Careers in Motion:

A Longitudinal Retention Study of Role Changing

Among Early Career Urban Educators

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Abstract

Teacher retention, especially of qualified teachers within high poverty schools, is an issue of local, national and international concern. School staffing research typically regards attrition as a dichotomous variable measurable at the school system level: *stay in* versus *leave* the teaching profession. This paper, utilizing data from a six-year longitudinal study of 838 well-prepared urban educators in their first through eighth career year, adds a third category of attrition: *role changing*. We document the proportion of teacher career movement within our sample that is attributable to leaving teaching versus shifting into a variety of non-teaching professional roles in the field of education. We then analyze the influence of race/ethnicity, gender, credential type, and age on role changing patterns using discrete time survival analysis. Set within the framework of teacher professionalism, we argue that role changing is a form of sanctioned attrition and that understanding movement among roles within the educational workforce is essential for crafting policies and incentives to keep well-prepared teachers rooted in careers that serve the nation's most underserved students.

Introduction

Thrust into the policy spotlight by the National Commission for Teaching and America's Future (2003), the issue of teacher retention has complicated the longstanding view that schools—particularly high-poverty urban schools—are plagued by a supply-side teacher shortage. As Ingersoll (Ingersoll, 2001, 2002, 2003a, 2003b) has demonstrated, the struggle to provide all children with a competent teacher will not be solved by focusing on recruitment. Rather, retention-oriented policies that draw attention to the profession itself may prove more effective. These policies would address how the job of teaching should be improved to encourage long-term commitment from qualified teachers. They could range from ensuring high-quality pre-service education that prepares teachers for the challenges ahead to early career induction programs, to ongoing support for professional development and expanded opportunities for career flexibility and advancement.

Crafting and evaluating the success of these retention-oriented policies requires an accurate understanding of what constitutes retention and its correlate attrition. Much school staffing research has regarded attrition as a dichotomous variable measurable at the system level: *stay in* versus *leave* the teaching profession, though important research has complicated this view by including school migration patterns alongside attrition from teaching to capture the organizational costs of teachers moving from school to school. Utilizing data from a six-year longitudinal study of 838 well-prepared urban educators, this paper adds a new category of career movement: *role changing*. We document the

proportion of teacher career movement within our sample that is attributable to leaving teaching versus shifting into a variety of non-teaching professional roles in the field of education. We then analyze the influence of race/ethnicity gender, credential type, and age on role changing patterns using discrete time survival analysis. This analysis is set within the framework of teacher professionalism. We argue that understanding movement among roles within the educational workforce is essential for crafting policies and incentives to keep well-prepared educators rooted in careers that serve the nation's most underserved students.

The Retention Crisis: Defining the problem and core concepts

A shortage of teachers has long concerned educational policymakers, however the problem was for years misunderstood as an issue of inadequate supply. Dating back to the 1983 report, *A Nation at Risk* (National Commission on Excellence in Education), educational policy advocates projected that a combination of increased student enrollment and teacher retirements due to an aging teaching workforce would result in massive, nationwide teacher shortages. Although there is no doubt among researchers and policymakers that teacher shortages exist, a variety of research over the past decade has dispelled the notion that large-scale demographic factors are the cause. Ingersoll (2001), perhaps most persuasively, has shown that pre-retirement turnover, rather than increased student enrollment combined with teacher retirement, has increased the demand for teachers. Ingersoll and others, in focusing on school organizational issues, redefined the issue as one of retention.

Each year in the United States, more teachers leave teaching than enter. In 1999, for instance, approximately 230,000 people entered teaching, yet nearly 290,000 left the occupation altogether[1] (Ingersoll, 2003b). Approximately 250,000 more teachers moved or migrated from one school to another—more often away from "hard to staff" high-poverty schools (Ingersoll, 2003a). Overall, this represents roughly a 15% turnover rate, which Ingersoll reports to be comparable to the turnover rate of nurses and Henke, Zhan, and Carroll (2001) report to be comparable to – and perhaps lower than – turnover in high-status professions like law. Although this amount of turnover may be comparable to rates in other professions, the real importance of the issue of teacher turnover lies in its cost to individual schools and, indirectly, to its affect on educational quality (see Ingersoll 2001, 2003a, 2003b).

