB1209), addressed this in several ways. For example, teachers have been required to acquire 150 clock hours of continuing education every five years to maintain their teaching licenses in good standing (Harding, et al., 1999). Furthermore, by moving up on the salary schedule by acquiring additional graduate credits, teachers have an incentive to become better educated. In addition, the Teacher Assistance Program begun in 1985 supports new teachers' induction in their first year. These priorities were accompanied by some investments in teacher professional learning focused on implementing standards and assessments.

That said, the shortcomings of these provisions have also been long known, and they are brought into sharper relief by the HB 1209 reform. Put simply, the continuing education system treats virtually anything as suitable "continuing education" for teachers, as the number of approved providers is vast and highly varied. Continuing graduate education, as well, can cover a multitude of educational experiences, some related directly to teaching but many not. In short, these "investments" in professional learning often have little to do with the purposes of the state's educational reform or specific learning needs of teachers.

Washington state is in a position to send strong messages about what "good teaching" is and what it requires. Starting with its long established role in teacher licensure and its responsibility for overseeing teacher preparation, the state can provide leadership in forging professional and public consensus around the attributes that teachers should acquire to enter the profession. In establishing standards for student learning and the means for assessing performance in relation to them, the state provides a natural reference point for putting forward conceptions of good teaching.

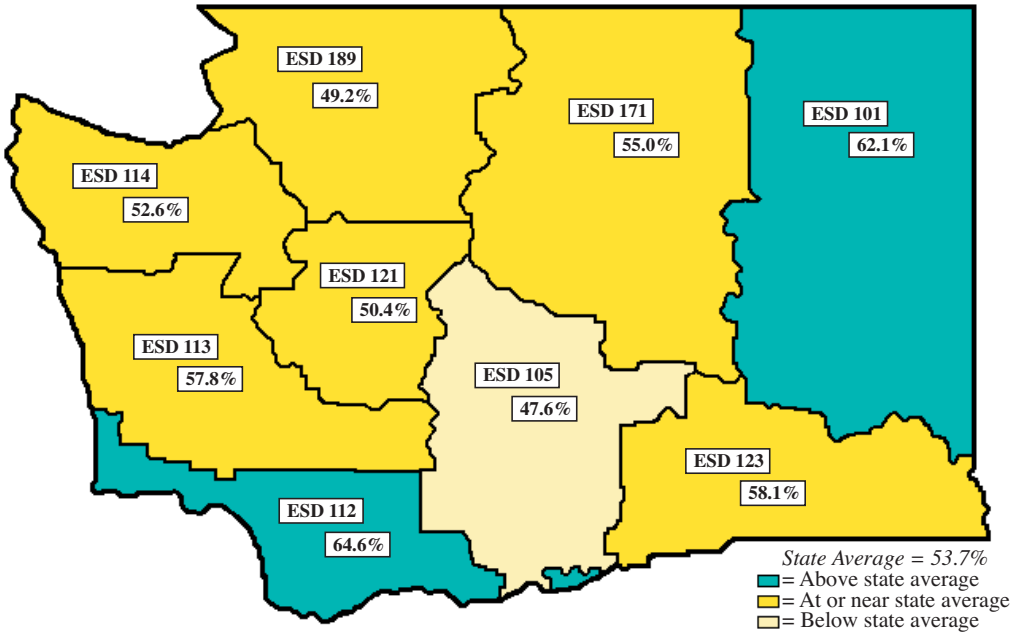
Education Levels of Washington's Teachers

What levels of formal education have Washington's teachers attained? When in their careers do they attain them?

Slightly over half (53.7 percent) of Washington's teachers hold an advanced degree (master's degree or higher). Roughly 30 percent of beginning teachers (less than one year of experience) hold an advanced degree, while teachers with between 5 and 25 years of experience hold the highest percentage of advanced degrees.

Washington's teachers possess college degrees and have education levels similar to the national average. Virtually all teachers possess at least a bachelor's degree and most have taken some college work beyond a B.A. or B.S. In 2000, on average, slightly over half (53.7 percent) of Washington's classroom teachers held an advanced degree (master's degree or higher). That number increased slightly from 49.9 percent in 1996. Regionally, some areas of the state have higher percentages of teachers with advanced degrees. Figure 7 provides a regional representation of the percentage of teachers with advanced degrees in each of the state's nine Educational Service Districts (ESD).

Figure 7: Teachers with Advanced Degrees by ESD in 2000



The distribution of teachers with advanced degrees across the state may reveal some surprises. Figure 7 shows that teachers in the southwestern (ESD 112) and northeastern (ESD 101) corners of the state have, on average, the highest percentage of teachers with advanced degrees, with 64.6 percent and 62.1 percent, respectively. The south-central portion of the state (ESD 105) has the lowest percentage of teachers with advanced degrees (47.6 percent). The most urban area of the state (ESD 121) on average has a lower percentage of teachers with advanced degrees than the state average.

There are several possible explanations for this phenomenon. Southwestern Washington, as represented by ESD 112, is served by a number of teacher education institutions including Washington State University's branch campus in Vancouver and a variety of teacher preparation institutions in nearby Portland, Oregon. ESD 101 encompasses an area with four major teacher education institutions (Eastern Washington University, Gonzaga University, Washington State University, and Whitworth College). Together these four institutions produced 839[12] pre-service teachers who received first-issue (or residency) certificates issued in 2000-01, which accounts for 31.5 percent of all first-issue certificates issued to pre-service candidates from Washington institutions. All four of these institutions offer master's degree programs. In addition, within

[12] For Washington State University's statistics, it is unclear how many of the pre-service teachers completed the teacher education program in Pullman or one its branch campuses.

these two regions access to public or private institutions may be much more amenable.

While the majority of educational institutions in the state are located in the Central Puget Sound, barriers may exist in accessing educational facilities, due to transportation and other factors. Time and energy required to access these institutions may be considerable. The central portion of the state, particularly ESD 105, tends to be rural and has fewer education resources available for pre-service and continuing education. In remote areas, access to appropriate educational programs is limited.

When do Washington teachers acquire advanced degrees?

With an increasing number of pre-service teachers graduating from programs offering a Master's in Teaching (MIT)[13], one might expect that more teachers would be entering the profession with an advanced degree. Figure 8 provides information on the level of teaching experience and the number of teachers with advanced degrees for two points in time. Roughly 30 percent of beginning teachers (less than one year of experience) hold an advanced degree. That number has decreased slightly from 1996 when 32.1 percent of beginning teachers held a Master's degree (or higher). The number of teachers with advanced degrees increases significantly for teachers with five to nine years of experience with over half holding an advanced degree. As might be expected, teachers with between 10 and 25 years of experience hold the highest percentage of advanced degrees.

Figure 8: Teachers with Advanced Degrees by Experience in 1996 and 2000

	1996		2000	
Years Experience	Total # Teachers with Masters+	Percent of Total Teachers with Masters+	Total # Teachers with Masters+	Percent of Total Teachers with Masters+
0 to 1	498	32.1%	891	29.4%
0 to 2	1,778	29.2%	2429	31.2%
0 to 4	3,600	33.8%	4572	35.7%
5 to 9	5,255	50.8%	5908	57.0%
10 to 14	4,557	54.0%	5411	60.4%
15 to 19	4579	57.5%	4369	60.2%
20 to 24	4,267	55.7%	4354	61.8%
25 to 29	2,921	51.6%	3531	58.1%
30 +	1,144	54.9%	1499	55.8%

[13] Sixteen institutions offer masters-level programs in 2003. In 2001-02, 13 of the 22 teacher preparation programs in Washington offered Master's in Teaching programs. In 1997-98, 9 of 22 teacher preparation programs in the state were post-baccalaureate or master's degree only.

While nearly all of Washington's teachers are fully certified, and slightly over half hold an advanced degree, we do not know how many have a major or a minor in the field in which they are teaching or if they are assigned to the appropriate grade level. These are among the questions that remain to be answered regarding the qualifications of Washington's teacher workforce.

Unanswered Questions about Washington's Current Teacher Workforce

In this overview we have discussed a number of characteristics and trends in the teacher workforce, both nationally and in Washington state. Unfortunately, we still do not have an adequate handle on basic facts concerning the state's teaching force, specifically at the district and school level. For example, teachers who received continuing certificates prior to 1987 are able to teach any subject at any level. Consequently it is difficult to know the nature of the teachers' assignments by subject matter or how many teachers are teaching out-of-field. Clearly we need to go beyond existing state data with an eye toward analyses that help us better understand the factors that support and enhance the quality of teaching. For example, questions we would like to be able to answer include:

- To what extent are teachers adequately prepared to teach the subjects and students assigned to them?
- What kinds of professional development opportunities are available for teachers to improve their knowledge and skills?
- What role does certification play in providing teachers with adequate knowledge and skills to teach in a standards-based environment?

Answering these questions will require additional and different types of data collection and analytic strategies. One strategy is to conduct additional work with existing state databases, either in their current form, or as they might be improved and expanded to allow for more dynamic and relational features. With respect to the design of new data collection efforts, the research team is currently in the process of designing some additional methods for gathering information, including a "fast response survey system" (involving a standing sample of teachers who agree to quickly respond to a number of surveys conducted over time), an extended survey, and some individual case studies. Figure 9 displays strategies that might be employed to address areas of inquiry regarding Washington's current teacher workforce.

Figure 9: Types of Analyses and Methods of Investigation					
Areas of Inquiry	Current State Databases	Improved and Expanded State Databases	Fast Response Survey System	Extended Survey	Case Studies
Current Teacher Workforce					
Assignment by Subject Matter		X	X	X	X
Professional Development		X	X	X	X
Certification		X	X	X	X

TEACHER SUPPLY AND DEMAND

Do we have enough teachers to meet the state's needs?

Based on what we can know, the overall available teacher workforce statewide currently has enough teachers to fill most positions. However, the state may experience shortages in certain subject matter areas, and in particular regions of the state.

Unfortunately, we do not know definitively where these shortages exist based on current reporting or analysis. Issues of supply and demand are quite complex and need to be understood in light of student enrollment, projected teacher retirement, and other constantly changing factors.

Understanding Supply and Demand from a National Perspective

In this section, we examine some of the indicators used to assess the status of the teacher workforce in terms of supply and demand. This issue is particularly complex because multiple factors must be considered in examining workforce demands and constraints and in attempting to predict future labor force needs. Two indicators frequently used in these assessments include changes in student enrollment and projected teacher retirements. Student enrollment drives the funding formulas for most districts and schools and these numbers are subject to fluctuation due to shifts in the population. Among other factors, rates of teacher retirement vary depending on years of service, state retirement laws and benefit plans.

The supply of available teachers is sensitive both to policy and economics. For example, the supply of qualified teachers may be impacted by changes made in the state's teacher certification requirements or a downturn in the state's economy. Districts can also impact supply and demand through a variety of strategies such as incentives to retain experienced teachers beyond their typical retirement years or to offer additional compensation to increase teacher retention. A striking example of a policy which can indirectly impact supply and demand for teachers can be found in recent class-size reduction initiatives such as in California.[14] Labor markets are also influenced by particular localized conditions (e.g., regional cost of living differences) and consequently supply and demand is likely to vary by local community. Also, states and localities may experience shortages of teachers in particular geographic areas.

[14] Note the unintended consequences of some state policies in exacerbating supply and demand problems such as California's class size reduction policy. In the short term, the policy resulted in less qualified teachers (as measured by certification status, experience and degree level) and impacted the distribution of teacher quality across communities (Imazeki, 2003).

Additionally, schools and districts may deliberately seek changes in staffing in order to align the skills and expertise of their faculty with their local priorities and needs. In doing so, they are often strategic about staffing changes, seeking to balance veteran teachers with new teachers in order to provide continuity and support. However, most would acknowledge that a high turnover of school staff can stifle or destabilize school improvement efforts (Bryk, Lee & Smith, 1990; Huberman & Miles, 1984).

To complicate matters, educators and policy makers are not always consistent in the way in which they represent the available teacher workforce. Statistics on teacher turnover may vary depending on whether teachers are reported as transferring from one school to another within the same district, moving to another district or out of state, or exiting the profession. How these statistics are reported have very different policy implications. For example, a teacher who transfers from one district to another is not lost from the state's overall workforce. However there is an impact on the individual district and school regardless of where the departing teacher goes, for that teacher will likely have to be replaced.

Identifying teacher shortages is not necessarily an easy matter. How districts choose to report vacancies and the various ways in which schools and districts can choose to fill them also influence how the numbers are reported. A significant omission is often the number of educators who return to the profession at a later date. Teaching often provides flexibility for teachers to leave the workforce for a few years and later return, creating a potential pool of candidates (Murnane, Singer & Willett, 1988). In Washington state, the number of re-entering teachers in 2000 is estimated to be at least three percent of the teacher workforce, but incomplete reporting by some districts permits only an estimate (this was prior to the retire-rehire laws, which went into effect in 2001-02).[15]

The National Association of State Boards of Education reports that teacher supply and demand is "not strictly an overall numbers game" (NASBE, 1998, p. 5). In fact, states may be preparing an adequate number of teachers to meet their needs. In recent years the sources of teacher supply have expanded from traditional undergraduate teacher education programs to include graduate level programs and alternative routes to certification. However, nationally over the next decade the number of teachers expected to retire will increase along with increasing student enrollment (Hussar, 1999). Broadly speaking, more teachers will be needed in coming years to meet the demographic challenge of growing

[15] Neil Theobald (1990) reported similar findings regarding the Washington teacher workforce in the 1980s.

student numbers and aging teachers. Consequently multiple measures are needed to assess the status of the teacher workforce.

This discussion points to the complexity of supply and demand issues due to the dynamic nature of the workforce environment and multiple influences. Without a doubt, some forces such as demographic and population shifts are not under the purview of state or district education policy. Consequently states and districts not only need to craft policies that enable them to move in desired directions, but they must also respond to the external forces over which they may have very little control.

National studies of the teacher workforce

Several studies conducted by the National Center for Education Statistics (NCES) provide relevant background information regarding national trends in the teacher workforce in the last decade. Using the Schools and Staffing Survey (SASS) and its supplement, the Teacher Follow up Survey (TFS) researchers have followed issues of teacher retention and turnover. None of the studies have pointed to widespread national teacher shortages, however, they have found issues of particular concern related to staffing in schools. Summer D. Whitener and her colleagues (1997) reported relatively low attrition in their study, *Characteristics of Stayers, Movers and Leavers: Results of the Followup Survey: 1994-95*. Between the school years 1993-94 and 1994-95, they found that the rate of attrition from the teaching profession was 6.6 percent in public schools and varied by teacher's age, with youngest and oldest teachers leaving at higher rates. The main reasons cited by public school teachers for leaving the workforce included retirement (27.4 percent) and pregnancy/child rearing (14.3 percent).

Another NCES study, *America's Teachers: Profile of the Profession*, reports that "the vast majority of the nation's teachers are experienced teachers who continue to teach from year to year. In 1993-94, 93 percent of teachers had taught during the previous year and were continuing to teach either in the same school or in a different school" (Henke, et al., 1997, p. 95). This study also found that "on average, less than one percent of teaching positions were vacant or temporarily filled by a substitute teacher because suitable candidates could not be found, and virtually no position was withdrawn because suitable candidates could not be found" (p. 100). However, they did point out that "during this period, it was more difficult for schools to find fully qualified teachers in some fields than in others, indicating that teachers in these fields may have been in shorter supply" (p. 99). They also note that schools serving larger proportions of students in poverty had more difficulty finding qualified teachers to fill positions.

Richard M. Ingersoll (2001a, 2001b) sought to address issues of school level retention in his research by focusing on the specific characteristics of schools.

