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Teacher Recruitment and Retention

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Introduction

The primary purpose of this report is to discuss recent empirical research that addresses the question of what factors and strategies are related to recruitment and retention of teachers in public schools. A striking feature of the landscape of existing studies of this issue is the lack of in-depth and explanatory information for making policy decisions. Although there are several nationwide studies of teacher and district characteristics and supports (e.g., salary, professional development), there are many unanswered questions about why, for example, do younger teachers and teachers in math and science have higher attrition rates? Why do students with higher scores on college entrance exams shun teaching, especially in math and science? Why do men have less attrition and more longevity in the teaching profession than women, or why are men more enticed than women to remain in teaching by the prospects of higher administrative salaries in their district?

Reliable information to answer these questions is lacking because there are few studies of these issues, and because existing data tend to be stored in incompatible electronic formats that deny or impede access by other departments and agencies. There is a critical need for designing data-collection and data processing systems that are interconnected across departments and agencies to be able to more fully answer policy-relevant questions, such as exactly what employment opportunities are siphoning math and science students from the teaching profession or causing attrition among those who do enter teaching? Exactly what factors might “turn the tide” of people who are rejecting or leaving the teaching profession?

At the same time, an extensive review of the research literature indicates there are several large-scale and national studies that provide valid information useful to policymaking:

- Half of all attrition is related to migration across school districts, typically because of higher salaries and more benefits.
- Younger teachers who are in their first five years of teaching and teachers at retirement age have the highest attrition rates.
- Math and science students in the top quartile of scores on college entrance exams are less likely to enter teaching, or remain if they enter, than students with lower scores.
- Women and Caucasians have more attrition and less longevity in teaching positions, respectively, than do men and people from minority groups.
- There is a higher attrition rate among teachers in high-poverty, high-minority school districts than in other districts, and many of these teachers migrate to districts with higher salaries. Recruitment is also a greater problem in schools with a high proportion of students in poverty and in minority groups.
- Evidence shows that large school districts experience less turnover than small districts, and wealthier and rural districts have less turnover than poorer and inner-city urban districts.
- Middle schools are reported to have the highest attrition, which is thought to be due to discipline problems. Public schools have less attrition than private schools.

- Evidence confirms that teachers do switch districts for higher pay. Women are less likely to leave if their salary is commensurate with other districts; whereas, men are less likely to leave if their salary is equivalent to what they could earn in alternative employment.

Finally, research indicates that there are several working conditions associated with recruitment and retention. Evidence shows that recruitment and retention are improved by opportunities for quality mentoring and professional development programs, small class sizes, autonomy for teachers, administrative support, and less disciplinary problems in the classroom.

Background Context

It is the goal of public schools to provide a high-quality education to students, irrespective of characteristics or circumstances (Southern Regional Education Board, 2004). To do so requires an adequate supply of qualified persons who are willing and able to teach diverse students in a variety of circumstances. The prevailing forces of rising school-aged populations, high attrition rates, and increasing retirements have caused schools and districts to struggle to maintain standards for teaching quality while continually recruiting capable new teachers and seeking to retain effective experienced teachers.

Purpose of the Report

The purpose of this report is to discuss recent empirical research that addresses the question of what factors and strategies are related to recruitment and retention of teachers in public schools. To develop the context in which policies affecting the supply of teachers are formed, the following questions are briefly addressed under separate headings:

- What are the characteristics of people who enter the teaching profession?
- What are the characteristics of teachers who leave teaching?
- What are the characteristics of schools and districts that successfully recruit and retain teachers?
- What types of policies show evidence of efficacy in recruiting and retaining teachers?

Conceptual Framework

The basic principle driving the supply of teachers is that individuals enter or remain in the profession if teaching represents an attractive option among several alternatives available. Attractive options are desirable in terms of ease of entry and overall compensation, including salary, benefits, working conditions, personal satisfaction, and opportunities for professional development and promotion. These options drive policy decisions that can be altered at the school, district, or state levels to adjust supply and demand.

Recruitment

The “supply and demand” market for teachers is nested within and continuously influenced by a larger labor market that includes employment opportunities for occupations that require commensurate education and skill. In constructing policies for recruitment and retention, the goal is to increase or match the rewards of competing occupations.

Retention

The studies that are particularly germane to current retention examine "drivers" of retirement, seeking employment outside teaching, taking a hiatus from teaching, voluntary unemployment, and changing schools or districts.