Both attrition from the occupation and migration between schools carry serious financial, organizational, and academic implications for schools. Recruiting, hiring and training teachers is a time-consuming and expensive process that requires schools and districts to shift financial and human resources away from other programs in order to find new teachers. The financial costs of teacher turnover in one U.S. state have been estimated at between 329 million and 2.1 billion dollars annually (Texas State Board for Educator Certification, 2000). Turnover also affects academic attainment. When schools are forced to devote time and energy to recruiting and preparing newly hired teachers,

[1] Although not available for 1999, data on retirement figures from other years presented in this report suggest that approximately 25% of this attrition figure is due to retirement, thus, it can be assumed that approximately 217,000 teachers left classroom teaching in 1999.

their overall effectiveness declines (Rosenholtz, 1985). We also know that the strongest predictor of student achievement is having a fully credentialed teacher in the classroom (Darling-Hammond, 2000). High-poverty schools' higher turnover rates make the associated costs especially damaging, adding to the long list of challenges already facing these schools.

Based on national data from the National Center for Educational Statistics' (NCES) School and Staffing Survey (SASS) and its companion instrument, the Teacher Follow-up Survey (TFS), Ingersoll focused on a school level measure of turnover because the movement of teachers from school to school, while not representing a net loss from the "system," still creates transaction costs as detailed above. Thus, Ingersoll discussed two constructs: attrition, defined as leaving classroom teaching, and migration, defined as leaving a position at one school for a similar position at another school. He then conflated the two concepts to create a dichotomous "turnover" variable coded "1" if the subject was not teaching in same school as the previous year and "0" if the subject was currently teaching at same school. Thus, *turnover*, for Ingersoll, was any outflow of teachers from a school, regardless of its cause.

A number of researchers in addition to Ingersoll have analyzed the SASS and TFS data, defining attrition as leaving teaching and tracking the migration or mobility of teachers between schools (Bobbitt, Leich, Whitener, & Lynch, 1994; Luekens, Lyter, Fox, & Chandler, 2004). Local, smaller scale studies have varied little from the SASS/TFS analyses in defining attrition and migration as the core concepts under study

(Tennessee Tomorrow Inc., 2002; Texas Education Agency, 1995; Theobald & Michael, 2001).

Building on these previous studies, this study expands the understanding of retention by including role changing—teachers leaving full-time classroom teaching in order to take on other roles in the educational workforce—as an additional category of attrition. Role changers may move to positions outside of schools (e.g. as a district-level content area specialist), thus affecting the school in the same way and to the same extent as any other kind of teacher outflow, yet they may also shift to new roles within a school (e.g., as an assistant principal). For this reason, role changing is best conceptualized on two levels: the system-level as attrition away from teaching and the school-level as migration away from particular schools. While Ingersoll argues—and we agree—that the costs of turnover are most important at the level of the school, we focus in this paper on the system-level issue of role changing partially because role changing does not always entail leaving the school. We believe that the prevalence of role changing merits scholarly attention because it provides a way to bridge the school and system levels of analysis in the study of the teaching workforce. The distribution of teaching and non-teaching jobs within the system-level (district, state, or even, national) educational workforce influences the teacher inflows and outflows with which individual schools must contend. It is an open question whether non-teacher educational workers are an asset or a liability to the effectiveness and equity of the public education system as a whole. If—as we argue at the end of this paper—role changing is an aspect of teacher

professionalization, then the attendant costs to schools may be viewed as negative consequences of professionalization. The question becomes: what are the larger benefits or costs of this kind of role changing in the educational workforce? A possible policy response that takes the school-level costs of turnover into account is to create ways for teachers to move into roles that will keep them connected to schools and enable them to continue to positively influence students' academic attainment.