Using SASS data from three survey cycles (1990-91, 1993-94, 1999-2000), Ingersoll examines teacher turnover as a function of the organization and management of schools and concludes that many teachers leave for reasons other than retirement. He does not conclude that teacher shortages are the result of a lack of qualified teachers but rather the result of teachers moving from one school to another (7.2 percent) or exiting the profession to pursue other jobs (six percent), thereby creating a situation which he calls a "revolving door" (2001a, p. 24).

Despite the importance of these older studies in understanding national trends, SASS data collected in the most recent cycle (SASS, 1999-2000, and TFS, 2000-01) may provide insight into current developments. Older studies cannot take into account recent changes in education policy, such as the potential impact of high stakes testing on the teaching workforce. For example, demands for increased accountability over the last five years may result in job dissatisfaction and a higher rate of turnover (Tye & O'Brien, 2002). While national trends are important to follow, individual states and communities may find themselves facing a somewhat different set of circumstances. Additionally, individual state and local conditions may be highly variable with respect to issues that impact teacher supply and demand. In the next section, we consider the case of Washington state and explore some of the indicators of supply and demand.

Teacher Shortage

Is there evidence of a current or coming shortage?

When student enrollment increases, retirements, and new graduates from teacher education programs are considered, the teacher workforce theoretically has enough teachers to meet the state's current needs. But that is not to say that all regions of the state and all subject matter areas necessarily have or will have an adequate supply of teachers.

Statewide student enrollment, while projected to increase slightly in the next decade, should not significantly impact the workforce. The number of teachers eligible to retire will increase as the wave of baby boomers retire, but there is also a sizable experienced group of educators in subsequent years to take their place. Roughly one-fifth of Washington's beginning teachers are over 40, potentially impacting the workforce dynamic, if the trend continues. Very few teachers in recent years were issued emergency or conditional certificates, providing another indicator that perhaps districts were able to find qualified persons to fill most teaching positions.

The truth about supply and demand is much more complex than the headlines make it appear. Washington state will certainly need more teachers in the next

decade and student enrollments will continue to increase. The issue is complex not only because of fluctuations in the student population and rates of teacher retirement, but also as a result of state and local policies which may impact the workforce.

In an effort to garner information about these issues, the Office of the Superintendent of Public Instruction (OSPI) along with the Washington School Personnel Association and the American Association for Employment in Education (AAEE) collaborated on a study of educator supply and demand in Washington state in 2000 (OSPI, 2002d). The survey, conducted in 2000 with a follow up in 2002, attempts to provide information on the availability of teacher candidates to fill openings of various kinds, the number of eligible retirees within a district, and the perceptions of administrators with regard to the difficulty of filling positions in the 2001-02 year.

The study confirms anecdotal reports regarding shortages in particular subject matter areas such as special education, mathematics and physics. While offering information on the number of vacant positions and administrators' perceptions of supply compared to demand, the report prompts some questions. For example, while the survey had a relatively high rate of return (with 255 districts out of 296 reporting) it isn't clear which districts did not respond to the survey. Consequently, a large district which was not included in the study could potentially skew county or state figures and there was no indication that statistical weighing was done to mitigate these disparities. Information in the report is based to some extent on administrators' perceptions of the difficulty they encountered in filling positions. These ratings of relative difficulty are somewhat subjective and may vary significantly depending on who completes the survey. Finally, this study does not include student enrollment projections or teacher preparation program capacities.

Given that this report contains the only statewide data collection effort regarding supply and demand, information is currently quite limited. In an initial effort to develop a baseline understanding of issues related to teacher supply and demand, we now turn our attention to trends in student enrollment and demographics, as well as the age, experience, certification and ethnicity of Washington's teachers.

Student Enrollment

State funding for school districts is based on student enrollments and apportionment formulas which are designed to assist with an equitable distribution of funds. The state funding formulas essentially provide varying student/staff ratios at different grades and outline the options available to districts in making staffing decisions. Clearly, as student enrollments increase,

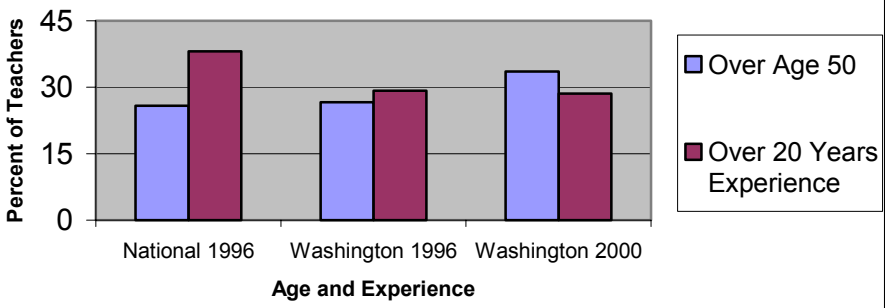
more staff may be needed, and conversely, as the numbers decline, staff may need to be reassigned or terminated.

While student enrollment continued to increase in Washington in the 1990s, an examination of yearly growth shows that the rate slowed considerably toward the end of the decade. The average percent change in student enrollments from 1991-92 to 1995-96 in Washington state was 2.64 percent. During the five year period from 1996-97 to 2000-01, the average percent change in student enrollment was only 0.992 percent (OSPI, 2002b). Nationwide, the National Center for Education Statistics (NCES) projects that for the period 2000-01 to 2011-12, public and private elementary and secondary enrollment will increase by only one percent. Washington and Oregon K-12 enrollments are projected to increase less than five percent during the current decade (Hussar & Gerald, 2002). While these are at best projections, unless circumstances dramatically change it does not appear that the state will experience huge increases in student numbers. Except for possible declining student-teacher ratios as a result of class-size reduction or other policy measures, the gross numbers of teachers in the workforce will need to grow only slightly when based solely on increasing student enrollment.

Teacher Retirement: A Look at Age and Experience

Of some concern nationally has been a rise in the number of teachers reaching retirement age. A NCES survey concluded that of the teachers who left public schools in 1993-94, 27 percent did so for reasons of retirement (Hussar, 1999). Of those who chose to retire, 53 percent were in their fifties, while over 90 percent of the teachers who left teaching in their sixties did so to retire. Nationally in 1996, the percentage of teachers who were over the age of 50 was 25.8 percent (see Figure 10).[16] Similarly in Washington state, the number of teachers over age 50 was 26.6 percent. By 2000, that number had risen to 33.6 percent in Washington.

Figure 10: Teacher Experience and Age Trends



[16] National data source: American Federation of Teachers (1998), "Survey and Analysis of Teacher Salary Trends."

Age constitutes only one factor in a teacher's retirement decision. Among other things, the number of years of teaching experience and placement on the salary schedule may influence a decision to consider retirement. Nationally in 1996, 38.1 percent of teachers had over 20 years of experience (see Figure 10). In Washington state, 28.2 percent had 20 or more years of experience in 1996. Five years later, 27.7 percent of Washington's teaching force had 20 or more years of experience.

Taken together, age and experience can provide helpful information when considering issues of retirement. When analyzing statistics that estimate how many teachers are nearing retirement age, we find that in 2000, 3.4 percent of teachers were both age 55 and older and had 30 or more years of experience. Teachers can retire if they are 55 and have 30 or more years of experience. Trends are similar for both Eastern and Western Washington teachers. Figure 11 provides additional information on teacher age across age ranges in 1996 and 2000. For more detailed information on teacher age, see Appendix D.

Figure 11: Washington Teachers by Age in 1996 and 2000

	1996		2000	
Age Range	Number of Teachers	Percent	Number of Teachers	Percent
21-30	6,438	12.2%	7,272	13.2%
31-40	11,715	22.2%	12,612	22.8%
41-50	20,622	39.1%	16,814	30.4%
51-60	12,763	24.2%	16,909	30.6%
61+	1,264	2.4%	1,639	3.0%

A look at statewide statistics in Figure 12 also reveals that the percent of teachers with fewer than five years of experience has increased by three percent from 1996 to 2000. However, 75.2 percent of teachers had been in the classroom for five years or more years in 2000. For more information regarding teacher experience, see Appendices E and F.

Figure 12: Washington Teachers by Experience Levels in 1996 and 2000				
Years Teaching Experience	1996		2000	
	Number of Teachers	Percent	Number of Teachers	Percent
0-4 years	11,489	21.8%	13,712	24.8%
5-9 years	10,237	19.4%	10,282	18.6%
10-14 years	8,274	15.7%	8,767	15.9%
15-19 years	7,897	15.0%	7,165	13.0%
20-24 years	7,552	14.3%	6,943	12.6%
25-29 years	5,410	10.2%	5,871	10.6%
30 or more	1,933	3.7%	2,472	4.5%

In our examination of differences among districts, it appears that an aging teacher workforce may be of greater concern for some districts than others. For example in districts of over 100 teachers, only six are considerably higher than the state average for teachers over 55 years of age (see Figure 13).

Figure 13: Districts* with Highest Percentage of Teachers over Age 55 in 2000				
		Total # Teachers	# Teachers over 55	% Teachers over 55
Washington State		*55,246*	*9,037*	*16.4*
SEATTLE	King	2692	647	24.0
PULLMAN	Whitman	137	32	23.4
MEDICAL LAKE	Spokane	129	30	23.3
OLYMPIA	Thurston	558	127	22.8
VASHON ISLAND	King	113	26	23.0
HIGHLINE	King	918	203	22.1
* Districts over 100 teachers in 2000				

Age and Beginning Teachers

Teaching tends to be a profession that loses a number of its newly trained educators early in their careers. However, recent findings suggest that a significant number of beginning teachers are entering the profession at an older age and these older teachers may be more likely to stay than those entering at a younger age. Nationally, researchers using SASS survey data for 1993-94 report that "a majority (61 percent) of first-time public school teachers were 30 or under, but there was still a large number that were older (17 percent of first time teachers were 40 or older)" (Hussar, 1999, p. 6). In a four state study of teacher turnover and teacher quality, Theobald and Laine (2003) found that teachers who are 31 or older when they enter the profession and those with graduate degrees "are significantly less likely to depart" from a district (p. 38).

Washington also has a significant number of beginning teachers who are entering the workforce at a later age. In 2000, nearly one-fifth of teachers with less than one year of experience were 40 years old or older (18.2 percent). Slightly over 60 percent of teachers entering the profession in 2000 were in their twenties. Figure 14 provides more detail on the distribution of beginning teachers by age.

Figure 14: Age Distribution of Beginning Teachers* in 2000

Age	Number	Percent
21-29	1902	60.7%
30-39	660	21.1%
40+	570	18.2%
* Less than 1 year of experience.		

Emergency and conditional certificates

Another possible indicator of a shortage of teachers is the number of emergency or conditional certificates issued in any given year and over a period of time. In the event that a district cannot find a qualified person to fill a position, an emergency certificate may be issued to an individual who holds the appropriate degree and has substantially completed a preparation program. During 2001-02, 21 emergency teacher certificates were issued (OSPI, 2003).[17] The number of emergency certificates issued to teachers has remained small over the years, varying from 14 to 18 annually between 1998-99 and 2000-01 (OSPI, 2000, 2001a, 2002a).

More commonly, districts seek conditional certificates for individuals who have expertise in an endorsement area but fail to meet the qualifications for a regular certificate. The assignment is limited and districts must verify that conditions requiring the certificate are met. In 2001-02, the number of conditional certificates issued was 290 with the majority of endorsements issued for traffic safety education (114). In 2000-01, 298 endorsements on conditional certificates were issued, while 173 were issued in 1999-2000.

While most teachers in Washington hold full credentials, it is important to realize that this is not necessarily the case in other states. In California, for example, in the wake of the implementation of the statewide class-size reduction initiative, the percentage of fully credentialed elementary teachers dropped considerably. In 1995-96, 4.6 percent of all California elementary school teachers were lacking a full credential. In 1997-98 that number rose to 12.1 percent. In 2000-01, the number lacking full credentials dropped slightly to 10.6 percent (Imazeki, 2003).

[17] A total of 68 emergency certificates were issued in 2001-2002. Of this total, 21 were issued to teachers, 40 were issued to school counselors, psychologists and social workers, and 7 to administrators.

First-issue (residency) certificates issued to pre-service teachers from Washington institutions

Of the 22 Washington institutions approved to offer teacher preparation programs, 3,189 first-issue (residency) teacher certificates were issued to individuals completing these programs in 2001-2002. In addition, 2,694 residency certificates were issued to out of state applicants (OSPI, 2003). Of those who completed an in-state teacher education program in 2000-01, a follow up survey (90.7 percent response rate) reported that 82 percent were employed in full-time or part-time teaching positions in the following year (OSPI, 2003). However, not all teachers start work immediately after obtaining their certificates.

The indicators we have examined so far point to a stable teacher workforce in Washington state. Statewide student enrollment, while projected to increase, should not significantly impact the teacher workforce in the near future. Teachers eligible to retire will increase in the near future as the wave of baby-boomers retire, but there is also a sizable experienced group of teachers in subsequent years to take their place. In addition, if the trend continues, roughly one-fifth of Washington's beginning teachers are over 40, also potentially impacting the workforce dynamic. In 2000, approximately 93 percent of classroom teachers were employed as teachers in the prior year. This leaves an estimated seven percent of positions which need to be filled, or approximately 3,850 classroom positions statewide.[18]

What these statewide statistics cannot assess is localized labor market dynamics. For example, districts in specific regions of the state may have difficulty attracting teachers if they are far from teacher education institutions or located in remote parts of the state.

These kinds of shortage areas may include the need for teachers in rural and urban districts serving heavily disenfranchised populations. With or without shortages, however, the question remains and has been increasingly asked: Are the state's schools and districts attracting and retaining teachers who are conversant with the state's reform and able to realize it in the classroom? Beyond current experimentation with certification, alternative routes and teacher assessments, the state may need to consider a response to targeted areas of need, and given a relatively stable workforce, the kinds of professional development that will have the greatest impact on the largest number of teachers toward the goal of improving student learning.

[18] These rates were estimated from the S-275 database and are based on headcounts. Potentially more positions than persons could be represented in any given year, given part-time assignments.

Another issue for consideration is the fact that Washington's student population is changing demographically. In the next section we discuss student and teacher ethnicity and the challenge for teachers to be culturally responsive and provide effective instructional strategies to an increasingly diverse student population.

Teacher and Student Ethnicity

How well does the teaching force reflect the student population?

The ethnic profile of the state's workforce is not particularly well-matched with the student population. As the student population has grown ever more diverse, the rate of growth for teachers of color has been much slower. Over a quarter of the state's students in 2000 represented ethnic and racial minorities; white teachers account for 93.4 percent of the workforce.

Significant differences exist between the demographic profiles of students and the nation's public school teaching workforce. Drawing from 2000 Census data, Hodgkinson (2001) claims that approximately 40 percent of the school population is now from racially and culturally diverse groups. Whites are predicted to become a minority of the U.S. population by 2050. This diversity currently varies widely (from seven percent to 68 percent), depending on the state. As the public school population has grown more diverse, white teachers currently account for close to 89 percent of the national teaching workforce (Snyder and Hoffman, 1997).

Villegas and Lucas (2002) explain that the absence of people of color from teaching is problematic because teachers of color can serve as role models for all students, especially those from non-white groups. They suggest that this background more easily enables them to create bridges between home and school for minority students as well as to challenge them to examine the consequences of disengaging from school. Ladson-Billings (1995) identifies several criteria of "culturally relevant pedagogy," (p. 160) but explains that these elements embody good teaching, and are not limited to teachers of color.