Balancing Recruitment and Retention With Quality of Teaching

The issue of quality of teaching is integrally related to but should not be trumped by the pressing needs of recruitment and retention. The single strongest predictor of student achievement gains, according to several studies, is quality of teaching (Whitehurst, 2002). Evidence indicates that quality of teaching can make a full school-year's difference in student learning gains, and ineffective teaching can lead to declines in achievement (Milanowski, 2004; Odden, Borman, & Fermanich, 2004; Odden & Wallace, 2006; Sanders, 2000).

Ideally, this review of research would contain only research that focuses on the recruitment and retention of high-quality teachers because school districts aspire to hire the most effective teachers possible. However, very few studies exist that examine the combined effects of recruitment, retention, and quality of teaching. Information on all three of these factors is not available in most datasets. It is unavailable primarily because of the lack of information-sharing computer systems between agencies within most states (see Guarino et al., 2006). Indeed, numerous authors have observed that research is lacking on vital issues, such as teacher recruitment and retention, because critical data is stored in bureaucratic silos in formats that are virtually inaccessible to researchers and other state agencies (Guarino et al., 2006; Luekens, Lyter, & Fox, 2004; Southern Regional Education Board, 2004).

Who Enters Teaching?

Who enters teaching can provide valuable clues about how to potentially attract people to teaching if recruitment and retention are waning. Existing research confirms casual observations that the preponderance of teachers are women. A few weaker studies support anecdotal accounts that altruism is their primary motivation. While new teachers are more likely to be Caucasian, the proportion of other racial and ethnic groups is increasing. Evidence also confirms experiential observations that individuals with more employment opportunities (e.g., math, science) are less likely to enter teaching. There is also evidence that college students in the upper echelon of math and science performance do not choose public school teaching (Guarino et al., 2006).

Who Stays in Teaching?

Some states keep extensive records on movements of their teachers in and out of districts and the profession, complete with individual and school characteristics and identifiers that allow teachers to be followed over time (e.g., New York, Michigan, Texas). Additionally, some nationally representative datasets, such as the Schools and Staffing Survey (<http://nces.ed.gov/surveys/sass/>), contain longitudinal data on teachers. This annual survey serves as the basis for several studies that will be discussed, some of which have very sophisticated statistical analyses of data (e.g., Kelly, 2004).

A very stable finding in the literature shows that attrition is higher for younger inexperienced teachers, and lower for teachers who retire after teaching more than five years. This well-established U-shaped plot of attrition against age and experience is true irrespective of individual or school characteristics, geography, and economy (Guarino et al., 2006). For example, Kirby, Berends, and Naftel (1999) reported that approximately 16% of those who entered teaching in Texas between 1987 and 1996 left the public school system in their first year and 26% had left by the second year; figures confirmed in a separate study using very sophisticated analyses of longitudinal data (Adams, 1996).

Several studies find that women have slightly higher attrition rates and less longevity in teaching than men, and that minorities have lower attrition rates than Caucasians (Ingersoll, 2001; Kirby et al., 1999). Kirby et al. (1999) found median teaching spells were six years for Caucasian women, seven years for Caucasian men, ten years for Hispanic women and men, nine years for African-American women, and six years for African-American men. Adams (1996) confirmed these figures in his study of large school districts in Texas. Moreover, he observed that Caucasians were 385% more likely than African-Americans and 57% more likely than Hispanics to leave a particular school district.

Attrition can be beneficial or costly to a school district depending on the effectiveness of the teachers leaving the district. Regrettably, the preponderance of evidence indicates that there is an inverse relationship between ACT scores or measures of ability and retention; this negative relationship is more robust among those from selective undergraduate education programs and among math and science teachers. Stated differently, teachers with the most ability and alternative employment opportunities are the least likely to remain in a particular position or in the teaching profession (Podgursky, Monroe, & Watson, 2004). Furthermore, teachers who leave the profession or migrate to a different school district are less likely to have failed their certification exam on the first attempt. Teachers generally left schools in which the proportion of minority and low-income students was about 75% to 100% greater than in the schools to which they migrated.

Henke, Chen, Geis, and Knepper (2000), in their longitudinal study of more than 11,000 college graduates, found that graduates with college entrance scores in the top quartile were twice as likely to leave the teaching profession within four years as those in the bottom quartile. Moreover, among persons who were teaching four years after graduation, only 40% of those in the top quartile reported that they expected to be

teaching within the next three years, in contrast to 75% of those in the lower three quartiles. Evidence regarding retention of teachers with post-graduate degrees is mixed (Guarino et al., 2006).