A handful of researchers have explored this concept of role changing. Notably, Johnson and The Project on the Next Generation of American Teachers (2004) qualitatively studied a group of fifty first and second-year Massachusetts public school teachers and found many of them approached their teaching job as "…one of several in a series of careers they expect[ed] to have" (p. 28). Though their study did not focus on role changers specifically nor quantify role changers as a proportion of teacher turnover, it did nonetheless explicitly recognize the importance of career moves in explaining teacher attrition. A Tennessee study (Tennessee Tomorrow Inc., 2002) was among those that most explicitly addressed career paths within the field of education, but with limited clarity. It found that among teachers who left their positions at a school, 68% were no longer teaching (thus, 32% were movers who migrated to other schools and worked as teachers). Of the leavers who no longer taught, 64% anticipated returning to teaching. When asked for the reasons they left teaching, nearly six percent of the respondents in this study answered that they left in order to take additional courses for a career in education or that they were going into administration. But 32% of the respondents

marked “other” as the main reason they left teaching, which leaves their reasons for leaving unexplained. Further, since the study design asked teachers their reasons for leaving, rather than asking them what they did after leaving, the findings cannot be interpreted as providing accurate tracking information. Again, the Tennessee data suggested the presence of role changers, but did not rigorously pursue the phenomenon. Similarly, Theobald and Michael’s (2002) study of four Midwestern states also addressed returners and movers, but did not consider role changers.

In summary, this paper adds a new core concept to the study of teacher retention. In addition to attrition from teaching, our study tracks career movement away from teaching into other roles in education. Extensive research documents the reasons for attrition and migration. For the purpose of situating our own analysis, we turn now to a brief review of the studies that explain teachers’ occupational movement—both away from teaching and between schools.

Factors that explain teacher turnover

Substantial research has created a fairly consistent detailed portrait of those who leave teaching and the characteristics of the schools they leave. Early studies of teacher attrition focused on the individual attributes of leavers. This research identified content area, age and gender, and human capital and, less often, the race/ethnicity of teachers as the main individual-level factors that are related to leaving. In terms of content area, secondary mathematics and science teachers, along with teachers of special and bilingual education, leave at higher rates than those in other fields (Boe, Bobbitt, Cook, &

Whitener, 1997). Math and science teachers may leave because they have more career options than other teachers (Murnane & Olsen, 1990; Rumberger, 1987; Scafidi, Sjoquist, & Stinebrickner, In press) and, according to one study, physical education teachers may leave simply due to the physically exhausting nature of their work (see Macdonald, 1999).

Some differences in attrition have also been noted with respect to age and gender. Both male and female teachers are more likely to leave earlier in their careers and at a younger age than their older and more experienced counterparts (Bobbitt et al., 1994; Boe et al., 1997; T. R. Stinebrickner, 1998; Todd R. Stinebrickner, 1999, 2001). There does not appear to be a significant gender difference in the rate of teacher leavers, although the migration (moving from school to school) rate is highest for women in their 20s and 30s who often relocate because of their husbands' careers or leave temporarily to raise children (Boe et al., 1997; Robin R. Henke, Chen, & Geis, 2000). Both male and female teachers are more likely to leave earlier in their careers and at a younger age than their older and more experienced counterparts (Bobbitt et al., 1994; Boe et al., 1997; Todd R. Stinebrickner, 1999; Theobald, 1990).

Human capital has also been shown to be a factor in teacher turnover. Some researchers conclude that the teachers most likely to ultimately leave the profession are those considered academically superior than their retained colleagues, i.e., those with higher undergraduate GPAs and standardized test scores, those who hold advanced degrees, and those with majors or minors in subjects other than education (Darling-

Hammond & Sclan, 1996; Murnane, 1991; Schlecty & Vance, 1983; Sclan, 1993; Todd R. Stinebrickner, 1999). Ironically, as the calls increase for highly qualified teachers, many bemoan the fact that these candidates seem to leave earlier and in greater numbers than their less academically credentialed grounded counterparts. In a related finding, one analysis reported that the highly educated women were less likely to enter teaching than they were a generation ago (Corcoran, Evans, & Schwab, 2004).