Teacher and student ethnicity in Washington state

Our analysis of Washington patterns suggests that the demographic information about teachers and students reflect national trends. In this section, we document both state-level ethnic and racial characteristics of public school teachers and students using two points in time: 1996 and 2000. Trends in teacher and student ethnicity based on district size in 2000 are also presented. A third analysis attends to the state's geographic concentrations of teachers and students.

Figure 15 demonstrates that while over 93 percent of the teachers in the state were white in 1996 and 2000, the proportion of white students enrolled in public schools declined three percent between these years, from 77.5 percent to 74.4 percent. The percentage of teachers of color has remained steady or grown from 1996 to 2000, but these numbers represent a fraction of the proportion of students from corresponding ethnic groups. For example, the teacher workforce in 2000 was 1.6 percent African American, while the student population was 5.3 percent African American. Asian students, representing 7.3 percent of the overall population of students in 2000, were served by a teacher workforce that included 2.3 percent Asian teachers. Latino teachers comprised 1.7 percent and 2 percent of the 1996 and 2000 workforce, respectively, while Latino students were the largest and fastest growing (increasing 1.9 percent between 1996 and 2000) non-white group. The ratio between Native American teachers and students remained steady between 1996 and 2000. Native American teachers comprised 0.8 percent of the workforce, while Native American students accounted for 2.7 percent of the population enrolled in public schools.

Figure 15: Teacher and Student Ethnicity in 1996 and 2000

	1996			2000		
Teacher Ethnicity	# Teachers	% Teachers	% Students in Corresponding Group	# Teachers	% Teachers	% Students in Corresponding Group
White	49,515	93.8%	77.5%	51,597	93.4%	74.4%
Asian	1,116	2.1%	6.7%	1,242	2.3%	7.3%
Hispanic	894	1.7%	8.3%	1,092	2.0%	10.2%
Black	862	1.6%	4.8%	861	1.6%	5.3%
Native American	411	0.8%	2.7%	448	0.8%	2.7%

The overall numbers of non-white teachers are small in Washington, but the general trend is that the state's larger school districts tend to have greater proportions of Asian and African American teachers. Figure 16 documents the breakdown of teacher ethnicity by district size. The proportion of African American and Asian teachers exceed the state average for each of these groups in districts that are larger than 20,000 students. In districts between 10,000 and 20,000 students, Asian American and Latino teachers account for 2.6 percent of the workforce while the fraction of other non-white teachers are at or below the state average. The largest concentrations of Latino teachers work in districts serving between 5,000 and 19,999 students, however they are found in districts of all sizes across the state. Only Native American teachers worked in a greater proportion of the state's smallest districts.

Also reminiscent of national trends, people of color are concentrated in specific regions in Washington state. Further, our regional analysis of teacher placement during the 2000-2001 school year indicates that teachers of color in Washington

state have the tendency to work in the communities in which the largest proportions of students from corresponding groups attend public schools (see Appendix A).

Figure 16: Teacher Ethnicity* by District Size in 2000

District Size by Student FTE	# Districts	# Teachers	% Asian Teachers	% Native American Teachers	% African American Teachers	% Hispanic Teachers
20,000+	9	13,699	4.2	0.8	4.0	1.8
10,000-19,999	19	14,634	2.6	1.0	1.5	2.3
5,000-9,999	25	10,181	1.5	0.6	0.6	2.4
1,000-4,999	96	13,167	0.8	0.7	0.2	1.7
999 and under	147	3,565	0.4	1.3	0.0	1.0

*Shaded background represents districts with larger proportion of teachers of color

Recent demographic trends raise questions about the status of pre-service, induction and professional learning programs for teachers. How well prepared are our teachers to educate an increasingly diverse student population? What types of resources are teachers able to access to develop their cultural competence? This becomes increasingly important in light of Washington's assessment data which reveals a large and relatively unchanged achievement gap for some minority students (OSPI, 2002e). Given the importance of instruction in student learning, there may be a need to rethink instructional approaches, re-evaluate access to rigorous curriculum and enhance teacher knowledge and skills in working with diverse student populations in Washington.

Unanswered Questions about Supply and Demand

While the analyses we have conducted using the S-275 database provide some insight into the characteristics of Washington's teachers, they only provides a beginning point. Much more needs to be known about teachers and teaching in our state if we are to develop policies that promote the type of instruction and support that students need to achieve at higher levels. Items that deserve further examination include the following:

- Assignment by subject matter – How much out-of-field teaching takes place?
- Areas and types of shortages – Where and what specific kinds of shortages exist and how long do they persist?
- Questions of equity – How is the state's teaching talent distributed across the state? In what ways does the teacher workforce vary across districts and across schools within districts? How are these variations related to important local and regional differences?

- Compensation issues – Are the state's teachers sufficiently well compensated to stay in the profession? Are there sufficient financial incentives to motivate and reward high performance or to attract teachers to hard-to-staff schools?

In the chart below (Figure 17), we have listed several possible strategies for answering these and similar types of questions regarding supply and demand.

Figure 17: Types of Analyses and Methods of Investigation

Areas of Inquiry	Current state databases	Improved and expanded state databases	Fast Response Survey System	Extended Survey	Case Studies
Current Teacher Workforce					
Assignment by subject matter		X	X	X	X
Professional Development		X	X	X	X
Certification		X	X	X	X
Supply and Demand					
Areas and types of shortages			X	X	X
Questions of equity	X	X			X
Compensation issues	X	X	X	X	

TEACHER RETENTION

HOW LONG DO TEACHERS STAY IN THEIR SCHOOL OR DISTRICT?

Patterns of retention for Washington's teachers are similar to national trends. New teachers and those nearing retirement leave at higher rates than those who remain in the profession through the middle career years. Approximately 72 percent of beginning teachers in 1996 were still in the Washington education system five years later, though there were considerable differences by district in the extent to which teachers moved to other schools, districts, private schools or exited the Washington education system. A small sample of districts provides evidence that, in some cases, novice teachers may be disproportionately assigned to high-poverty elementary schools.

Of the beginning teachers who are in the Washington education system after five years, approximately 92 percent are still classroom teachers. By examining the movement of beginning teachers in ten sample districts, we found that while some districts retained nearly 75 percent of their beginning teachers after five years, others retained none.

Understanding Teacher Turnover from a National Perspective

Teacher turnover can negatively affect the cohesiveness and effectiveness of school communities by disrupting educational programs and professional relationships intended to improve student learning (Ingersoll, 2001; Bryk, Lee & Smith, 1990; Theobald & Laine, 2003). Apart from the normal, healthy turnover that promotes a flow of innovation in schools, recent evidence points out that school leaders in some schools struggle to find enough qualified teachers to staff their classrooms. Teacher turnover consists both of mobility and attrition - not just the loss of individuals from the profession, but also their movement between schools and districts.

Only recently has the study of teacher retention embraced a more comprehensive understanding of mobility. Three major categories define the migration and attrition of the teaching force: those who stay in the same district or school (known as "stayers"); those who move to other

districts or to private schools to teach ("movers"); and those who exit the teaching profession altogether ("leavers"). Earlier statistics on teacher mobility included only the "stayers" and "leavers." By accounting for the "movers" researchers achieve a more detailed understanding of teacher turnover and migration.

Questions of teacher retention and turnover spark considerable debate in policy circles. The National Commission on Teaching and America's Future declared in a January 2003 report that teacher retention has become a national crisis. However, very little research exists nationwide on the exact extent to which teachers leave and whether differences exist in retention rates between novice and experienced teachers. Teacher attrition and turnover has important policy implications, but is it as pervasive and widespread a problem as some indicators might suggest?

A recent analysis of the Schools and Staffing Survey (SASS) and the Teacher Follow-up Survey (TFS) suggest a 13.2 percent annual teacher turnover in schools nationwide (Ingersoll, 2001a, 2001b). This statistic includes those who transfer to other schools (7.2 percent) and those who leave the profession (6.0 percent). Further, there is some research to indicate that retention rates tend to vary more between schools than between districts and states, indicating that certain school characteristics (such as working conditions of schools, the socio-economic status and ethnicity of students, and assessed valuation of districts) may motivate teachers to leave their jobs more often than the commonly-perceived reasons of retirement and child-rearing (Ingersoll, 2001). Other research suggests family obligations, retirement, working conditions and opportunity costs are associated with teaching as primary motivators for teacher attrition (Murnane & Olsen, 1989; Murnane & Olsen, 1990; Chapman & Green, 1986).

In addition, high poverty schools (50 percent or higher Free and Reduced Price Lunch) typically have higher turnover rates than do more affluent schools (less than 15 percent poverty rate). Urban schools tend to have slightly more turnover than do suburban and rural public schools (Ingersoll, 2001b).

As previously mentioned, teacher turnover is not necessarily a negative. As in most organizations, some level of employee attrition is normal and appropriate. Not only does it eliminate those for whom teaching may not be a good job fit, but it also serves to prevent stagnation through the introduction of "new blood" into an organization. These analyses raise the following questions: Do teachers actually leave more often than similarly educated workers in other professions? How different is

teaching from other professions in terms of retention of its employees? In the next section, we consider longevity in teaching in light of other professions.

Comparison of teaching with other professions

Ingersoll's work with the SASS data suggests an overall 13.2 percent annual teacher turnover in schools, but he indicates this varies considerably by school characteristics (2001b). A commonly cited statistic from the Bureau of National Affairs (BNA), which tracks rates of employee turnover, is 11 percent per year for all workers nationally (1998), a statistic that has remained stable over the past decade. However, Harris and Adams (2003) challenge the use of the Bureau of National Affairs statistic in reference to the Schools and Staffing Survey because of differences in how turnover is defined. Harris and Adams note, "the higher turnover Ingersoll finds for teachers partially reflects the fact that more categories of turnover are included in his calculations" (p. 12). In addition, Ingersoll's work is school-based, whereas most teachers are employed by districts. For example, internal transfers counted as turnover in Ingersoll's analyses would not be included in a BNA statistic.

Others have suggested that teaching is a relatively stable profession noting that the more training and the longer one has held a position, the less likely the person is to leave. Tye and O'Brien explain, "It's why a teacher who remains in the classroom past the initial years is less likely to leave the profession with every additional year" (2002, p. 26). SASS survey data also bear out the tenacity of teachers remaining in the profession. Henke, et al. (1997) in their study, *America's Teachers: Profile of a Profession*, note that "In the 1993-94 SASS, elementary and secondary school teachers were asked what they expected they would be doing professionally in 1994-95. Nearly 90 percent of teachers expected to continue teaching in the same schools, and another seven percent expected to move to other schools. Only five percent of teachers expected to leave the classroom during the next year… These proportions differ little from those of 1987-88 teachers regarding their 1988-89 activities. The 1994-95 Teacher Follow-up Survey data indicate that teachers continued teaching in their schools, moved to new schools, and left teaching at about the rates they predicted…. Moreover, the proportions of those who stayed, moved and left between 1993-94 and 1994-95 were comparable to those of six years earlier" (p. 106-107).

In the 1993 Baccalaureate and Beyond Longitudinal Study, NCES surveyed a nationally representative sample of 11,200 students who received bachelor's degrees in 1992-93, and then again in 1994 and 1997.

Of the original sample, 83 percent participated in all three surveys. Among those who were employed as full-time K-12 teachers in April 1994 and who also worked in April 1997, 82 percent were still teaching in 1997. Researchers found that, "none of the other occupation categories proved more stable than teachers. In particular, K-12 teachers were as likely as those who worked in health occupations; engineers, scientists and lab and research assistants; and several other white collar occupation categories to work in the same occupation category in both 1994 and 1997" (Henke, Zahn & Carroll, 2001, p. v.). A Public Agenda survey conducted in 2000 also found that beginning teachers were far more likely to see their profession as a life long career choice as compared to other college graduates surveyed (Farkas, Johnson & Foleno, 2000).

While national studies using SASS data are instructive, they are not wholly comparable to the work presented in this report for several reasons. First, they are based on survey data from a representative sample of schools across the United States during three collection cycles (years 1987-1988, 1990-1991 and 1993-1994). Teacher turnover in the various studies is defined in specific ways. For example, Ingersoll defines teacher turnover as "not teaching in the same school as last year" (2001b, p. 510), though the teacher could be teaching in the same district. For this report, we primarily use the teacher as the unit of analysis and data is based on actual numbers of teachers who move from one district or school to another in Washington state during a five year period (1996-2000). The data is based on state personnel records and therefore includes every single public school teacher in the state. For any given year, it is possible to determine where and in what capacity individuals are working within Washington's educational institutions. To begin, we explore how the retention of Washington teachers compares to these national findings.

Retention and Teacher Experience

Are experienced teachers staying in the system?

Teachers who remain in the profession through the middle career years (5-25 years of experience) tend to have very low rates of turnover, with approximately 88 percent remaining in the Washington education system after five years. Beginning teachers, as well as those nearing retirement, have higher rates of departure.

Our initial look at retention in Washington state focuses on differences in retention by years of teaching experience. In other words, do beginning

teachers leave the system at higher rates than more experienced teachers? This analysis tracked the placement of teachers at two points in time, 1996 and 2000. Using the S-275 database, we calculated the percentage of classroom teachers working in Washington during the 1996-1997 school year, who were also employed in the state five years later, in 2000-01. This analysis traces all classroom teachers in 1996 to find if they were still employed as school personnel in 2000. We found some of the 1996 teachers changed duties and districts. Since our first analysis captures a snapshot of the workforce at two points in time, we are not able to note gaps in employment during the five year period, nor is it possible to distinguish voluntary and involuntary departures. We begin the discussion by focusing on beginning teachers and those nearing retirement.

Beginning teachers and teachers nearing retirement

New teachers leave the profession at significantly higher rates than experienced teachers (Murnane, Singer & Willett, 1988; Murnane, 1984). Attrition is common at the initial stages in most occupations as individuals learn about the workplace and discover whether or not the job is a good fit. However, induction into the teaching profession is particularly important because teaching requires a significant acquisition of skills in the first few years and a high turnover of beginning teachers can impact the quality of instruction that students receive (Lankford, Loeb & Wyckoff, 2002). At the other end of the spectrum, teachers with a considerable amount of experience may be nearing retirement and are more likely to leave the profession. Age also impacts retention. Analysis of the 1994-95 TFS data indicate that the attrition rate "for teachers in the 25-29 age category was 10.0 percent for public school teachers…. The rate for the 60 to 64 age category was 30.5 percent" (Whitener, et al., 1997, p.iii).

Washington's statistics on retention mirror findings by other researchers (Murnane, Singer & Willett, 1988) regarding a classic curve which characterizes teacher's experience and turnover. In other words, beginning teachers have high rates of departure as well as those commonly recognized as nearing retirement. Those who remain in the profession through the middle career years tend to have very low rates of turnover (Dolton & van der Kalaauw, 1999). Figure 18 indicates the extent to which Washington teachers with 0-4 years and more than 25 years of experience have lower retention rates after five years.