Recent research shows large inequalities in distribution patterns of quality teachers in schools with a preponderance of minority students and students living in poverty (Peske & Haycock, 2006). Indeed, this national study of the distribution of teacher quality in the United States finds that minority students and students in poverty are much more likely to have inexperienced teachers and teachers with less education and teaching skill. They also are more likely to have out-of-field teachers or instructors who have little or no course work in the content they are teaching.

Characteristics of Districts and Schools that Successfully Recruit and Retain

Studies of characteristics of schools or districts that are successful in recruiting and retaining teachers find that size, location, wealth, student composition, and grade level play the most prominent roles (Guarino et al., 2006). For example, beginning teachers in high-poverty schools are more likely than their counterparts in medium-poverty schools to leave the profession (16% versus 9%) and less likely to migrate to another district (13% versus 19%). In the same Schools and Staffing Survey, about a quarter of the beginning teachers in a charter school left after their first year (Smith & Ingersoll, 2004).

Evidence shows that large school districts experience less turnover than small districts, and wealthier and rural districts have less turnover than poorer and urban districts. There is evidence that middle schools experience more turnover than other schools, reportedly due to more discipline problems (Guarino et al., 2006). Retention of teachers generally is higher in public schools than in private schools, albeit there are many exceptions to this generalization (Guarino et al., 2006).

This review of characteristics is limited to external characteristics because of the focuses of available research. However, school culture and administrative influences are discussed in the section below on retention policies.

Recruiting and Retention Policies

Studies that examine the efficacy of policies aimed at regulating the supply of teachers are sorted in this review into three categories for convenience of discussion:

1) compensation policies, 2) recruitment policies, and 3) retention policies.

Compensation Policies

Several studies offer evidence that teacher salaries are positively related to retention (as salaries go up, retention increases). For example, in a 10-year longitudinal study of new public school teacher cohorts in Missouri, Podgursky et al. (2004) find that salaries are inversely related to attrition (as salaries rise, attrition diminishes). Hanushek, Kain, & Rivkin (2004), in a study of more than 300,000 teachers, confirmed that a significant number of teachers do switch schools districts for higher salaries, especially men. Several

studies have replicated the positive relationship between higher salaries and migration across districts (Guarino et al., 2006).

A particularly interesting study of gender differences found that women are less likely to leave a district if their salary was commensurate with other districts; whereas, men are less likely to leave if their salary was equivalent to what they could earn in alternative employment (Guarino et al., 2006). Men also were more likely to remain in districts that had high salaries for administrators relative to alternative occupations, which has been interpreted to mean they are influenced by the prospects of future promotion and pay (Guarino et al., 2006).

Ingersoll (2001), in a nationwide Schools and Staffing Survey, found that the most important reason for leaving schools and the profession was job dissatisfaction, and the most frequently reported causes of job dissatisfaction, both for migrating teachers and those who left the teaching profession, were low salaries, lack of support from school administration, and student discipline problems.

Teacher Recruitment Policies

The discussion of recruitment policies is very succinct because the sparse number of existing studies suffers from measurement and other methodological problems, including small, single-site sampling, ill-specified study procedures, self-selection, and lack of comparison groups (Guarino et al., 2006). There is limited evidence that non-traditional or alternative certification programs may have less attrition than traditional certification programs; however, these studies are weak, and alternative programs typically have older persons who have had experience in different occupations. Thus, it can be argued that these findings represent the proverbial comparison of “apples and oranges” (Guarino et al., 2006).

Using a survey of 1,390 graduates of teacher education programs in an eleven-university consortium, Andrew and Schwab (1995) found that teacher preparation programs that had undergone reforms that included extended five-year programs, increased liberal arts course work, and enhanced clinical experience were successful in increasing teacher recruitment and retention rates. The interpretation of these findings is that better prepared teachers are more likely to enter and remain in teaching careers.

Teacher Retention Policies

Research indicates that there are several working conditions associated with recruitment and retention. Evidence shows that mentoring and professional development programs, class size, level of autonomy for teachers, and amount of administrative support are the preeminent factors in recruitment and retention of teachers (Guarino et al., 2006).

For example, Smith and Ingersoll (2004), in a Schools and Staffing Survey, find in a sample of more than 3,000 beginning teachers that those who experienced induction and mentoring support were less likely to leave the school than their counterparts. Also, the

more types of support they received, the less likely they were to leave. The types of support that positively related to retention were having a mentor in the same field, having common planning periods as other teachers in the same subject, having formally scheduled collaboration with other teachers, and being a part of an external network of teachers.

Kelly (2004), combining a Schools and Staffing Survey with a Teacher Follow-up Survey, found that behavioral problems in classrooms increased attrition. Stockard and Lehman (2004), using the same datasets, found that new teachers reported lower job satisfaction when they worked in schools with higher rates of behavioral problems, and when they perceived limited administrative support and resources.