A relatively small number of studies have included analysis of teacher race or ethnicity as a factor in retention. When analyses combined minority, non-White groups, Whites tended to have higher attrition rates (Ingersoll, 2001; Shin, 1995). Researchers also have shown African American teachers tend to remain in classroom teaching longer than White teachers (Adams, 1996; Murnane, 1991; Murnane & Olsen, 1989). In addition, limited evidence suggests that Latino teachers have better retention rates than either Blacks or Whites (Horng, 2004; Kirby, Berends, & Naftel, 1999).

In addition to the individual characteristics of teachers, organizational factors (or school/workplace characteristics) have been studied in relation to teacher career choices. The organizational factor that has attracted the most research attention is teacher salary. In a number of U.S. and international studies, low salaries are cited as one of the primary reasons behind teachers' decision to leave (Flowers, 2004; Robin R. Henke et al., 2000; Ingersoll, 2003b; Kelly, 2004; Loeb, Darling-Hammond, & Luczac, 2005; Murnane & Olsen, 1989; Towse, Kent, Osaki, & Kirua, 2002). With alternative careers increasingly offering significantly higher pay scales, it is often assumed that the opportunity cost of

staying in teaching is unreasonable. In 1998, U.S. teachers ages 22-28 earned an average of $7,894 less per year than other college-educated adults of the same age. From 1994-1998, salaries for master's degree holders outside teaching increased 32%, or $17,505, while the average salary for teachers increased less than $200 (Education Week, 2000). Not surprisingly, a 1997 study by the National Center for Education Statistics found that teachers demonstrate increased professional commitment when provided higher salaries (Ingersoll & Alsalam, 1997). But increasing salaries across the board may not be a viable option to increase retention. Hanushek, Kain and Rivkin (2001) estimate that school districts in the United States would have to increase urban teachers' salaries by up to 50 percent to convince them to stay.

Low salary is not the only organizational- level reason teachers leave the profession. In the United States, more than half of teacher leavers report that they do so out of a desire to pursue another job or due to overall job dissatisfaction (Ingersoll, 2003b). Predictably, higher attrition rates also are associated with inadequate administrative support and a lack of teacher involvement in decision-making at the school site (Ingersoll & Alsalam, 1997; Shen, 1997; Weiss, 1999). Attrition is also sometimes associated with poor facility quality (Buckley, Schneider, & Shang, 2005) and ineffective school management or poor social support for teachers in their schools (Stockard & Lehman, 2004).

Teachers at large, comprehensive public schools—those most often found in urban, high-poverty areas—report more dissatisfaction and leave at a rate higher than

teachers at suburban and rural schools (Ingersoll, 2004). Workplace conditions that are associated with teacher attrition and migration are characteristic of these schools. These conditions include low levels of student achievement (correlated with large minority student populations), poor facilities, less administrative support, and organizational structures that limit teachers' input into instructional decisions. School-to-school migration has also been examined separately from leaving teaching. A number of studies have found that teachers systematically move away from schools with low levels of achievement and high concentrations of poor children of color (Carroll, Reichardt, Guarino, & Mejia, 2000; Hanushek, Kain, & Rivkin, 2004; Lankford, Loeb, & Wyckoff, 2002). Large urban schools also tend to have highly centralized bureaucracies, resulting in hierarchical settings in which educators have a limited amount of autonomy, constraining teacher participation and stakeholder collaboration (Weiner, 2000). Louis, Marks, and Kruse (1996) argue that urban teachers are more inclined to leave their schools than their suburban or rural counterparts because of the organizational design of their schools and their limited input into decisions directly affecting their classroom practices.

Johnson and Birkeland (2003), in their qualitative study of teacher retention, found that many teachers move around voluntarily in search of "schools that make good teaching possible" (p. 21). This is often a search for supportive principals and colleagues, reasonable teaching assignments and workloads, and sufficient resources.

Given the scarcity of these conditions in high-poverty schools, teacher migration patterns typically flow from less to more affluent school contexts.