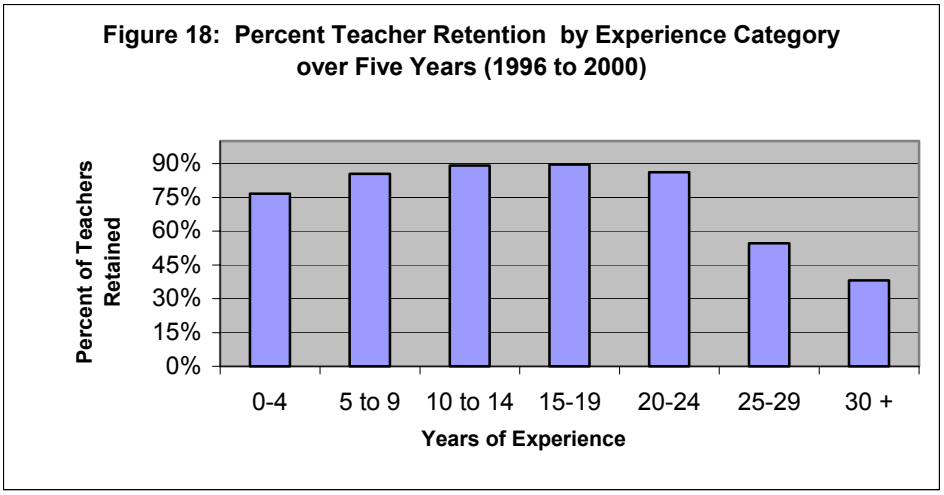


Figure 19 provides greater detail regarding the number and percentage of teachers retained by experience level. The table shows that the percentage of teachers with less than five years of experience and 25 or more years of experience are more likely to leave the state education system. On average, teachers with between 5 and 25 years of experience show the lowest rates of attrition.

Figure 19: Retention by Experience Level (1996 and 2000)

	1996		2000			
Years Teaching Experience	Number of Teachers	Percent	Number of Teachers	Percent	Number retained from 1996 to 2000	Percent retained from 1996 in 2000
0-1 years	2,467	4.7%	3,177	5.8%	1,779	72.1%
0-2 years	4,602	8.7%	6,029	10.9%	3,397	73.8%
0-4 years	11,489	21.8%	13,712	24.8%	8,806	76.7%
5-9 years	10,237	19.4%	10,282	18.6%	8,756	85.5%
10-14 years	8,274	15.7%	8,767	15.9%	7,380	89.2%
15-19 years	7,897	15.0%	7,165	13.0%	7,076	89.6%
20-24 years	7,552	14.3%	6,943	12.6%	6,509	86.2%
25-29 years	5,410	10.2%	5,871	10.6%	2,954	54.6%
30 or more	1,933	3.7%	2,472	4.5%	737	38.1%

Retention and Beginning Teachers

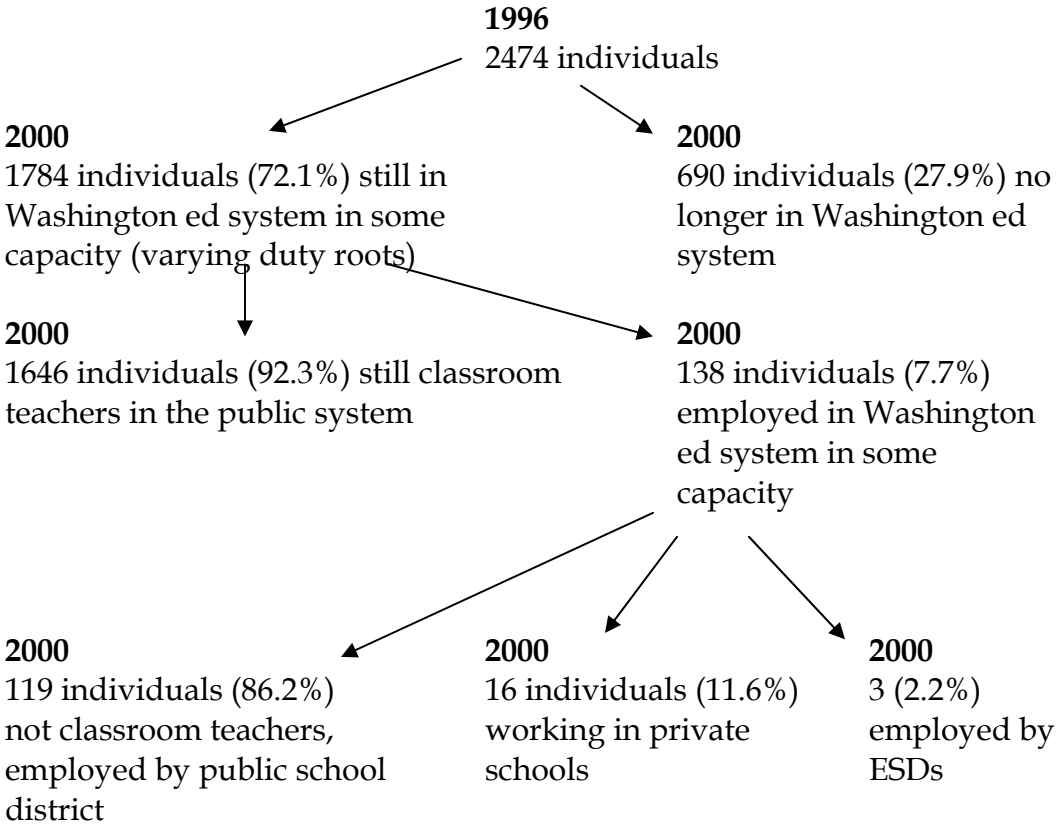
How long are newly entering teachers staying in the system? Are we losing large numbers of new teachers?

The majority (72 percent) of beginning teachers (those with less than one year of experience) can be found in the Washington education system five years after entering the profession. Of those who were still in the Washington education system five

years later, ninety-two percent were in the classroom, while the remainder were employed by public school districts in some other capacity, in private schools or in ESDs.

In a second level of analysis, we focused specifically on the retention rates of beginning teachers (less than one year of experience). The basic question we posed is: What percent of beginning teachers remain classroom teachers after five years? To answer this question we examined two groups of teachers with less than one year of teaching experience in the school years 1996-97 and 1997-98. By analyzing information from the S-275 database, we determined how many of those beginning teachers in 1996 and 1997 were still teaching in 2000 and 2001, and whether they had changed assignments, transferred to a new school or district, or exited the Washington education system. Figure 20 provides specific retention information about the 1996 cohort.

Figure 20: Retention of Beginning Teachers 1996-97 to 2000-01



The 1996 cohort of beginning classroom teachers was comprised of 2,474 individuals. Five years later, 72.1 percent of these individuals were still working as educators in some capacity in Washington state, while 27.9

percent had exited the Washington educational system. Nearly 67 percent of those who started as classroom teachers in 1996 remained in the classroom five years later. This analysis does not account for those who left Washington to teach in other states, and therefore cannot be used as an accurate measure of those who left the profession. Only 16 of the 2,474 individuals in the cohort were working in private schools five years later.

Our analysis suggests that new teachers in Washington remain the system. Examining the Washington data, of the teachers in the 1996 cohort who were still in the system in 2000, 92.3 percent were classroom teachers in public schools, 6.7 percent were working in other assignments in public school districts, one percent were employed in private schools, and 0.2 percent held a primary appointment in an ESD. Of the 119 individuals who changed assignments, 32.7 percent were counselors, 8.4 percent were support personnel, 8.4 percent were speech and language specialists, 7.5 percent were library media specialists and 7.5 percent were nurses. Figure 21 provides a detailed breakdown of assignments of the entire 1996 cohort who remained in the system five years later.

Figure 21: Assignment of 1996 Cohort in 2000

# of Individuals	% of Individuals	Assignment
16	0.9%	Private school
1	0.1%	Other district administrator
2	0.1%	Elementary principal
5	0.3%	Elementary principal
7	0.4%	Secondary vice principal
1	0.1%	Other school administrator
746	41.8%	Elementary teacher
769	43.1%	Secondary teacher
131	7.3%	Other teacher
10	0.6%	Other support services
9	0.5%	Library media specialist
39	2.2%	Counselor
3	0.2%	Occupational therapist
10	0.6%	Speech and language specialist
7	0.4%	Psychologist
9	0.5%	Nurse
3	0.2%	Physical therapist
1	0.1%	Extracurricular
1	0.1%	Substitute
2	0.1%	Aide
3	0.2%	Office clerical
7	0.4%	Professional
2	0.1%	Technical
1,784	100.0%	Total

"Even when teachers leave the classroom, schools may continue to benefit from their expertise when they work as school administrators, non-

teaching specialists, or support personnel," writes Henke and her colleagues in the study, *America's Teachers: Profile of a Profession, 1993-94* (1997, p. 108). While Henke's study does not specifically highlight beginning teachers, she and her colleagues note that of those who left the classroom in 1994-95, nearly 20 percent took non-teaching jobs in elementary and secondary schools. "Among teachers who left the classroom for other positions in schools, 63 percent worked as other school professionals, including counselors, librarians, and support personnel for other teachers, 27 percent became school administrators; and 10 percent became other school employees" (p. 108).

The 1996 and 1997 cohorts revealed nearly identical results in the retention of novice teachers in Washington. Of the 2,189 beginning teachers in 1997, 73.5 percent were still educators in Washington in some capacity and 26.5 percent had exited the Washington state educational system. Of those who remained in the Washington education system, 93.7 percent were still classroom teachers. The remaining 6.3 percent included individuals holding other appointments in public schools (5.1 percent), private schools (0.9 percent), and Educational Service Districts (0.3 percent).

Overviews of the 1996 and 1997 cohorts of beginning teachers provide an initial understanding of the stability of the entering teacher workforce in Washington. However, statewide statistics tend to mask important differences at the district-level. Our next investigation involved a closer look at retention in the same ten sample districts which we used in earlier analyses.

A Closer Look at Retention in Ten Districts

Do some districts retain more beginning teachers than others?

Districts vary significantly in the number of beginning teachers retained after five years. Among a ten district sample, retention of beginning teachers within the districts ranged from 0 to 75 percent. The percentage of beginning teachers in these districts who exited the Washington education system within five years ranged from 0 to 42 percent.

Retention in 10 districts

By examining the retention of beginning teachers in ten sample districts in Washington from 1996 to 2000, we can provide illustrative cases of the

movement of beginning teachers. Figure 22 shows teacher retention in the ten sample districts. Differences in retention rates and where they moved - whether individuals remained in the same school and district, changed assignment, transferred within the district, transferred to a different district, moved to a private school or exited the Washington education system - are readily apparent in specific district cases.

Among these ten districts, the percentage of teachers who exited the Washington education system within the first five years varied considerably. In Aberdeen for example, five teachers with less than one year of experience began in 1996. All five were still classroom teachers five years later. Though three had transferred to other districts, none had exited the Washington education system. Bellevue provides a contrasting case in which of its 65 beginning teachers, 41.5 percent (27 individuals) were no longer educators in Washington state in 2000. Among these sample districts, there is great variation regarding the number of teachers who moved from one district to another within the state. Spokane lost only one of the teachers in its 1996 cohort (2.6 percent) to another Washington district, while Omak lost eight of ten teachers to other districts in the state.

Considerable differences can also be found in the percentage of teachers still located in their original building assignment five years later, though some of this may be due to the number of schools in any given district (increasing options to move) and how teachers were originally assigned. Among these ten districts, only one district (Bellevue) had teachers exiting the public system for the private sector. Of Bellevue's original cohort of 65 teachers, two individuals were found working in private schools five years later.

Figure 22: A Closer Look at Retention in Ten Districts:

After five years, where was the 1996 cohort of beginning teachers?

	Aberdeen		Bellevue		Everett		Omak		Pasco		Port Angeles		Spokane		Tacoma		Tukwila		Yakima	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
1996																				
Total number of classroom teachers	218	100.0%	928	100.0%	893	100.0%	157	100.0%	477	100.0%	273	100.0%	1,685	100.0%	1,773	100.0%	122	100.0%	809	100.0%
Number of teachers with less than 1 year of experience (1996 Cohort)	5	2.3%	65	7.0%	47	5.3%	10	6.4%	21	4.4%	10	3.7%	51	3.0%	46	2.6%	10	8.2%	34	4.2%
2000																				
Retained in District	2	**40.0%**	26	**40.0%**	24	**51.1%**	0	**0**	12	**57.1%**	6	**60.0%**	38	**74.5%**	33	**71.7%**	4	**40.0%**	15	**44.1%**
as classroom teachers	2	100.0%	24	92.3%	24	100.0%			8	66.7%	6	100.0%	37	97.4%	33	100.0%	4	100.0%	14	93.3%
as other			2	7.7%					4	33.3%			1	2.6%					1	6.7%
Classroom Teachers retained in original buildings	2	100.0%	13*	54.2%	19	79.2%	0	0	3	37.5%	6	100.0%	24	64.9%	17	51.5%	4	100.0%	5**	35.7%
Transferred to Other Districts	3	**60.0%**	10	**15.4%**	10	**21.3%**	8	**80.0%**	2	**9.5%**	1	**10.0%**	1	**2.6%**	6	**13.0%**	3	**30.0%**	11	**32.4%**
as classroom teachers	3	100.0%	9	90.0%	8	80.0%	8	100.0%	0	0	1	100.0%	1	100.0%	6	100.0%	3	100.0%	11	100.0%
as other			1	10.0%	2	20.0%			2	100.0%										
Moved to Private Schools	0	**0**	2	**3.1%**	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**
Exited the Washington Educational System	0	**0**	27	**41.5%**	13	**27.7%**	2	**20.0%**	7	**33.3%**	3	**30.0%**	12	**23.5%**	7	**15.2%**	3	**30.0%**	8	**23.5%**

Notes:

For purposes of this analysis, beginning teachers are defined as those with less than one year of experience.

* 29% of these teachers were unassigned to specific builing as of October 1996.

** 36% of these teachers were unassigned to a specfic building as of October 1996.

Micro-analysis of retention in three districts

Finally, we chose to look more closely at the 1996 cohort of beginning teachers in Bellevue, Everett and Spokane. These three districts illustrate different points along a continuum of retention in Washington state. Figure 23 below provides detail regarding where teachers in that cohort were situated five years later.

Figure 23: Teacher Retention in a Three District Sample

A Closer Look at Retention in Three Districts: After five years, where was the 1996 cohort of beginning teachers?						
	Bellevue		**Everett**		**Spokane**	
	Number	Percent	Number	Percent	Number	Percent
1996						
Total number of classroom teachers	928	100.0%	893	100.0%	1,685	100.0%
Number of teachers with less than 1 year of experience (1996 Cohort)	65	7.0%	47	5.3%	51	3.0%
2000						
Retained in District	26	**40.0%**	24	**51.1%**	38	**74.5%**
as classroom teachers	24	92.3%	24	100.0%	37	97.4%
as counselors	1	3.8%				
as physical therapists	1	3.8%				
as support personnel					1	2.6%
Classroom Teachers retained in original buildings	13*	54.2%	19	79.2%	24	64.9%
Transferred to Other Districts	10	**15.4%**	10	**21.3%**	1	**2.6%**
Districts to which they moved	2	Seattle	2	Edmonds	1	Wenatchee
	1	Chimacum	1	Longview		
	1	Highline	1	Bellevue		
	1	Shoreline	1	Northshore		
	1	Kent	1	Sumner		
	1	Bethel	1	Peninsula		
	1	Everett	1	Monroe		
	1	Edmonds	1	Spokane		
	1	West Valley (Yak)	1	Bellingham		
Assignments						
as classroom teachers	9	90.0%	8	80.0%	1	100.0%
as elementary v. principals	1	10.0%	1	10.0%		
as counselor			1	10.0%		
Moved to Private Schools	2	**3.1%**	0	**0**	0	**0**
Exited the Washington Educational System	27	**41.5%**	13	**27.7%**	12	**23.5%**
Note:						
* 29% of these teachers were unassigned to a specific building as of October 1996.						

In this snapshot, Bellevue provides an example of a district in which a significant portion of beginning teachers did not remain five years later. In 2000, 60 percent of the original cohort either had exited the Washington education system (41.5

percent), transferred to other districts (15.4 percent) or moved to private schools (3.1 percent). The districts to which these teachers moved were primarily in the greater Puget Sound region. Of those who remained in Bellevue as classroom teachers, 54.2 percent were in the same school building where they originally started five years earlier.