Ingersoll (2001) reports that schools providing autonomy to teachers, more administrative support, as reported by teachers, and schools with fewer disciplinary problems have lower levels of teacher attrition. Kirby et al. (1999), using longitudinal data on teachers in Texas, observed that higher per-pupil expenditures, increased professional development, and smaller class sizes were associated with reduced attrition.

Weiss (1999), examining data on first-year teachers in a Schools and Staffing Survey, observed that teachers expressed an intention to remain in the profession when they perceived strong support from administrators and colleagues together with control over disciplinary problems. These findings, buttressed by a nationwide Schools and Staffing Survey of approximately 8,400 teachers, show that public school teachers moved to a new school because of a desire for a better teaching assignment (40%), dissatisfaction with support from administrators (38%), and dissatisfaction with working conditions more generally (32%) (Luekens, Lyter, & Fox, 2004). Those who moved to a new school also were much more dissatisfied with their instructional leaders than were teachers who remained. Moreover, about 20% reported that they left to pursue another career and obtain a better salary or benefits.

Several other studies reviewed by Guarino et al. (2006) indicate positive relationships between longevity in a particular school and support from administration, professional development opportunities, and control over disciplinary problems.

Arkansas Programs to Address Teacher Supply

This section discusses several programs that have been instituted in Arkansas to address issues of teacher shortages.

The purpose of the **Junior/Senior Minority Teacher Scholarships** is to provide scholarships to assist and encourage African-Americans, Hispanics, Asian-Americans and Native-Americans to enter and complete programs leading to certification as public school teachers. This is a loan forgiveness program that will provide financial assistance to students who have completed sixty semester credit hours and have been admitted to a teacher certification program. The program is needed to increase the number of African-American, Hispanic, Asian-American, and Native-American students pursuing certification as public school teachers. Scholars must agree to teach in an Arkansas public

school for five (5) years after completing teacher certification requirements. The teaching requirement will be reduced to three (3) years for guidance counseling, teaching in one of the 42 counties of Arkansas designated as the Delta Region, teaching in the areas of math, science, or foreign languages, or for African-American males teaching at the elementary level. (Source: ADHE - Minority Teachers Scholars Program - Rules and Regulations). Appropriations have been \$300,000 for FY 2005-06 and FY 2006-07.

The **Minority Masters Fellows Program** is designed to provide scholarships to African-American, Asian-American, Native-American, and Hispanic college students who were recipients of the Minority Teacher's Scholarship and are either entering a master's program or the fifth year of a five-year teacher licensure program. Participating fellows may receive up to \$7,500 for one academic year (or up to \$2,500 per summer for no more than three summers). Fellows must agree to teach full time in an Arkansas public school or a public institution of higher education for two (2) years for total forgiveness of the loan. This shall be in addition to any teaching obligation the fellow may have to fulfill based on receipt of a Minority Teacher Scholars Program scholarship. (Source: ADHE Minority Teacher Scholars Program - Rules and Regulations). Appropriations have been \$280,000 for FY 2005-06 and FY 2006-07. The statistics for this program are shown in Appendix A.

The **State Teacher Assistance Resource (STAR) Program** is designed to provide scholarships to students who are pursuing a course of study leading to teacher licensure in a designated subject and/or geographic critical shortage areas in the State of Arkansas. Eligible students may receive up to \$6,000 per year or a total of up to \$18,000 in scholarship money for a five-year education degree program. The award amount is \$3,000 per year for a recipient who agrees to teach in a public school located in a geographic area of the state designated as having a critical shortage of teachers or in a subject matter area designated as having a critical shortage of teachers. The award amount is \$6,000 per year for a recipient who agrees to teach in a public school located in a geographic area of the state designated as having a critical shortage of teachers and in a subject matter area designated as having a critical shortage of teachers. The recipient must teach in an Arkansas public school one year for each year of scholarship assistance received. Appropriations have been \$2,000,000 for FY 2005 and \$2,500,000 for FY 2006. Appendix B shows the participation by subject area and city.