However, it has proven difficult to disentangle school working conditions from student characteristics as factors pushing teachers out of certain schools or away from teaching altogether. Student demographics (i.e., race/ethnicity, SES) may serve as proxies for school working conditions when teachers move from one school to another. Although attributes of students appear to influence attrition in many studies, when Loeb, Darling-Hammond and Luczac (2005) added district salary levels and teachers' ratings of working conditions—including large class sizes, facilities and space problems, multi-track schools, and lack of textbooks—to student variables in their model, they found that student characteristics become insignificant predictors of teacher turnover. Similarly, Horng (2004) found that when teachers were asked to make trade-offs among school and student characteristics, the former were often considered more important than the latter.

Most of the attrition and migration studies cited above that have considered working conditions as factors influencing teacher career decisions conceptualize these conditions as contributing to teacher *dissatisfaction.* According to this essentially negative conception, this dissatisfaction *pushes* teachers away from the classroom. This view of attrition may represent only one aspect of the phenomenon. By distinguishing between leaving teaching, leaving schools and changing roles, our study adds another dimension to what may motivate teachers' career moves. Lack of resources or poor administration may drive a teacher from an urban school to a suburban school, but some

other factor entirely may prove influential in a teacher's decision to become a district official. As discussed below, our data suggest many teachers make a positive decision to change roles perhaps based on the increased "influence" other positions in the field of education promise. Rather than being pushed, these teachers are *pulled* out of the classroom.

Turning our attention now to the details of our study, we present next the procedures, methods and data analysis. First, we ask: what proportion of teacher attrition in our study population was attributable to role changing? Second, what explains role changing within our population?

Research Context and Methods

Study Population and Representativeness

The longitudinal study reported here used data gathered from a survey that was administered to 1,084 teacher education program graduates over a six-year period (2000-2005), extending from first-year teachers to graduates in their ninth career year. The study population consisted of subjects from UCLA's Center X Teacher Education Program (TEP), which takes a specialized approach to urban teacher preparation. An intensive two-year program leading to state certification and a master's degree, UCLA's core elements and principles are sensitive to the context of high-poverty communities within Los Angeles and representative of the national move towards multicultural teacher education (Cochran-Smith, 2003).

In addition to representing the growing population of specially prepared urban educators, Center X graduates also represent the nation's most well-prepared teachers. Prior to certification, Center X students are required to take coursework in the selection and adaptation of materials and learning theory and are required to spend at least 120 hours observing experienced teachers in their classrooms before engaging in their own practice teaching. In addition, they spend 15 weeks of supervised classroom teaching and receive feedback on that teaching. Recent analyses of the 1999-2000 National Center for Education Statistics' Schools and Staffing Survey (SASS) reveals that approximately 9% of the nation's first year teachers enter the profession with a similar level of preparation (Lyons, 2006). We interpret our results as generalizable to this population of well-prepared teachers, with one exception. Although most Center X graduates are female (79%), which is similar to national trends, the group's ethnic and racial diversity contrasts sharply with national norms, (though it reflects California's increasing diversity): 31% are white; 27% are Hispanic; 6% are African-American; and 31% are Asian.

Survey Data Collection

From 2000 to 2005, all Center X program graduates received a survey both by mail and online each spring. In addition to probing teachers' career decisions, this instrument asked respondents to indicate first whether they remained employed in the field of education. If so, they were asked to choose their "primary role" from a selection of six choices: fulltime classroom teaching, part-time classroom teaching, substitute

teaching, school administration, working in K-12 school or district in another role or, finally, working in education outside of a K-12 school or district. These categories were generated by pilot phone-interview surveys conducted in 1999 and were provided to the survey respondents; for purposes of interpretation, they should be considered *a priori* categories. In order to extend the scope of data and track the career pathways and decisions of first year teachers, credentialed Center X participants in their second year of the program also were given an exit survey prior to completing the program. This survey, first administered in 2002, closely mirrored the graduate survey, including questions regarding retention and primary role, and responses of these beginning teachers are included in our analyses. This paper reports the distribution of the above described categories among the study population and introduces the concept of sequential pathways through primary roles.