Both Everett and Spokane provide examples of districts in which the loss of beginning teachers from the state education system was closer to the state average of 27.9 percent. Everett's profile shows that 27.7 percent of its beginning classroom teachers exited the state system within five years, while Spokane lost 23.5 percent. Of Everett's beginning teachers in 1996, those who transferred (21.3 percent) appear to have moved throughout the state. Of the 51.5 percent who remained in the district, all of them were still classroom teachers and 79.2 percent were still in their original buildings.

Spokane reflects a stable district in which 74.5 percent of its beginning teachers in 1996 were still there five years later. Of those teachers who remained, all but one was a classroom teacher, and 64.9 percent were located in their original buildings. Of the original 1996 cohort, only one person transferred to another district within the state. As with all of our analyses on retention, it was not possible to distinguish voluntary and involuntary departures. Although it is possible to conduct this type of school-level analysis for each school and district in the state, it is a cumbersome and time-consuming process. However, having the capacity to compare retention rates across all schools certainly would be of value.

Overall retention of beginning teachers in Washington does not appear to be a significant problem statewide. These percentages are consistent with previously discussed national and state-specific studies (for example, Ingersoll, 1995; Theobald & Laine, 2003). However, our illustrative cases do suggest significant variation in the retention rates of beginning teachers among districts and in schools within the same district. In analyzing retention at the district level, we do not intend to imply that research into state-level attrition is unimportant. Rather it may be that the decisions most likely to influence teacher retention occur not at the state level, but at the district and school levels.

Finally, we examine one indicator of teacher retention that has received considerable public attention – Is Washington losing teachers to other states?

Teacher Exodus

Is Washington losing teachers to neighboring states?

Over a recent six year period, Washington has issued more certificates to California teachers than vice-versa. In only two of those years, Oregon has issued more certificates to Washington teachers. However, we do not know the exact number of individuals who actually take out-of-state teaching positions.

Some of the teacher retention debate in Washington has revolved around perceptions of Washington teachers fleeing to other states, most notably California and Oregon. Indeed Washington, Oregon and California do "exchange" a certain number of teachers every year. Unfortunately we don't know actually how many teachers are hired out-of-state. The only indicator we can use as a proxy is the number of initial teaching certificates issued to out-of-state candidates for a particular year. Figure 24 provides a summary of the number of out-of-state teaching certificates issued to Washington, Oregon and California teachers from 1996-97 to 2001-02.

Figure 24: Certificates Issued to Out-of-State Washington, Oregon and California Teachers

Washington and Oregon			
School Year	WA Teachers to OR	OR Teachers to WA	Difference
1996-97	212	790	578
1997-98	316	676	360
1998-99	598	506	-92
1999-00	483	405	-78
2000-01	173	446	273
2001-02	146	561	415
Total	1,928	3,384	1,456
Washington and California			
School Year	WA Teachers to CA	CA Teachers to WA	Difference
1996-97	183	640	457
1997-98	211	617	406
1998-99	189	580	391
1999-00	241	479	238
2000-01	254	448	194
2001-02	268	399	131
Total	1,346	3,163	1,817

Sources: Office of the Superintendent of Public Instruction, Oregon Teacher Standards and Practices Commission,

These raw numbers indicate that Washington consistently issued more certificates to California teachers than California issued to Washington teachers over this six year period. The number of California teachers seeking certification in Washington has continued to decline over this period, while the number of

Washington teachers seeking certification in California has risen slightly. The pattern is somewhat different with respect to Oregon teachers applying for certification in Washington state. For two of the six years, more Washington teachers were issued Oregon certificates than vice-versa.

However, the numbers do not reflect the actual percentage of the workforce seeking out of state certification or the number who actually moved from one state to another to take a job. Officials at OSPI indicated that those seeking Washington certification are often experienced teachers who begin their careers in California, then later move to Washington. But sometimes they are rookies who complete their teacher preparation program in California and then apply for certification in Washington. Regardless, the net gain is in Washington's favor as measured by certificates issued in the three states.

Teacher Assignment in a Sample of Six Districts

How are novice teachers assigned?

Further study would be required to fully answer the question of how novice teachers are assigned in schools across Washington state. However, in a small sample of Washington districts, a larger percentage of novice teachers (0-4 years of experience) were assigned to high-poverty elementary schools than other elementary schools within the same district.

An important policy issue which has emerged both from national studies and this research concerns the extent to which novice teachers (0 to 4 years of experience) are disproportionately assigned to high-poverty schools. Figure 25 provides a view of the assignment of novice teachers in Washington by district-level poverty in the 2000-01 school year. In the highest-poverty districts, the percentage of novice teachers (32.8 percent) is considerably higher than the state average of 24.8 percent.

Figure 25: Analysis of Novice Elementary School Teachers by District Poverty Level

State ave = 31.2 %	Statewide	0-25% Free/Reduced	26-50% Free/Reduced	51-75% Free/Reduced	76-100% Free/Reduced
# of Districts	296	87	133	56	20
# of Students by FTE	941,508	382,281	437,273	108,632	13,322
Total # of Teachers	55,246	22,062	25,526	6,779	879
% Districts with Teachers 0-4 Years of Experience		24.8%	24.4%	25.7%	32.8%

We conducted a preliminary analysis of the placement of novice teachers in a sample of six districts in Washington state. Specifically, the analysis addressed two questions: 1) how were teachers with fewer than four years of experience assigned within elementary schools in each district, and 2) how were novice teachers placed in elementary schools based on the schools' measure of poverty? To conduct these analyses, we looked at the placement patterns of teachers in elementary schools by dividing the district schools into quartiles based on their reported percentages of students receiving Free and Reduced Price Lunch (FRPL),[19] with the first quartile representing the lowest poverty range and the fourth quartile representing the highest poverty range. The six districts represent diverse settings and regions of the state and have overall measures of poverty ranging from 14.2 percent to 60.4 percent. In addition, poverty within some of these districts is located in particular schools, while in other districts the levels of poverty are more evenly distributed in schools across the district.

Figure 26 provides information about each of the districts. The elementary schools in Bellevue, Spokane and Everett with the highest concentrations of poverty (ranging between 35.6 percent and 80 percent), also have the highest proportion of newcomers to teaching. In these cases, the highest-poverty schools had between 6.9 percent (Everett) and 12.1 percent (Bellevue) of the districts' novice teachers. Schools with the highest proportion of new teachers in Pasco, Tacoma and Yakima are all in the second highest quartile for Free and Reduced Price Lunch. It is noteworthy that these three districts have higher overall poverty rates than Bellevue, Spokane and Everett. In these districts in which the schools with the highest proportion of new teachers are located in the third quartile, the Free and Reduced Price Lunch statistics range from 64.8 percent (Tacoma) to 81.5 percent (Pasco).

[19] We opted to study only elementary schools (K-6) because Free and Reduced Price Lunch data, our proxy for measures of student poverty, is more reliable in elementary school settings. Lankford, Loeb, and Wycoff (2002) note, "Poverty status is more accurately reported for students in kindergarten through sixth grade" (p. 56).

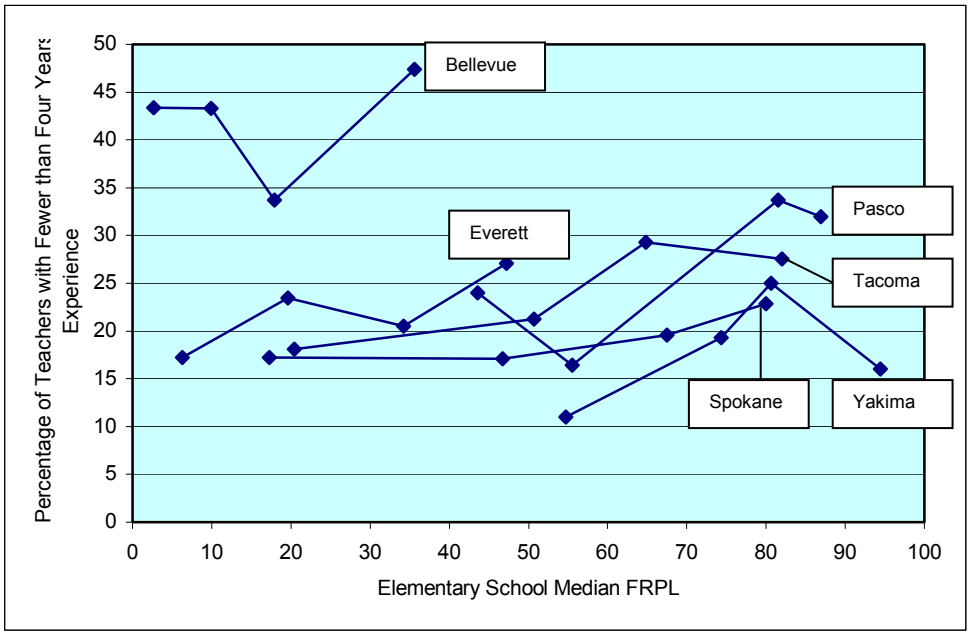
Figure 26: Analysis of Placement of Novice Elementary School Teachers by School Poverty Level

District	Free & Reduced Price Lunch	# of Schools in Quartile	# of Teachers in Quartile	Teachers with Fewer than 4 Years Experience in District Elementary Schools	Teachers with Fewer than 4 Years Experience in Quartile
Bellevue	14.2%				
1st Quartile	2.7%	4	39	10.5%	43.3%
2nd Quartile	9.9%	4	42	11.3%	43.3%
3rd Quartile	17.9%	4	30	8.1%	33.7%
4th Quartile	35.6%	4	45	12.1%	47.4%
Everett	23.3%				
1st Quartile	6.3%	4	21	4.4%	17.2%
2nd Quartile	19.6%	4	27	5.7%	23.5%
3rd Quartile	34.2%	4	24	5.0%	20.5%
4th Quartile	47.2%	4	33	6.9%	27.0%
Pasco	60.4%				
1st Quartile	43.6%	2	12	4.3%	24.0%
2nd Quartile	55.5%	2	10	3.6%	16.4%
3rd Quartile	81.5%	3	32	11.5%	33.7%
4th Quartile	86.9%	2	23	8.3%	31.9%
Spokane	43.9%				
1st Quartile	17.3%	9	36	3.8%	17.2%
2nd Quartile	46.7%	9	36	3.8%	17.1%
3rd Quartile	67.5%	9	51	5.4%	19.5%
4th Quartile	80.0%	8	59	7.9%	22.9%
Tacoma	50.4%				
1st Quartile	20.4%	9	40	4.2%	18.1%
2nd Quartile	50.7%	9	48	5.0%	21.2%
3rd Quartile	64.8%	9	80	8.3%	29.3%
4th Quartile	82.0%	10	67	7.0%	27.6%
Yakima	52.6%				
1st Quartile	54.7%	4	11	2.7%	11.0%
2nd Quartile	74.3%	3	17	4.2%	19.3%
3rd Quartile	80.6%	4	29	7.2%	25.0%
4th Quartile	94.4%	3	16	4.0%	16.0%

Figure 27 demonstrates how differently situated each of these districts are with regard to levels of poverty and placement of novice teachers. Novice teachers make up the highest proportion of either the third or fourth quartiles of schools in poverty in each of the districts. In the case of Bellevue and Pasco, teachers with fewer than four years of experience exceed 30 percent of the teachers in the third and fourth quartiles of schools. The highest-poverty students in Everett, Spokane, and Tacoma will attend elementary schools in which beginning teachers make up between 22.9 percent and 27.6 percent of the teaching staff. In Yakima, one-fourth of the novice teachers work in schools in the second highest

poverty quartile, while 16 percent teach in the schools with the highest measures of Free or Reduced Price Lunch. These analyses suggest that some school districts with over 50 percent poverty at the elementary level may have a disproportionate number of newcomers to teaching.

Figure 27: Graphic Representation of Placement of Novice Elementary School Teachers by School Poverty Level



While these statistics cannot explain the factors impacting the hiring and placement practices in these schools, it raises questions of support for novice teachers, particularly in high poverty or hard-to-staff schools. Prior research has pointed out that high poverty districts tend to have higher turnover rates than more affluent districts, and this may point to organizational factors. Districts and schools may differ in their hiring preferences. Additionally, teachers have preferences regarding where they teach and consequently, the candidate pool may vary considerably for similar positions in different regions of the state and in different districts. Districts differ in the efficiency of their hiring practices and when positions are filled. In addition, schools may differ in their capacity to attract particular types of teachers. Any combination of these factors may lead to differences in teacher qualifications and qualities among districts and schools.

Unanswered Questions about Retention and Teacher Turnover

Given that there is much more to learn about teacher retention in Washington state, the following questions might be important for further consideration:

- How much variation exists in school-level retention rates across the state?
- Is teacher turnover disproportionately concentrated in particular types of districts or schools?
- How do school characteristics (such as size, locale, and poverty level) impact teacher retention in Washington?
- Why do teachers leave or change schools or districts?
- What conditions or supports encourage teachers to be "stayers?"
- To what extent is teacher turnover related to teaching field (special ed, math, science)?

An alternative approach may be necessary to answer many of these questions. For example, we cannot know from the S-275 database why teachers move from one school or district to another, or why they choose to leave the profession. Figure 28 provides details of the ways in which these questions might be addressed through further inquiry.

Figure 28: Types of Analyses and Methods of Investigation

Areas of Inquiry	Current State Databases	Improved and Expanded State Databases	Fast Response Survey System	Extended Survey	Case Studies
Current Teacher Workforce					
Assignment by subject matter		X	X	X	X
Professional Development		X	X	X	X
Certification		X	X	X	X
Supply and Demand					
Areas and types of shortages			X	X	X
Questions of equity	X	X			X
Compensation issues	X	X	X	X	
Retention					
School Characteristics	X	X	X	X	X
Teacher Mobility		X	X	X	X
Teaching Field		X	X	X	X
Teacher Quality					X

CONCLUSIONS

The purpose of this report is to provide Washington educators and policy makers with a portrait of the state's current teaching force, as one step in informing efforts to improve the quality of learning and teaching in the state. As noted in the Introduction, the quality of the teaching force is an important consideration in the overall equation of state reform, but only one consideration. More immediately affecting student learning is the quality of teaching itself, and equally important to the quality of teaching is the quality of support for teachers' work. Yet the nature of the teaching force is clearly a precursor to high-quality teaching. It can be described using indicators for which data are available in Washington state. This report attempts to capture basic facts about the state's teaching force using data routinely collected by the state, though as yet untapped for analytic purposes.

Stepping back from the analysis, two broad conclusions seem warranted. First, available data make possible a beginning picture of the state's teachers currently and over time. To be sure, not everything one would want to know about teachers' qualifications, assignments, or capabilities shows up in state personnel, fiscal or certification databases, as currently constructed. But it is possible to determine with some certainty teachers' degree, placement in schools and districts, and other relevant attributes. Furthermore, that information can be contrasted with preceding years to determine precise trends over time.

Second, it takes considerable effort to construct the kinds of databases that permit these analyses to happen. Put another way, the state has yet to configure its data collection and storage in such a way that analytic questions can be easily asked of it. The analysis on which this report was based took place through a time-consuming construction of a relational database, combining and reconfiguring state data so that the analysis could be done. As such, the work reported here is exploratory and limited in scope. More extensive analyses of such data is possible, but only with a significant investment of time. Nonetheless, the exercise helps to identify ways that state data collection and analysis could be revamped to make solid and far reaching analysis possible, at the same time it surfaces an initial overview of the state's teaching force.