The **Teacher Opportunity Program (TOP)** is a dual certification incentive program. TOP is designed to provide loans to teachers who are returning to college to receive an additional certification in a subject matter declared to be a shortage area by the Department of Education. The loans for students in TOP include funding for the cost of tuition, mandatory fees, and books, though not to exceed \$3,000 during any one academic year with the school district being responsible for one-third of the loan and the Arkansas Department of Higher Education (ADHE) being responsible for two-thirds of the loan. The loan will consist of a match of ADHE funds with local school district funds in a 2-to-1 ratio. The ADHE will forgive the loan if the recipient receives the additional certification within three years of first receiving funds under the program and teaches or serves as a classroom teacher in an Arkansas public school district for three continuous

years immediately following receipt of the additional certification. The first priority for the award of funds under TOP is the award of funds under the Dual Certification Incentive Program. If funds are available after all awards are made under the Dual Certification Initiative Program, then additional grants in the form of reimbursement may be made. The appropriations have been \$2,000,000 for FY 2006 and FY 2005.

The Arkansas Geographical Critical Needs Minority Teacher Scholarship Program is designed to provide scholarships to African-American, Hispanic-American, Asian-American, and Native-American college students. The program will award up to \$1,500 per academic year for full-time attendance and \$750 for part-time attendance students who are attending a public or private institution in the state with approved teacher education programs, or at an accredited state-supported community college. Scholars have an obligation to teach full time (one year for each year of scholarship assistance received) in the Delta or in a geographical area of the state in which there exists a critical shortage of teachers as designated by the State Board of Education. Appropriations for FY 2006 and FY 2005 have been \$200,000. Appendix C shows the distribution of participants.

Alternative Certification Program is a means for certifying individuals within Arkansas who have expertise and knowledge in a particular subject area but do not have the standard teaching certificate (<http://www.title2.org/Title2DR/AltRoutes.asp>). The prospective teachers are charged a fee for training workshops with the funds used to pay workshop expenses. Appropriations for FY 2005-06 and FY 2006-07 were \$748,100.

Enhanced Professional Development provides two positions to expand the Arkansas Department of Education's (ADE) leadership in professional development. Funding is provided for a professional development council that will develop a common understanding of professional development issues and will coordinate professional development offerings. It provides for a research study to assist ADE in planning and communicating about future professional development activities. Appropriations were \$295,247 for FY 2005-06 and \$180,515 for FY 2006-07.

Professional Development Funding is provided to school districts for professional development activities that result in individual, schoolwide, and systemwide improvement and that are designed to ensure that all students demonstrate proficiency in state academic standards. Appropriations were \$22,595,471 for FY 2005-06 and \$22,735,471 for FY 2006-07.

Teacher Housing Development provides an operating grant to the Arkansas Teacher Housing Development Foundation to facilitate the development of affordable housing for high-performing teachers to relocate to high-priority districts. Appropriations were \$100,000 for FY 2005-06 and FY 2006-07.

The Arkansas Induction Program for new teachers and administrators provides Pathwise mentoring for support, retention, and professional growth of new educators. To date, there have been 200 mentor trainers certified statewide and 12,000 mentors

successfully trained in the Pathwise Observation mentoring model. Praxis III performance assessment is also a component of the Arkansas Induction Program. Praxis III is the teaching performance assessment that is conducted by a trained, site-based assessor for determining standard licensure decisions for new teachers within the first three years of their teaching debut (see Educational Testing Service, 2006a). Appropriations were \$7,150,258 for FY 2005-06 and FY 2006-07.

In support of **Teacher Recruitment**, Act 101 of the 2nd Extraordinary Session of 2003 added A.C.A. § 6-17-811 to provide a system of incentives for teacher recruitment and retention in high-priority districts. A "high-priority district" is one that has 1,000 or fewer students in which 80% or more of the public school students are eligible for the free or reduced lunch program under the National School Lunch Act and have a three-quarter ADM of 1,000 or less for the 2003-2004 school year. Beginning in the 2004-2005 school year, a teacher licensed by the state board who teaches in a high-priority district shall receive bonus payments as specified by law in addition to all other salary and benefits.

For new teachers, a one-time signing bonus to work in any high-priority district may be paid as follows: \$4,000 at the time a teacher currently employed by the district signed a new contract to teach in a high-priority district and \$3,000 at the beginning of each of the next two subsequent years if the teacher continued teaching in the same high-priority district. For all teachers not newly signed to work in the district, a \$2,000 retention bonus was paid at the beginning of each of the next two subsequent years if the teacher continued to work in a high-priority district. Appropriations were \$2,100,000 for FY 2005-06 and FY 2006-07.

Improving Teacher Quality State Grants is a program that provides grants to school districts to assist schools with effectively recruiting and retaining highly qualified teachers and to provide professional development activities. Federal funds were \$29,333,289 for 2005.