The survey was first administered in the spring of 2000 to graduates from the first three graduating cohorts (1997-1999) who were already educators in their fourth, third and second career years, respectively. As Figure 1 details, our longitudinal research followed a traditional cohort sequential design.

[Insert Figure 1 here]

In addition to data that is missing by design, there is also missingness in the dataset due to non-response. In an attempt to minimize this kind of missing data, we conducted follow up phone calls to schools and other workplaces to encourage potential subjects to complete the survey and, at a minimum, to gather as much basic retention data

(i.e., primary occupational role and workplace) as possible in order to create a portrait of career pathways that would capture changes in roles and schools over time. As a result, basic retention data is available for most members of the population (see Table 1).

[Inset Table 1 here]

The final longitudinal data set consisted of 838 subjects for whom we had at least two years of data and career years for which we had at least two cohorts.

Analytic Model

To analyze these longitudinal retention data, we constructed a discrete time survival model to capture the influence of race/ethnicity, gender, credential type, and age on the timing of the first departure from full-time classroom teaching. Survival models, also known as event history models, allow us to track both whether teachers are retained or "survive" and when the event of attrition takes place, in this model recorded in discrete-time intervals given the assumption that attrition from schools takes place at the end of the school year (Masyn, 2003; Muthén & Masyn, 2005). For all subjects, the risk of leaving full-time classroom teaching begins in their first career year. Once an individual has left teaching for the first time, he/she is no longer "at-risk," according to this model. Event time is *censored* if an individual is lost to follow-up or the survival time is greater than the length of observation. Missing data including censored observations are assumed in this model to be missing at random.

In order to model attrition due to both role changing and leaving education, we constructed a competing risk survival model to analyze the hazard probabilities of these

two outcomes. Unlike most retention studies that utilize a single event formulation, our study tracks the possibility of experiencing one of two attrition events at a given point in time. Two separate hazard probabilities are modeled simultaneously: (1) the hazard probability of leaving full-time classroom teaching for something outside of education ("leaver"); (2) the hazard probability of leaving full-time classroom teaching for a job inside education ("role changer"). This competing risk model allows us to gauge the proportion of teacher attrition that is due to role changing. Covariate analyses give us insight into the differences between teacher leavers and role changers.

Results 1: Role Changing Patterns

Despite being part of a profession traditionally thought to have a relatively horizontal (or undifferentiated) career path, our sample of well-prepared urban teachers demonstrates a variety of career pathways enacted across six role categories in addition to leaving education. As these well-prepared teachers gain experience, they do leave teaching. Research reported elsewhere compares these attrition rates with national data in an effort to understand the link between teacher preparation and retention (Lyons, 2006). Relevant to this analysis is the significant proportion of cumulative attrition within this population that is due to role changing versus leaving, as displayed in Figure 2. By the 8^{th} career year, the proportion of cumulative attrition that is due to role changing versus leaving is 70%.

[Insert Figure 2 here]

Looking across career years, what is the distribution of roles for those who make such a career move? As Figure 3 illustrates, a substantial proportion of role changing within this population is career movement outside of the K-12 education system. Also significant is the proportion of role changers who reported "working in K-12 school/district in another role." Not surprisingly, our data indicate a range of roles within these latter two categories. We are able to detail some of these roles based on hand-written explanations and survey items that probed the nature of professional activities and leadership roles taken on by respondents.

[Insert Figure 3 here]

Not all respondents chose to further specify their roles by hand-writing additional information on the survey; however, of those who did, "working in K-12 school/district in another role" included, for example, work as an instructional (literacy or math) coach, a Bilingual Coordinator, a Title VII specialist and dual language immersion program coordinator, and a director of an after school program at a family resource center. Examples of "working in education outside K-12 school/district" included work as a college professor, a college academic advisor, a museum educator and curriculum developer, an educational software developer and a marketing director for an educational media company.