Both the results and process of this analysis have important messages for policymakers. In this concluding section we discuss these messages. A quick review of the main findings of this analysis sets the stage for considering its meanings for advancing the state's educational reform and for building a better infrastructure of information and insight on which to base future policy.

What Current Data Sources Can Tell about Washington's Teaching Force

The database constructed from existing sources for this report offers a systematic picture of certain essential facts about the state's teaching force. The analyses of teacher characteristics, supply and demand, and retention can be briefly summarized as follows.

Teacher Characteristics

Washington's teacher workforce consists of over 55,000 classroom teachers. In 2000, the majority were white (93 percent), had five or more years of experience (75 percent), held a master's degree or higher (54 percent) and were over 40 years of age (64 percent). While an examination of aggregate statewide statistics tend to reflect little variation in the workforce, differences do exist particularly at the district and school levels. There are few clear and consistent patterns when examining teacher characteristics by district size or region of the state. However, our examination of data in 2000 indicate that districts serving students with the highest percentages of students in poverty tend to have teachers with less experience and fewer advanced degrees than other districts in the state.

Based on proxies such as level of education and certification status, Washington's teachers hold similar qualifications to teachers nationally. Virtually all Washington teachers possess at least a bachelor's degree and slightly over half, 54 percent, hold an advanced degree (master's degree or higher). Teachers who have between 10 and 25 years of experience hold the highest percentage of advanced degrees. Few teachers in Washington hold emergency or conditional certificates.

Teacher Supply and Demand

Based on what we can know from existing data, the overall available teacher workforce statewide currently is sufficient to fill most positions. However, the state may experience shortages in certain subject areas and in particular regions of the state. Statewide student enrollment is projected to continue growing through 2012, but at a much slower rate than the previous decade. While the number of teachers eligible to retire in the near future is expected to increase, there is also a sizable group of experienced educators to take their place in subsequent years. However, the ethnic profile of the state's workforce is not particularly well-matched with the student population. As the student population has grown ever more diverse, the rate of growth for teachers of color has been much slower.

Teacher Retention

Paralleling national trends, new teachers in Washington state leave the profession at higher rates than those who remain in the profession through the middle career years. Approximately 72 percent of beginning teachers in 1996

were still in the Washington education system five years later; districts differed considerably, however, in the extent to which their teachers moved among schools, left for other districts or private schools, or exited the Washington education system. Of the 72 percent who remained, 93 percent were still classroom teachers five years later.

In short, when properly set up for analytic purposes, existing data sources can reveal a number of useful things about the state's teaching force. These sources could be further mined to develop a more complete picture of trends over time and to explore more extensively the variations in the teaching force across districts and schools. For certain purposes, these analyses are important to undertake.

What Existing Data Sources Do Not Reveal about Teachers, Teaching, and Support for Teachers' Work

Analysis of existing sources necessarily stops short of capturing all that matters most in providing the state's children high-quality learning opportunities. For one thing, certain important facts about the teaching force are not yet part of the routine data collection by the state. There is no systematic record, for example, of teachers' assignments by subject or grade, a point of information that is needed to understand how the teaching force is distributed among students with particular instructional needs. For another thing, the state collects no data now on teachers' need for, or participation in, activities designed to support their work (e.g., mentoring, professional development). Nor are there easy ways at present for the state to represent how teachers are approaching their classroom practice, especially in relation to the most central features of the state's reform goals.

It is also not possible to know with any certainly answers to what many would consider bottom-line questions about the effects of the teaching force on student learning. Though analyses could be done of the relationship between certain teacher attributes (those in current databases) and student scores on the state WASL, the results of the analyses would offer less than meets the eye. One could not tell from such analyses whether the teachers in question had learned what they needed to know in their masters' level training, were appropriately assigned to teach the subjects they knew best, were applying what they knew in classroom practices, or were getting help when they needed it in their efforts to teach to the state's learning standards.

Some of what cannot be gleaned from existing data sources could be readily added to the routine data collection by state agencies, without significant reporting burden on local educators. Other kinds of information could be gathered through other means (e.g., certain kinds of surveys), within limits of what can be ascertained feasibly and usefully across the state. Still other

information (e.g., related to the fine detail of instructional actions in classrooms or the process of new professional learning for many teachers) can be known through intensive research (e.g., case studies) in a few localities selected to represent the range of local conditions or responses to reform. Through a combination of such sources, it would be possible to develop a far richer picture of the teaching force in action and with that picture, consider how teaching and the conditions that support it are realizing the purposes of the state's educational reform.

What This Analysis Says to Policymakers

Even given its limitations, the current analysis contains some important messages for policymaking. These concern, first, the meaning of a relatively stable, well-educated teaching force; second, the often overlooked inequities in the distribution of teacher talent at the school level; and third, the importance of good information for setting and adjusting policies that relate to teachers, teaching and support for teachers' work.

Given the relative stability of the state's teacher workforce, policy aimed at supporting teachers presently in the classroom may be an important place to focus energy and resources. The majority of the state's teachers remain in the profession over the course of their career. Recent state reforms have expected more of teachers in providing a higher quality learning experience. Unlike some other states, Washington is not faced with a crisis in attracting a teaching force with the right credentials (though there appear to be pockets of shortage), nor the prospect of a huge exodus of veteran teaching talent. Rather, the state has a relatively veteran, stable teaching force, most of whom received initial training before the current reforms went into effect. These teachers are likely to need continuing support to help them realize the full potential of Washington's educational reform.

While all indicators point to an adequate overall supply of teachers, certain subject matter fields and regions of the state may consistently face a shortage of qualified candidates. In this regard, Washington has introduced alternative certification programs, in part, to help local candidates gain the skills and training needed to fill those positions and to tap the pool of mid-career workers who wish to change their vocation. As elsewhere in the nation, there is an important concern about the distribution of teaching talent between hard-to-staff schools and schools viewed as more desirable places to teach. While data about teacher assignment in individual schools is currently contained in state databases, the information is not readily accessible nor has it been systematically analyzed. State policy has not addressed the issue, leaving the question of how to equitably distribute teaching talent as a matter for local districts to address.

State-level policymakers need a better base of information about teaching, the teaching force and support for teachers' work. More dynamic and integrated

databases can be designed to examine questions of teaching quality and its relation to student learning. A lack of relational database capacity compounds the challenge of improving access to information about the workforce. In addition, to examine conditions in high-poverty or hard-to-staff schools, it is necessary to have accurate demographic and school-level data for both staff and students.

Building a Stronger Base of Information and Insight on State Policy

State efforts to improve the quality of teaching and teachers can be much improved by systematic knowledge of the conditions that affect teaching and learning in Washington state. Some analyses undertaken by various organizations have taken us part way into this territory, but they stop short of assembling in a systematic and on-going manner the kinds of information that would illuminate these conditions and state initiatives aimed at improving them. A number of unanswered questions remain, among them, matters pertaining to attracting, rewarding and retaining teachers; developing support for teachers' professional learning; and capturing how teachers are responding to reform in their classroom practice.

Regarding the state's role in attracting and rewarding teachers, we need a better handle on basic facts concerning the state's teaching force. In order to form a baseline for thinking about attracting, rewarding and retaining teachers, particularly those in challenging assignments, we need detailed longitudinal information about supply and demand or teacher mobility. Digging deeper into teachers' career trajectories across the state to get at reasons for staying in a position, changing positions, or exiting the profession would also inform the current and potential actions of the state. More information about the actual levels of teacher compensation across districts, in light of local cost-of-living information, would shed further light on the financial incentives for entering or staying in the profession. Neither the state nor other observers have assembled sufficient information to appraise and understand equity questions in the distribution of teaching talent across the state.

Regarding the development of an environment supporting professional learning, we know remarkably little about the actual array and accessibility of professional learning opportunities of all kinds across the state, nor about how teachers take advantage of them. Better aggregate pictures of professional learning in action would be well complemented by close-up investigations of the quality of professional development and its relationship to reform goals. Part of the problem is understanding how the mix of available providers (district offices, ESDs, professional associations, private consultants, school-based mentors, etc.) conforms to the goals and premises of Washington's reform efforts, as well as to the desires or needs of local educators, individual schools and districts.

Teachers' perspectives on the usefulness and availability of professional learning opportunities would be especially helpful, as would more attempts to understand the impact of different kinds of professional learning on classroom practice and student learning.

Finally, we have yet to capture systematically and repeatedly over time how teachers are responding to the state's reform in their classroom practice. State-level audiences do not know, for example, how fully teachers have embraced the third goal of the reform (concerning the development of critical thinking skills). In particular subject areas, it is not yet possible to say how teachers diagnose what their students know about the subject, and how they make use of that prior knowledge in designing lessons. The classroom-level responses of teachers to the state's emerging accountability system are a third kind of information that has critical importance to further policy action at the state level.

Given better information on teacher retention, professional development, and classroom practice, among other topics in its agenda for improving learning and teaching, the state policy community will be in a better position to appraise and interpret the results of the state's student performance results and thereby imagine courses of policy action that are likely to support high-quality teaching. Washington's continued engagement with issues of teaching quality will require an enhanced capacity for answering these questions and efforts to provide the policy community with useful information regarding the conditions that affect the improvement of teaching and learning.

REFERENCES

Abbott, M. & Joireman, J. (2001). *The Relationships Among Achievement, Low Income and Ethnicity Across Six Groups of Washington State Students*. Seattle: Seattle Pacific University, Washington School Research Center.

American Federation of Teachers (1998). Survey and Analysis of Teacher Salary Trends, 2001. Retrieved 5/14/2003 from http://aft.org/research

Andrew, M. & Schwab, R. L. (1995). Has reform in teacher education influenced teacher performance? An outcome assessment of graduates of eleven teacher education programs. *Action in Teacher Education, 17*, 43-53.

Ayers, J. B. (1988). Another look at the concurrent and predictive validity of the national teacher examinations. *Journal of Educational Research*, *81*(3), p. 133-137.

Ball, D. L. & McDiarmid, G. L. (1990). The subject-matter preparation of teachers. In W. R. Houston, (Ed.) *Handbook of Research in Teacher Education*. Macmillan.

Begle, E. G., (1979). Critical Variables in Mathematics Education. Washington, DC: Mathematical Association of American and National Council of Teachers of Mathematics.

Bryk, A. S., Lee, V. E., & Smith, J. B. (1990). High School Organization and its Effect on Teachers and Students: An interpretive summary of the research. In W. J. Clune & J. F. Witte (Eds.), *Choice and Control in American Education: Volume 1. The theory of choice and control in American education*. Philadelphia: Falmer Press.

Bureau of National Affairs (1998). *Quarterly report on job absence and turnover*. Washington, D.C.: Author.

Chapman, D. W., & Green, M. S. (1986). Teacher Retention: A further examination. *Journal of Educational Research, 79*(5), 273-279.

Cochran-Smith, M. & M. K. Fries (2001). Sticks, Stones, and Ideology: The discourse of reform in teacher education. *Educational Researcher*, *30*(8), 3-15.

Cohen, D. K., & Hill, H. (1997). *Instructional Policy and Classroom Performance: The Mathematics Reform in California*. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.

Darling-Hammond, L. (1999). *Teacher quality and student achievement: A review of state policy evidence*. Seattle, WA: Center for the Study of Teaching and Policy.

Darling-Hammond, L. (2000). Teacher quality and student achievement: A review of state policy evidence. *Education Policy Analysis Archives 8*(1). Retrieved 5/14/2003 from http://epaa.asu.edu/epaa/v8n1/.

Dolton, P. & van der Klaauw, W. (1999). The Turnover of teachers: A competing risks explanation. *Review of Economics and Statistics, 81*(3), 543-552.

Ehrenberg, R.G. & D. J. Brewer (1995). Did teacher's race and verbal ability matter in the 1960s? Coleman revisted. *Economics of Education Review, 14*(1), 1-21.

Elmore, R. F. (1996). Getting to scale with good educational practice, *Harvard Educational Review*, *66*(1), 1-26.

Farkas, S., Johnson, J. & Foleno, T. (2000). A sense of calling: Who teaches and why. New York, NY: Public Agenda.

Ferguson, P., & Womack, S. T. (1993). The impact of subject matter and education coursework on teaching performance. *Journal of Teacher Education, 44*(1), 55-63.

Ferguson, R. F. (1991). Paying for public education: New evidence on how and why money matters. *Harvard Journal on Legislation, 28*(2), 465-497.

Ferguson, R. F. & Ladd, H. F. (1996). How and why money matters: An analysis of Alabama schools. In H. Ladd (Ed.), *Holding Schools Accountable*. (pp. 265-298), Washington, DC: Brookings Institution.

Goldhaber, D. D. & Brewer, D. J. (1997). Evaluating the effect of teacher degree level on educational performance, In W. J. Fowler, Jr. (Ed.), Developments in school finance, 1996 (pp. 197-210). Washington, DC: National Center for Educational Statistics, Department of Education.

Goldhaber, D. D. & Brewer, D. J. (1998). When should we reward degrees for teachers? *Phi Delta Kappan*, *80*(2), 134-138.

Greenberg, D., & McCall, J. (1974). Teacher Mobility and Allocation. *Journal of Human Resources, 9*(4), 480-502.

Greenwald, R., Hedges, L.V., & Laine, R. D. (1996). The effect of school resources on student achievement. *Review of Educational Research*, *66*(3), 361-396.

Hanushek, E. A. (1986). The economics of schooling: Production and efficiency in public schools. *Journal of Economic Literature, 24*, 1141-1177.

Hanushek, E. A., Kain, J. F., & Rivkin, S. G. (2001). *Why Public Schools Lose Teachers*. Cambridge, MA: National Bureau of Economic Research.

Harding, E., McLain, B. & Anderson, S. (1999). Teacher preparation and development. Olympia, WA: Washington State Institute for Public Policy.

Harris, D. & Adams, S. J. (2003). *Putting teacher labor markets in context: A comparison of turnover across professions and industries*. Paper presented at the annual meeting of the American Education Finance Association, Orlando, FL.

Haycock, K. (1998). *Good teaching matters…A lot*. Santa Cruz, California: Center for Teaching and California's Future. Reprinted from Education Trust Thinking K-16, (3)2. Retrieved May 2003, from http://www.cftl.org /documents/K16.pdf

Henke, R. R., Choy, S. P., Chen, X., Geis, S., Alt, M. N., & Broughman, S. P. (1997). America's Teachers: Profile of a Profession. Washington, DC: U.S. Department of Education, National Center for Education Statistics.

Henke, R. R., Zahn, L. & Carroll, C. D. (2001). *Attrition of new teachers among recent college graduates: Comparing occupational stability among 1992-93 graduates who taught and those who worked in other occupations*. Washington, DC: U.S. Department of Education, National Center for Education Statistics.

Hodgkinson, H. (2001). Educational demographics: What teachers should know. *Educational Leadership, 58*(4), 6-11.

Huberman, A. M. & Miles, M. B. (1984). Rethinking the quest for school improvement: Some findings from the DESSI study. *Teachers College Record*, *86*(1), 34-54.

Hussar, W. J. (1999). *Predicting the need for newly hired teachers in the United States to 2008-09.* Washington, DC: U.S. Department of Education, National Center for Education Statistics.

Hussar, W. J. & Gerald, D. E. (2002). *Pocket projects: Projections of educational statistics to 2012*. Washington, DC: U.S. Department of Education, National Center for Education Statistics.