National Board of Professional Teaching Standards is a program to encourage teachers to seek certification by the National Board for Professional Teaching Standards and pays the \$2,300 application fee, a \$4,000 starting bonus given during the school year in which the teacher first obtained the National Board certification, a yearly bonus of \$4,000 to certified teachers in each of years two through ten of the 10-year life of the certificate, and up to three days of substitute teacher pay for those teachers who completed the certification process. An additional \$5,000 was distributed to "support sites" at various school districts or education service cooperatives to assist candidates with the National Board certification process.

Teacher Retirement Matching is a program that matches employer contributions to retirement funds for employees of the Education Service Cooperatives, Vocational Centers, the Model Vocational-Technical Resource Center, Arkansas Easter Seals and the school operated by the Department of Correction. Appropriations were \$4,594,800 for

FY 2005-06 and \$5,122,080 for FY 2006-07. The school districts provide the employer contribution for other certified employees.

Teacher Health Insurance costs were reduced to teachers by Act 1559 of 2005 with an increase in funding of \$35,000,000. Prior to 2005, the public school employees' health insurance program was funded with school districts' required contribution of \$131 per month per participating employee. The new funding provided an additional \$61.00 per participating employer. This raised the employer contribution by 18% to 60 percent.

What is Being Done in Other States?

Quality Teaching

To ensure quality teachers, most states, including all Southern Regional Education Board (SREB) states, require teachers entering the profession to pass practice, content, and knowledge exams, typically the Praxis II (Educational Testing Service, 2006a). Also, most states require mentoring by a veteran teacher for one-to-three years, and a subsequent assessment before teachers receive a standard teaching certificate. Arkansas uses the Praxis III assessment for this standard certificate (Educational Testing Service, 2006b).

To ease the transition of quality graduates into teaching, several SREB states have made it easier for teachers to move across state lines than has been true in the past (SREB, 2004). For example, Delaware, Maryland, and Virginia are part of the Mid-Atlantic Regional Teachers Project that established the Meritorious New Teacher Candidate designation, which allows states to hire the most promising new teachers without imposing additional criteria. Each candidate must have a GPA of 3.5, score in the top quartile on verbal and content exams, and complete an approved teacher preparation program (traditional or alternative), including 400 hours of supervised clinical experiences.

Professional Development

Research confirms that high-quality professional development can improve teaching and reduce the percentage of teachers who leave the profession within the first few years of teaching (Smith and Ingersoll, 2004). Professional development can raise knowledge and skills of teachers, which are positively associated with student learning gains (Odden & Wallace, 2006). Nationally, studies show that teachers who are not supported by well-structured mentoring and development programs are twice as likely to leave after the first year of teaching. Effective mentoring and development programs include mentors who are trained in the same content, common planning periods for teachers in the content area, a reduced teaching schedule, and an external network of teachers (Southern Regional Education Board, 2004).

Evaluation of the effects of mentor and development programs is essential. Texas, for example, assessed the impact of their Texas Beginning Educator Support System (TBESS). This assessment revealed that 89% of the beginning teachers supported by the program returned for a second year of teaching, compared with 81% of their counterparts.

Most striking was the apparent impact on the retention of minority teachers: Among African-Americans, for example, 87% of teachers supported by TBESS returned for a second year of teaching, whereas 77% returned among those who were not supported (Southern Regional Education Board, 2004).

The professional development needs are not the same for all states, districts, schools, or teachers. Hence, professional development should be closely linked to the needs demonstrated on individual assessments of teachers in particular schools. The issue of information-sharing computer systems is discussed earlier in this report.

Technology holds considerable promise of more quality and uniformity in professional development, perhaps in mentoring, as well as savings in various costs. Online professional development has many advantages, including more flexibility in scheduling and opportunities to learn from other teachers located elsewhere in the state, or in other states. The 2004 Georgia General Assembly passed a law requiring regional education service agencies and universities to offer courses through distance learning.

The Kentucky Virtual University offers a variety of online programs and courses, including training for teachers with emergency and probationary licenses, courses in physics instruction and technology integration, training for school council members, and orientation for substitute teachers. The South Carolina and Tennessee Departments of Education staff have participated in training provided by the SREB Multi-state Online Professional Development, which has opened doors in both states to professional development opportunities in rural, more isolated areas.

Teacher Compensation

Another approach to quality teaching, recruitment, and retention is teacher compensation incentives. Some districts in the country have experimented with various salary schedules that base salaries on factors instead of, or more often in addition to, the traditional "steps (education) and lanes (years of experience)" approach. For example, many states pay an increased salary for the National Board Certification, and in Maryland and North Carolina for advanced state certification. In a few SREB states, there are salary incentives available for teaching in geographic or subject areas where there are teacher shortages (Arkansas, Maryland, Mississippi, and North Carolina) or for gaining additional knowledge and skills (Delaware).