Survey data about professional activities showed that both categories of role changers (i.e., in and out of K-12 schools) were positively correlated with conducting "observational visits to other schools" and "presenting at workshops, conferences or

training sessions." Role changers "inside K-12 schools in another role" reported taking on a variety of leadership roles: 59% assumed the duties of trainers or staff developers, 52% reported coaching and 41% reported coordinating testing, technology, beginning teacher support or other programs.

In addition to enumerating and describing the variety of non-teaching roles into which the teachers in this study moved, we are able to document the patterns of movement, or the "pathways" teachers take out of the classroom and into other educational roles and then sometimes back to the classroom again. In an attempt to understand the dynamics of these career pathways, we mapped movement across, or through, roles over time. For accurate continuity, we considered only those graduates in their third through eighth years in the profession who have consistently responded to annual surveys. Without consistent responses, we could not construct continuous career pathways, so any cases with missing primary role data were necessarily excluded. Excluding non-continuous cases produced a sub-sample (n=432) that closely mirrored the larger population of Center X graduates according to race/ethnicity, gender, and years teaching. While this sample is slightly skewed to earlier career teachers, the only notable discrepancy occurs in the eighth and ninth years where under-representation can reasonably be attributed to the smaller cell size and the probability of non-response after so many years out of the program.

[Insert Figure 4 here]

This map of graduates' career movement over time shows the 57 unique observed pathways – in addition to consistent fulltime classroom teaching – that these 432 graduates followed. While cross-sectional analyses can offer information about how many first year teachers end up as teachers in their eighth year, longitudinal pathways also show the paths these teachers took between years one and eight – how many reported being fulltime classroom teachers *every year* since having entered the profession and how many reported having held other primary roles along the way. As the chart shows, the consistent fulltime classroom teaching pathway accounts for 95% of graduates in their third year, but only 68% of graduates in their seventh year. 'Stayers' like these who remained in classroom teaching over their entire pathway represent 76% of the sample, while those who changed roles or left one or more times represented 24% of the sample. Of those 105 graduates, 59% changed roles/left once, 31% changed roles/left twice, and 10% changed roles/left three or four times. Considering that the average years in education for the sample is five, it is notable that 41% of these graduates changed roles two or more times. Of these 105 role changers/leavers, 84 (80%) changed roles at some point within the field of education.

While career movement over time may be idiosyncratic and is no doubt contingent upon the interplay between graduates' professional lives and personal lives, the map of graduates' career movement does indicate trends in the kinds of role changes that occur more frequently than others. Perhaps not surprisingly, there are no instances of role changes from substitute teaching into administration, a few role changes from

fulltime teaching into part-time teaching, and more than twice as many role changes from fulltime teaching into other roles in K-12 schooling. Additionally, while we see some pathways that involve leaving education, these should not be misunderstood as necessarily *ending* outside the profession. The chart shows that 105 of the 432 graduates with complete data changed roles at some point in their respective careers, with 34 of those 105 having left education at some point. Of those 34 leavers, nearly one third returned to education as fulltime classroom teachers (n=5), part-time teachers (n=1) and other roles in education outside of K-12 schooling (n=5). Graduate A (Figure 4), for example, moved in and out of the profession over the course of her first through seventh year working in education.

[Insert Figure 5 here]

This map of graduates' career pathways complicates the issue of retention, because it calls into question retention rates reported in cross-sectional studies. If Graduate A, for instance, had been surveyed in years two, five or six, he or she would have been classified as a leaver. In comparison, the survival analysis looking at first departure from teaching would model only the role change after year two for Graduate A. Further analysis of these longitudinal data will use discrete time Markov chain models to include re-entry and subsequent role changes after the first departure from teaching.

Both these pathways and the survival model estimates of role changing establish that within our population of well-prepared early career educators, role changing accounts for a significant proportion of teacher attrition. Next, we return to the

competing risk model to explore our second research question: what explains role changing?