Imazeki, J. (2003). Class-size reduction and teacher quality: Evidence from California. In M. L. Plecki & D. H. Monk (Eds.), *School Finance and Teacher Quality: Exploring the Connections* (pp. 159-178). Larchmont, NY: Eye on Education.

Ingersoll, R. M. (1995). Teacher supply, teacher qualifications and teacher turnover. Washington, D. C.: U.S. Department of Education, National Center for Education Statistics.

Ingersoll, R. M. (2001a). *Teacher turnover, teacher shortages, and the organization of schools*. Seattle, WA: Center for the Study of Teaching and Policy.

Ingersoll, R. M. (2001b). Teacher turnover and teacher shortages: An organizational analysis. *American Educational Research Journal*, *38*(3), 499-534.

Ingersoll, R. M. (2002). Teacher quality and educational inequality: The case of Title I schools. In K. K. Wong & M. C. Wang, (Eds.). *Efficiency, accountability and equity issues in Title I schoolwide program implementation* (pp. 149-182). Greenwich, Connecticut: Information Age Publishing.

Katzman, M. (1971). *The political economy of urban schools*. Cambridge, MA: Harvard University Press.

Ladson-Billings, G. (1995). But that's just good teaching: The case for culturally relevant pedagogy. *Theory into Practice*, *34*(3), 159-165.

Lankford, H., Loeb, S. & Wycoff, J. (2002). Teacher sorting and the plight of urban schools: A descriptive analysis. *Educational Evaluation and Policy Analysis*, *24*(1), 37-62.

Lewis, L., Parsad, B., Carey, N, Bartfai, N., Farris, E., Smerdon, B., & Greene, B. (1999). *Teacher quality: A report on the preparation of qualifications of pubic school teachers.* Washington, DC: U.S. Department of Education, National Center for Education Statistics.

Lippman, L., Burns, S. & McArther, E. (1996). *Urban schools: The challenge of location and poverty*. Washington, DC: U.S. Department of Education, National Center for Education Statistics.

McLaughlin, M. W. & Marsh, D. D. (1978). Staff development and school change, *Teachers College Record, 80*(1), 69-94.

Monk, D. H. (1994). Subject area preparation of secondary mathematics and science teachers and student achievement. *Economics of Education Review*, *13*(2), 165-178.

Murnane, R. (1975). *The impact of school resources on the learning of inner city children*. Cambridge, MA: Ballinger Publishing Company.

Murnane, R. (1984). Selection and Survival in the Teacher Labor Market. *Review of Economics and Statistics, 66*(3), 513-518.

Murnane, R., Singer, J. D., & Willett, J. B. (1988). The Career Paths of Teachers: Implications for teacher supply and methodological lessons for research. *Educational Researcher, 17*(6), 22-30.

Murnane, R. J., & Olsen, R. J. (1989). The Effects of Salaries and Opportunity Costs on Duration in Teaching: Evidence from Michigan. *Review of Economics and Statistics, 71*(2), 347-352.

Murnane, R. J., & Olsen, R. J. (1990). The effects of salaries and opportunity costs on duration in teaching: Evidence from North Carolina. *Journal of Human Resources, 25*(1), 106-124.

National Association of State Boards of Education. (1998). *The numbers game: Ensuring quantity and quality in the teaching workforce*. Alexandria, VA: Author.

National Center for Education Statistics (1995). *Which types of schools have the highest teacher turnover?* (IB-5-95) Washington, DC: U.S. Department of Education.

Office of the Superintendent of Public Instruction. (2000). *Annual Report 1998-1999: Certificates Issued and Certificated Personnel Placement Statistics*. Olympia, WA: Author.

Office of the Superintendent of Public Instruction. (2001a). *Annual Report 1999-2000: Certificates Issued and Certificated Personnel Placement Statistics*. Olympia, WA: Author.

Office of the Superintendent of Public Instruction. (2001b). *Washington State Learning Assistance Program, 1999-2000. Annual Report*. Olympia, WA: Author.

Office of the Superintendent of Public Instruction. (2002a). *Annual Report 2000-2001: Certificates Issued and Certificated Personnel Placement Statistics*. Olympia, WA: Author.

Office of the Superintendent of Public Instruction. (2002b). *School enrollment summary: Washington state school districts: school year 2001-02*. Olympia, WA: Author.

Office of the Superintendent of Public Instruction. (2002c). *Centralized Credentialed Staff Records Repository Feasibility Study.* Olympia, WA: NORED.

Office of the Superintendent of Public Instruction. (2002d). *Educator Supply and Demand in Washington*. Olympia, WA: Author.

Office of the Superintendent of Public Instruction. (2002e). *Addressing the Achievement Gap: A challenge for Washington state educators*. Olympia, WA: Author.

Office of the Superintendent of Public Instruction. (2003). *Annual Report 2001-2002: Certificates Issued and Certificated Personnel Placement Statistics*. Olympia, WA: Author.

Plecki, M. L. (2000). Economic perspectives on investments in teacher quality: Lessons learned from research on productivity and human resource development. *Education Policy Analysis Archives 8*(33). Retrieved 5/14/03 from http://epaa.asu.edu/epaa/v8n33/.

Professional Educators Standards Board (2000). *Recommendations for high-quality alternative routes to teacher certification*. Olympia, WA: Author.

Rosenholtz, S. J. (1985). Effective schools: Interpreting the evidence. *American Journal of Education*, *93*(9), 352-387.

Roza, M. & Hill, P. T. (2003). *How within-district spending inequities help some schools to fail*. Paper presented at the Brookings Conference. Retrieved 6/25/03 from http://www.crpe.org/workingpapers/pdf/Roza-Hill.pdf

Sanders, W. L. & Rivers, J. C. (1996). *Cumulative and residual effects of teachers on further student academic achievement*. Knoxville: University of Tennessee Value-Added Research and Assessment Center.

Seastrom, M. M., Gruber, K. J., Henke, R., McGrath, D. J., & Cohen, B. A. (2002). *Qualifications of the public school teacher workforce: Prevalence of out-of-field teaching 1987-88 to 1999-2000.* Washington, DC: U.S. Department of Education, National Center for Education Statistics.

Shields, P. M., Humphrey, D. C., Wechsler, M. E., Riehl, L. M., Tiffany-Morales, J., Woodworth, K., Young, V. M., & Price, T. (2001). *The status of the teaching profession 2001*. Santa Cruz, CA: The Center for the Future of Teaching and Learning.

Snyder, T.D., Hoffman, C.M., &. Geddes, C.M. (1997). *Digest of education statistics 1997*. Washington, DC: National Center for Education Statistics.

Retrieved March 2003, from http://nces.ed.gov/pubs/digest97 /d97t069.html

Summers, A. & Wolfe, B. (1977). Do schools make a difference? *American Economic Review 67*(4), 639-652.

Theobald, N. D. (1990). An examination of the influence of personal, professional, and school district characteristics on public school teacher retention. *Economics of Education Review, 9*(3), 241-250.

Theobald, N. D. and Laine, S. W.M. (2003). The impact of teacher turnover on teacher quality: Findings from four states. In M. L. Plecki & D. H. Monk (Eds.), *School Finance and Teacher Quality: Exploring the Connections* (pp. 33-54). Larchmont, NY: Eye on Education.

Tye, B. B. and O'Brien. (2002). Why are experienced teachers leaving the profession? *Phi Delta Kappan*. *84*(1), 24-32.

United States Census Bureau. (2000). *Table 2: Total population by race: State, counties, and places in Washington, 2000*. Retrieved May 2003 from http://www.ofm.wa.gov/ census2000/ pl/tables/wa_place_total.xls

United States Department of Education (2003). *Teaching, Frequently Asked Questions - Information Resource Center.* Washington D.C.: Department of Education. Retrieved 6/20/03 from http://www.ed.gov/offices/OIIA /IRC/faq_teaching.html

Villegas, A., & Lucas, T. (2002). *Educating culturally responsive teachers: A coherent approach*. Albany, NY: State University of New York Press.

Washington State. (1999). K-12 Finance and Student Performance Study. Report 99-9. Olympia, WA: Joint Legislative Audit and Review Committee. Available: http://jlarc.leg.wa.gov/Reports/99-9K12Finance.pdf.

Washington State Board of Education (2002). *Certification handbook*. Olympia, WA: Author.

Whitener, S.D., Gruber, K. J., Lynch, H., Tingos, K., & Perona, M. (1997). *Characteristics of stayers, movers, and leavers: Results from the teacher followup survey: 1994-95*. Washington, DC: U.S. Department of Education, National Center for Education Statistics.

Wright, S. P., Horn, S. P., & Sanders, W. L. (1997). Teacher and classroom context effects on student achievement: Implications for teacher evaluation. *Journal of Personnel Evaluation in Education*, 57-67.

APPENDIX A: STUDENT AND TEACHER ETHNICITY IN 2000

Native American Students and Teachers

Native American	Number	Percent
Teachers	448	0.8%
Students	27,212	2.7%

DISTRICTS WITH HIGHEST % NATIVE AMERICAN STUDENT POPULATION					
County	District	Student Enrollment	% Native American	# Native American Teachers	%Native American Teachers
Okanogan	NESPELEM SCHOOL DISTRICT	247	96.8	2	11.1
Grays Harbor	TAHOLAH SCH DISTRICT	225	95.1	4	18.2
Stevens	WELLPINIT SCHOOL DISTRICT	425	92.5	5	16.7
Jefferson	QUEETS-CLEARWATER SCH DISTRICT	44	86.4	1	25.0
Ferry	INCHELIUM SCH DISTRICT	264	82.2	2	9.1
Ferry	KELLER SCHOOL DISTRICT	51	80.4	0	0.0
Yakima	MOUNT ADAMS SCHOOL DISTRICT	1142	64.6	8	11.9
Clallam	CAPE FLATTERY SCHOOL DISTRICT	641	54.9	8	14.5
Grant	GRAND COULEE DAM SCH DISTRICT	869	47.5	1	2.0
Mason	HOOD CANAL SCHOOL DISTRICT	388	33.5	1	4.2
Grays Harbor	OAKVILLE SCHOOL DISTRICT	318	32.1	0	0.0
Okanogan	OMAK SCHOOL DISTRICT	2201	30.8	5	4.0
Stevens	COLUMBIA SCHOOL DISTRICT	234	27.4	0	0.0
Yakima	WAPATO SCHOOL DISTRICT	3417	27.2	13	6.8
Stevens	EVERGREEN SCHOOL DISTRICT	20	25	0	0.0

African American Students and Teachers

African American	Number	Percent
Teachers	861	1.6%
Students	53,205	5.3%

DISTRICTS WITH HIGHEST % AFRICAN AMERICAN STUDENT POPULATION					
County	District	Student Enrollment	% African American	# African American Teachers	% African American Teachers
Pierce	CLOVER PARK SCHOOL DISTRICT	13273	23.8	37	5.3
King	SEATTLE SCHOOL DISTRICT	47575	23.2	258	9.6
King	TUKWILA SCHOOL DISTRICT	2571	20.8	3	2.0
Pierce	TACOMA SCH DISTRICT	34093	20.3	165	8.6
King	RENTON SCH DISTRICT	12729	17.4	33	5.1
Pierce	STEILACOOM HISTORICAL SCHOOL DIST	2027	13.9	1	0.9
Pierce	UNIVERSITY PLACE SCH DISTRICT	5322	13.6	13	4.4
Pierce	FRANKLIN PIERCE SCHOOL DISTRICT	7491	12.9	12	2.7
King	FEDERAL WAY SCHOOL DISTRICT	22623	12.3	28	2.5
King	HIGHLINE SCHOOL DISTRICT	18024	12	11	1.2
Kitsap	BREMERTON SCHOOL DISTRICT	6001	11.6	7	2.1
Stevens	SUMMIT VALLEY SCHOOL DISTRICT	44	11.4	0	0.0
Pierce	BETHEL SCHOOL DISTRICT	16029	9.3	20	2.3
King	KENT SCHOOL DISTRICT	26535	9.1	23	1.7
Thurston	NORTH THURSTON PUBLIC SCHOOLS	12926	8.5	11	1.5

Hispanic Students and Teachers

Hispanic	Number	Percent
Teachers	1092	2.0%
Students	102,925	10.2%

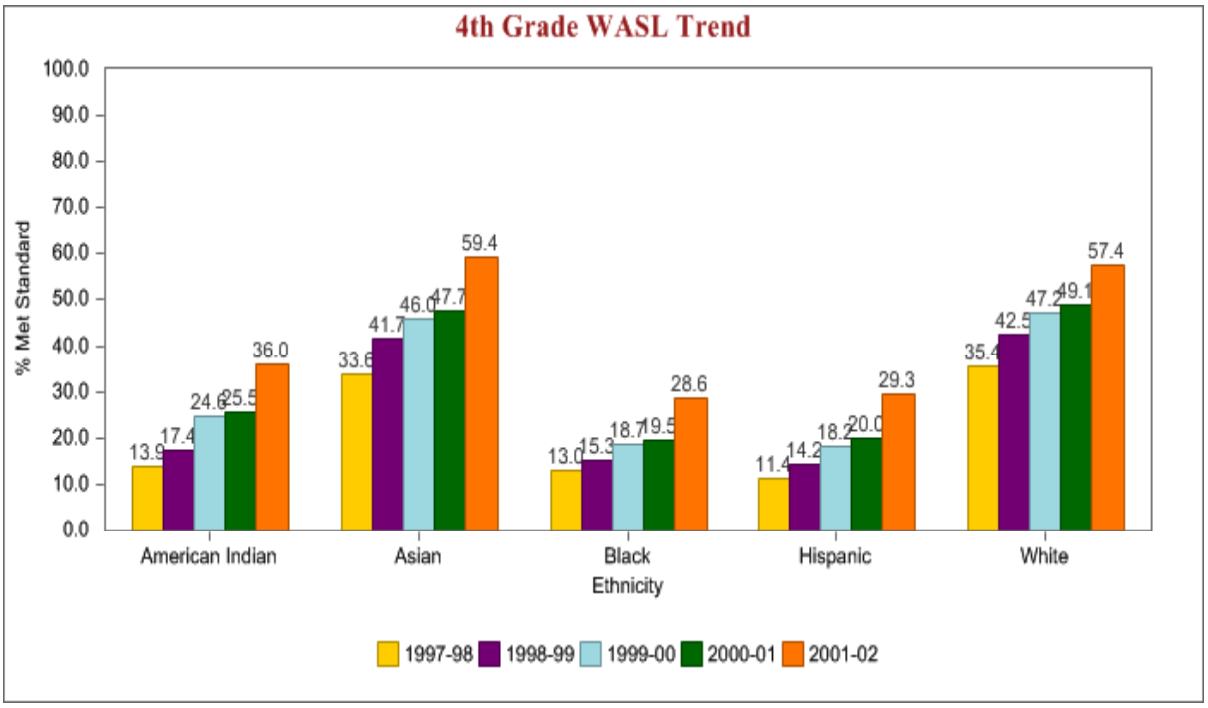
DISTRICTS WITH HIGHEST PERCENT OF HISPANIC STUDENTS					
County	District	Student Enrollment	% Hispanic	# Hispanic Teachers	% Hispanic Teachers
Yakima	MABTON SCHOOL DISTRICT	872	90	7	12.5
Douglas	PALISADES SCHOOL DISTRICT	54	83.3	0	0.0
Yakima	GRANGER SCHOOL DISTRICT	1318	81.3	10	14.5
Grant	WAHLUKE SCHOOL DISTRICT	1550	79.5	6	6.7
Yakima	SUNNYSIDE SCHOOL DISTRICT	5391	78.6	36	13.4
Yakima	GRANDVIEW SCHOOL DISTRICT	2991	76.9	13	8.3
Yakima	TOPPENISH SCHOOL DISTRICT	3487	76.1	26	13.4
Douglas	BRIDGEPORT SCHOOL DISTRICT	672	75.6	1	2.1
Douglas	ORONDO SCHOOL DISTRICT	252	72.2	1	7.1
Adams	OTHELLO SCHOOL DISTRICT	3053	71.5	10	6.2
Klickitat	ROOSEVELT SCHOOL DISTRICT	24	70.8	0	0.0
Grant	WARDEN SCHOOL DISTRICT	959	68.5	1	1.7
Okanogan	BREWSTER SCHOOL DISTRICT	1012	68.1	0	0.0
Franklin	PASCO SCHOOL DISTRICT	8850	64.9	88	16.1
Grant	ROYAL SCHOOL DISTRICT	1346	63.6	3	3.9