Teachers also can earn additional pay by serving as mentors (most SREB states, including Arkansas), master teachers (e. g., Texas) or distinguished-educators who help low-performing schools improve (Alabama, Kentucky, Louisiana, North Carolina, South Carolina, and Tennessee). These type of efforts pay teachers for taking on extra or different work rather than for raising student achievement.

Nine SREB states provide rewards to all teachers in schools where there has been some predetermined level of student achievement gains (Florida, Georgia, Kentucky, Louisiana, Maryland, North Carolina, South Carolina, and Tennessee). Despite these

various incentive programs, the majority of teachers still receive most of their salary through traditional "steps and lanes" pay schedules.

Four SREB states are participating in the Teacher Advancement Program (TAP), a pilot project that is underway in eight states nationally. The goal of the project is to improve student performance by attracting, motivating, and retaining high-quality teachers. The programs were originally intended to base teachers' salaries on specific job responsibilities (e.g., mentoring), teacher and student performance, and other factors, such as professional development in shortage areas (e.g., math). In reality, most districts continue to use the traditional "steps and lanes" salary schedule and they provide bonuses for new responsibilities, shortage areas, student performance, and professional growth (Southern Regional Education Board, 2004).

Mississippi as a Particular Example

The Mississippi Critical Teacher Shortage Act of 1998 offers incentives to recruit and retain teachers in areas of the state where there are critical shortages. Recruitment and retention programs include scholarship and loan packages, mortgage assistance, and incentives for teachers to obtain advanced degrees. The Critical Needs Teacher Scholarship Program offers teacher candidates relief of tuition, room and board, books, and fees in exchange for a three-year commitment to teach in a critical shortage area.

The Southern Regional Education Board (2004, p. 10) states, "The Mississippi Critical Teacher Shortage Act of 1998 is probably the best example of a program that is drawing teachers to a geographic shortage area. The program provides bachelor's- and master's-degree scholarships, pays expenses for teachers moving into the Delta, and offers assistance with down payments for homes. As of last year, there were over 1,000 prospective teachers receiving scholarships and 175 Delta teachers pursuing master's degrees through the program. Over the first three years, nearly 400 teachers received help with moving expenses. During 2000-2001, 67 teachers were fulfilling their service requirement for their undergraduate scholarships in Delta classrooms. Sixteen teachers had completed their service requirements and of those 16, all elected to continue teaching in the Delta."

Conclusions

The entry, mobility, and attrition patterns summarized in this report can be useful for making policies and raising policy-relevant questions. For example, the two largest segments of the attrition population are retirees and young teachers who are within the first five years of their teaching debut. Furthermore, the attrition of young teachers is even higher among math and science teachers, subject areas where there are dire shortages, in part due to the lack of interest in teaching among college students in the top quartile of abilities.

These challenging issues need to be examined in light of factors that seem to discourage teachers who leave the teaching profession within a brief period after their debut for

possible clues about why more students do not elect teaching as a profession. A particularly noteworthy finding of this report is that salary is a major factor, especially for men, in attrition and in mobility across school districts. A significant percentage of teachers do leave the teaching profession for higher salaries in alternative occupations and this attrition is higher for math and science teachers than their counterparts. This suggests that salary is a major consideration in policies designed to increase the pool of teachers generally, and math and science teachers in particular.

Evidence also suggests, however, that there are other major contributors to attrition and to mobility across districts that need policy attention. Indeed, several studies in the literature indicate that teachers leave the profession and transfer to other districts because of: limited autonomy; dissatisfaction with induction, mentoring, professional development, and administrative support; and disgruntlement with general working conditions. Too often teachers are not accorded the professional respect of making autonomous decisions and are not given the support to develop their knowledge and skill. The types of support that are positively related to retention include having a mentor in the same field, having common planning periods as other teachers in the same subject, having formally scheduled collaboration with other teachers, being a part of an external network of teachers, being treated as a professional, and having control over discipline problems (Guarino et al., 2006).

The lack of professional autonomy and opportunities for professional development may rival salaries in terms of deterring young people from the teaching profession and in terms of discouraging those who enter it. Teaching is a profession and professions require a measure of autonomy to apply knowledge and skills to specific individuals and situations. It is not a trade where specific routines can be relied upon. Professionals have to use a certain amount of trained judgment to apply procedures to evolving conditions. At the same time, professionals need to develop over time with the assistance of more seasoned colleagues and experts, and new knowledge and skills have to be learned. According to this review, policies that recognize teachers for their professional contributions also are likely to be useful to recruitment and retention.

Evidence also indicates that it is incumbent on policymakers to find ways of retaining high-quality teachers in school districts with high concentrations of poverty and minority students. A prominent factor in teachers leaving these districts appears to be income; however, it is unlikely that this is the only reason. Arkansas and other states have not experienced unqualified success in attracting teachers to these districts by salary enticements. More studies are needed that examine the reasons teachers avoid or leave teaching assignments in districts with high concentrations of poverty and minority groups.

The need for more data on recruitment and retention of teachers in high-poverty districts is another example of the scarcity of useful data for policy-making decisions. Reliable and up-to-date information on supply and demand and inter district migration of teachers is critical to preemptive and intervention efforts to avert shortages. The dearth of information and rigorous policy evaluation research in the literature and other accessible

venues is a testimony to the critical need for more data collection and sharing between various agencies. Information concerning teachers' perceptions and decision making would help to provide explanations for patterns being observed, such as the disinterest in teaching in public schools among math and science majors. It could help us understand why they are choosing other professions and why they are more likely to leave teaching if they do enter it. Answers to these questions might provide useful policy guidelines.

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**Minority Masters Fellows
Teaching Statistics**

| | Altheimer | Conway | Dermott | El Dorado | Helena | Jonesboro | Lake Village | Little Rock | Magnolia | Marvell | Monticello | North Little Rock | Pine Bluff | Turrell | West Memphis | Wilson | TOTAL |
|----------------------|-----------|--------|---------|-----------|--------|-----------|--------------|-------------|----------|---------|------------|-------------------|------------|---------|--------------|--------|-------|
| | 1 | | | | | | | | | | | | | | | | 1 |
| Counseling | | | | | | | | | | | | | 1 | | | | 1 |
| Critical Thinking | | | | | | | | | | | | | | | | | 1 |
| Elementary | | 1 | | | 2 | | | 2 | 1 | 2 | | | | | 2 | | 12 |
| Kindergarten | | | | | | | | | | | | | | 1 | | | 1 |
| Literacy | | | | | | | | | | 1 | | | | | | | 1 |
| Math/English/Reading | | | | | | | | | | | | | 1 | | | | 1 |
| Math/Reading | | | | | | 1 | | | | | | | | | | | 1 |
| Mathematics | | | | 1 | | 1 | | | | | | | | | | | 2 |
| P.E./Health | | | | | | | | 1 | | | | | | | | | 1 |
| Reading | | | | | 1 | | | | | | | | | | | | 1 |
| Spanish | | | | | | | | | | | 1 | | | | | | 1 |
| Special Education | | | 1 | | | | 1 | 1 | | | | 1 | | | | | 4 |
| TOTAL | 1 | 1 | 1 | 1 | 3 | 2 | 1 | 4 | 1 | 3 | 1 | 1 | 2 | 1 | 2 | 2 | 27 |

State Teacher Assistance Resource (STAR) Program Teaching Statistics

| | | Geographic Area | | | | | | | | | | | | | | | | | | | | | | | | | | TOTAL | | | | | |
|------------------------------|------|-----------------|-------------|---------|-------------|-------|-----------|--------|-------|-----------|----------------|----------|-----------|------|-------------|------------|-----------|-------|---------|-------------|------------|--------|-----------|---------------|--------|---------|------|-------|--------|---------|-----------|-------|----|
| Subject Area | Alma | Alzheimer | Bentonville | Bigelow | Byrtheville | Cabot | Clarendon | Conway | Dumas | El Dorado | Eureka Springs | Harrison | Herritage | Hope | Hot Springs | Huntsville | Jessville | Lamar | Lincoln | Little Rock | Lockesburg | Lonoke | Mayflower | Mountain Pine | Newark | Newport | Oden | Rison | Searcy | Shertan | Stuttgart | TOTAL | |
| Art | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Business Education | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Chemistry | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Drama | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Elementary Education | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Elementary Math | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Kindergarten | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Language Arts/Social Studies | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Literacy | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Math | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Math/Reading | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Math/Science | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Science | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Science/Social Studies | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Social Studies | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Spanish | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| TOTAL | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 38 |

Arkansas Geographical Critical Needs Minority Teacher Scholarship Program

| Participants | Fiscal Year 2004-05 | Fiscal Year 2005-06 |
|---------------------|----------------------------|----------------------------|
| Gender | | |
| Female | 117 | 126 |
| Male | 23 | 29 |
| Race | | |
| Black | 133 | 151 |
| Hispanic | 3 | 2 |
| Asian | 1 | 1 |
| Native American | 3 | 1 |