Asian Students and Teachers

Asian	Number	Percent
Teachers	1242	2.3%
Students	73,663	7.3%

DISTRICTS WITH HIGHEST PERCENT ASIAN STUDENT POPULATION					
County	District	Student Enrollment	% Asian	# Asian Teachers	% Asian Teachers
King	SEATTLE SCHOOL DISTRICT	47575	23.7	234	8.7
King	BELLEVUE SCHOOL DISTRICT	15431	20.3	36	3.8
King	HIGHLINE SCH DISTRICT	18024	19.7	32	3.5
King	RENTON SCH DISTRICT	12729	19.4	39	6.0
King	SHORELINE SCH DISTRICT	10202	18.1	14	2.4
King	TUKWILA SCHOOL DISTRICT	2571	17.7	8	5.4
King	MERCER ISLAND SCHOOL DISTRICT	4306	15.1	9	3.5
King	FEDERAL WAY SCHOOL DISTRICT	22623	14.8	46	4.1
Island	OAK HARBOR SCHOOL DISTRICT	6342	14.6	7	2.3
Pacific	RAYMOND SCHOOL DISTRICT	585	13.7	1	2.5
Pierce	TACOMA SCHOOL DISTRICT	34093	13	79	4.1
King	KENT SCHOOL DISTRICT	26535	12.8	64	4.8
Kitsap	CENTRAL KITSAP SCHOOL DISTRICT	13210	12.6	19	2.6
Snohomish	MUKILTEO SCHOOL DISTRICT	13544	12.5	19	2.7
Snohomish	EDMONDS SCHOOL DISTRICT	22067	12.4	38	3.3

Appendix B: Fourth Grade WASL Trend by Racial/Ethnic Group

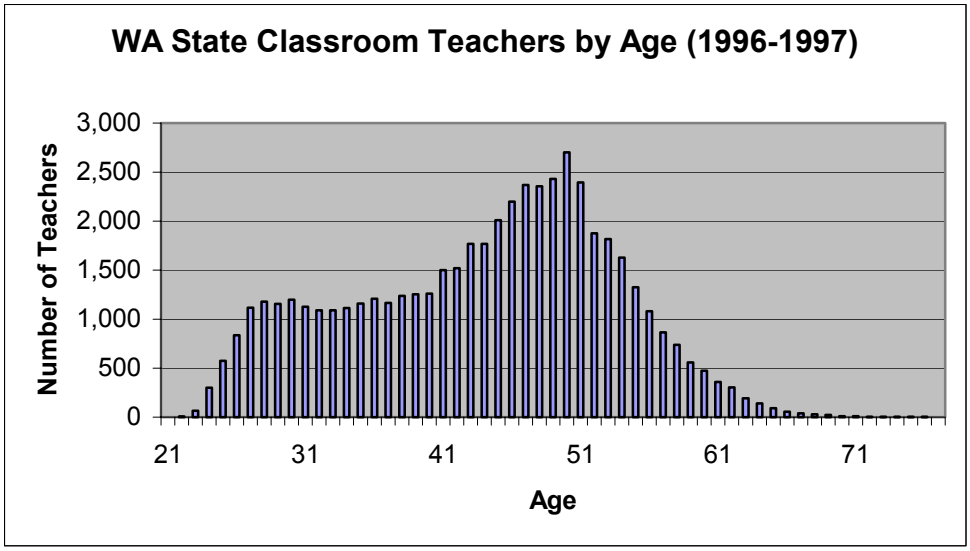


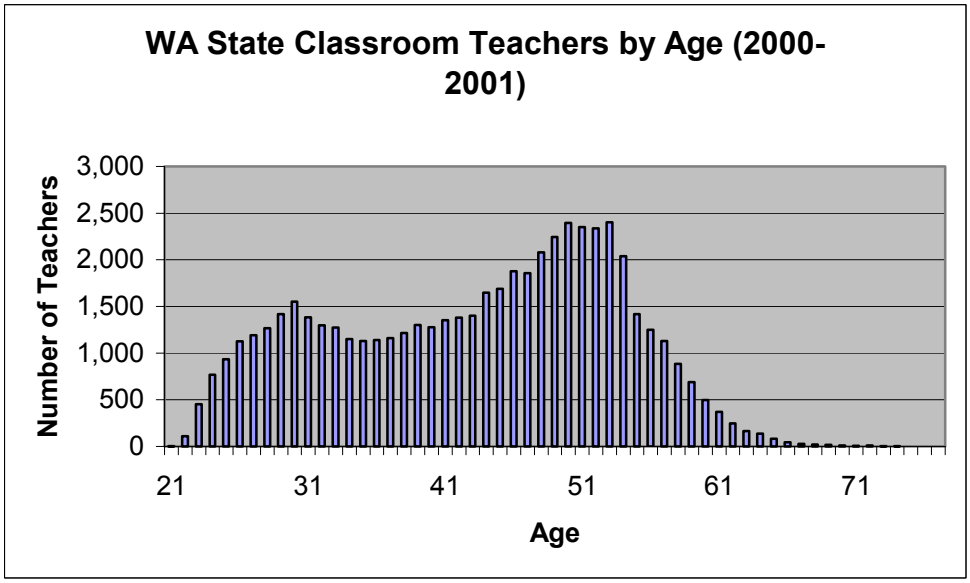
Office of the Superintendent of Public Instruction, Information and Education Profile, 2003.

APPENDIX C: TEN SAMPLE DISTRICTS IN 2000-2001

Appendix C: Ten Sample Districts in 2000-01											
	WA STATE	ABERDEEN	BELLEVUE	EVERETT	OMAK	PASCO	PORT ANGELES	SPOKANE	TACOMA	TUKWILA	YAKIMA
General Characteristics											
Number of Schools	2,144	10	30	25	5	13	11	50	53	5	22
Number of Teachers (headcount)	55,246	223	939	920	126	548	272	1,824	1,921	148	781
Number of Teachers (FTE)	50,734.6	215.8	801.6	868.9	108.1	475.0	260.0	1691.0	1795.9	134.7	737.6
Number of Students (headcount)	1,004,843	4,123	15,431	18,683	2,201	8,850	4,866	31,725	34,093	2,571	13,985
Number of Students (FTE)	942,323	3,685	14,754	17,313	1,983	8,139	4,587	30,036	30,659	2,416	13,136
% Free and Reduced	31.2	51.7	14.2	23.3	46.8	60.4	28.0	43.9	50.5	58.2	52.6
%Special Education	11.5	14.4	9.0	11.4	12.7	11.1	12.6	11.8	11.8	11.1	12.4
% Bilingual	5.9	4.0	9.3	5.1	3.6	39.7	0.6	2.6	5.9	22.9	29.7
% Migrant	3.0	5.2	0	0	4.6	30.9	0	0	0.4	0	23.9
Student/Teacher											
FTE ratio student/teacher	18.57	17.08	18.41	19.93	18.34	17.14	17.64	17.76	17.07	17.94	17.81
Education											
% Masters degree or higher	53.7	46.6	49.4	42.3	51.6	61.3	50.0	62.8	42.1	45.9	47.9
Teacher Experience											
% Less than 1 year	5.7	8.1	12.0	6.5	0.8	8.2	4.0	3.9	4.9	16.9	6.7
% 0-4 years	23.2	23.8	37.3	23.9	9.5	28.5	14.3	19.0	22.9	43.2	19.1
% 5-14 years	35.0	43.0	30.5	34.1	32.5	39.2	36.0	34.1	34.7	30.4	31.6
%15-24 years	25.9	17.5	19.5	27.7	36.5	19.9	28.7	30.3	23.4	12.9	25.6
% 25 years or more	15.9	15.7	12.7	14.3	21.5	12.4	21.0	16.6	19.0	13.6	23.7
4th Grade WASL Scores (district-wide)											
Reading 2000-2001	66.1	55.9	78.4	70.7%	49.0	40.0	72.4	68.2	58.0	53.1	42.0
Reading % change from 98-99	7.0	9.6	5.2	9.2%	-1.3	7.8	3.9	10.4	7.5	-4.0	8.6
Math 2000-2001	43.4	31.1	64.9	46.8%	24.3	26.0	53.8	47.7	31.5	26.2	22.6
Math % change from 98-99	6.1	9.0	6.6	13.9%	1.9	6.4	12.6	8.2	6.7	-2.4	11.5
Fiscal Information											
Tax Rate General Fund	2.50000	3.87150	1.25941	3.22320	2.64750	4.07220	2.83196	3.98265	4.98200	2.89281	2.53450
Total Revenues Per Pupil	$6,991	$6,975	$7,147	$6,835	$7,349	$7,404	$6,725	$7,521	$7,877	$6,899	$7,415
Assessed Property Values		$222,660	$1,218,919	$393,803	$174,972	$199,321	$324,244	$299,500	$335,684	$599,040	$238,074
Levy Authority Percent		24.00	30.66	24.00	24.00	24.00	24.00	24.18	31.47	33.54	24.00
Actual Levy Percent		21.45	30.66	23.98	15.05	20.64	19.89	24.18	31.47	33.42	15.76
Recipient of LEA Funds		Yes	No	No	Yes	Yes	Yes	Yes	Yes	No	Yes
LEA - 12% Levy Rate	1.471	2.718	0.490	1.444	3.569	3.439	1.864	2.010	2.000	0.997	2.893

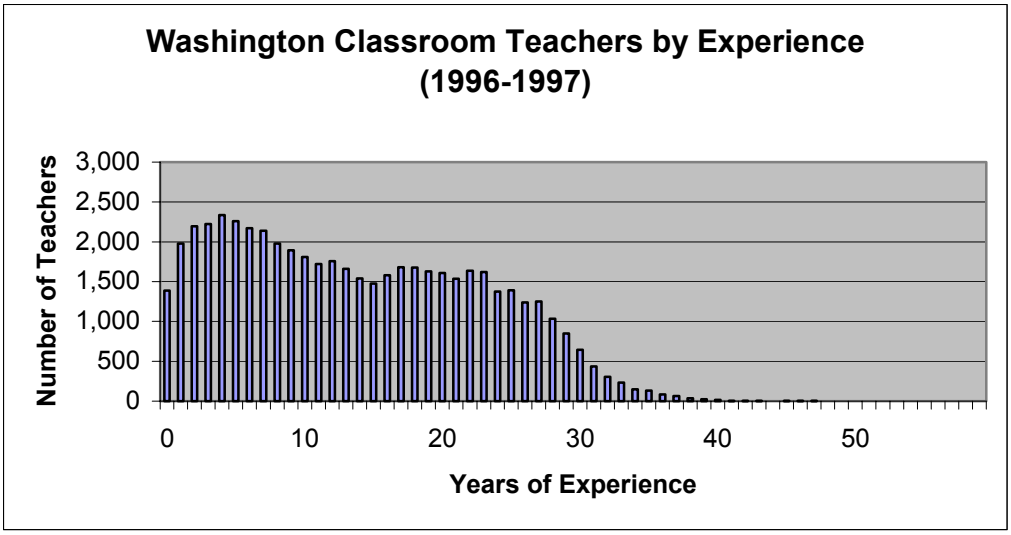
APPENDIX D: CLASSROOM TEACHERS BY AGE IN 1996 AND 2000





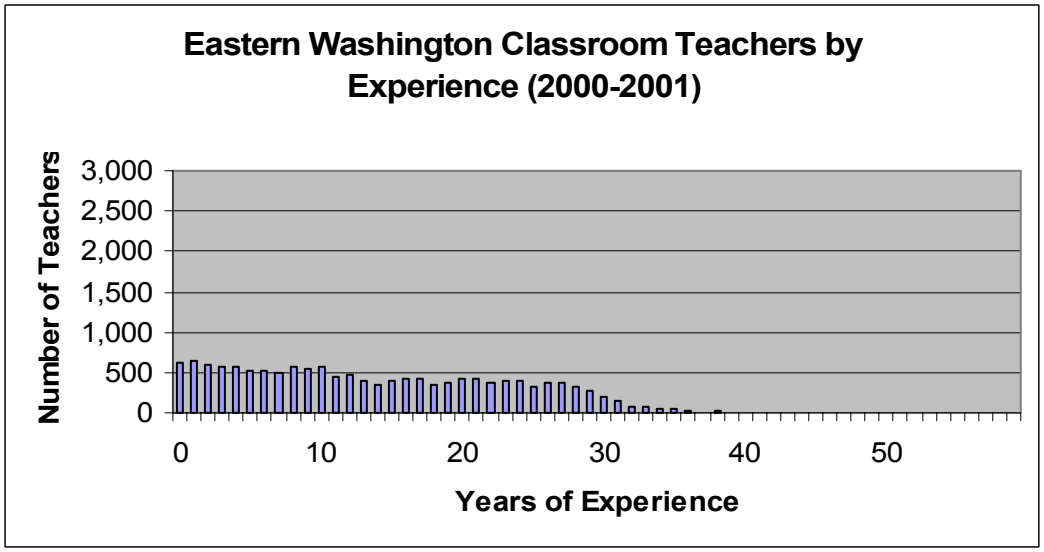
Age Range	1996		2000	
	Number of Teachers	Percent	Number of Teachers	Percent
21-30	6,438	12.2%	7,272	13.2%
31-40	11,715	22.2%	12,612	22.8%
41-50	20,622	39.1%	16,814	30.4%
51-60	12,763	24.2%	16,909	30.6%
61+	1,264	2.4%	1,639	3.0%

APPENDIX E: CLASSROOM TEACHERS BY EXPERIENCE IN 1996 AND 2000



Years Teaching Experience	1996		2000	
	Number of Teachers	Percent	Number of Teachers	Percent
0-4 years	11,489	21.8%	13,712	24.8%
5-9 years	10,237	19.4%	10,282	18.6%
10-14 years	8,274	15.7%	8,767	15.9%
15-19 years	7,897	15.0%	7,165	13.0%
20-24 years	7,552	14.3%	6,943	12.6%
25-29 years	5,410	10.2%	5,871	10.6%
30 or more	1,933	3.7%	2,472	4.5%

APPENDIX F: WESTERN AND EASTERN WASHINGTON TEACHERS BY EXPERIENCE



Years of Teaching Experience	Statewide	Western Washington		Eastern Washington	
	Percent	Number of Teachers	Percent	Number of Teachers	Percent
0-4 yrs	24.8%	10,713	26.0%	2,999	21.5%
5-9 yrs	18.6%	7,661	18.6%	2,622	18.8%
10-14 yrs	15.9%	6,555	15.9%	2,212	15.8%
15-19 yrs	13.0%	5,236	12.7%	1,930	13.8%
20-24 yrs	12.6%	5,004	12.1%	1,939	13.9%
25-29 yrs	10.6%	4,230	10.3%	1,641	11.7%
30 or more	4.5%	1,846	4.5%	625	4.5%