Results 2: Time Invariant Covariate Analyses of Role Changing

Based on the competing risk survival model, we analyzed the influence of select time invariant covariates on the hazard probabilities of both role changing and leaving education. Race/ethnicity, gender, credential type and age emerged as significant predictors of these two forms of career movement. Additional analyses of time-varying covariates based on survey responses, including those related to workplace conditions, will be reported in future analyses.

Race/Ethnicity

Consistent with prior research that White teachers leave teaching at higher rates than teachers of color, Latino teachers in our population had a significantly lower attrition rate from education than White teachers. However, when we examined differences within the competing risk model between those who leave and those who change roles, a different trend emerged. The hazard probabilities of role changing were very similar for White, Asian and Latino teachers. As the top line in Figure 6 signifies, Black/African American teachers were slightly more likely to leave teaching for a role change in education than White teachers, although we should caution that this demographic group was fairly small in our population. Overall, we found that race/ethnicity had very little effect on role changing.

[Insert Figure 6 here]

This finding may reflect the wide array of opportunities open to our young, well-prepared, and diverse subject population, many of whom work in a predominantly Latino school district. Being 'pulled' out of teaching by leadership and advancement opportunities may be especially likely among this particular graduate population given their placement in schools that tend – like most high poverty urban schools – to have a relative scarcity of well-prepared and veteran educators. In such circumstances, there is perhaps increased likelihood of being 'cherry-picked' into the advancement pipeline.

Gender

As Figure 7 illustrates, the men in our population were less likely to leave education entirely than women, but more likely to leave teaching for a role change in career years 3-8.

[Insert Figure 7 here]

This finding suggests that even among our well-prepared sample of teachers, traditional gender bias around career advancement may be an issue. Assuming that most role changing is movement up the career ladder, men seem to be more likely than women to be promoted. Teaching has a long history as a female-dominated profession where men have been overrepresented in higher status positions. Our research informs this trend.

Credential Type

Teachers with single subject (secondary) credentials were more likely to leave teaching for a role change in education than their colleagues who hold multiple subject (elementary) credentials. Interestingly, credential type played no role in explaining teachers' decisions to leave education entirely. Assuming that credential type corresponds to school level, these findings suggest that elementary and secondary schools cultivate different norms and opportunities for career advancement. For instance, within secondary school organizations there may be more opportunities to become an administrator or a school-based instructional coach. Secondary teachers who leave teaching to take on educational roles outside of schools may also find more opportunities for advancement than elementary teachers because of their heightened social status within the profession. In addition, secondary teachers may be more likely to use their content-area expertise to secure other roles in education. However, contrary to much retention research, we did not find that secondary math and science teachers were more likely than other secondary teachers to change roles or leave education entirely.

We did find one exception to the prevalence of role changing among secondary versus elementary school teachers. As Figure 8 summarizes, male elementary teachers were more likely than male secondary teachers to leave teaching for a different role in education.

[Insert Figure 8 here]

The relative scarcity of male teachers in the lower grades may lead to heightened opportunities for advancement among male teachers.

Age

Looking across our population, we found little if any relationship between teachers' age (when they entered their teacher preparation program) and leaving education after years 4-7. When we controlled for gender, however, we found that women who began their teacher preparation program at older ages were less likely to either change roles or leave education after four or more years of teaching than those who began their teacher preparation at younger ages. Moreover, as Figure 9 illustrates, younger teachers were much more likely to change roles than leave education entirely.

[Insert Figure 9 here]

This finding points to a broader theme about age and generation: today's teachers may be entering the profession with long-term career goals that differ from those of previous generations of career educators. As Moore Johnson (2004) and her colleagues have written about the next generation of teachers: "those who consider teaching today have an array of alternative career options, many offering greater social status, providing more comfortable work environments, and offering far higher pay than teaching." (p. 19) A myriad of factors explain this apparent generational turn in the educational workforce. We turn now to a discussion of some of these factors.

Discussion: What Explains Role Changing?

Given the fact that role changing among early career well-prepared urban teachers accounts for a significant proportion of their attrition from teaching, what else – beyond

the individual attributes of race/ethnicity, gender, credential type, and age – do we know about this trend among the next generation of education workers? As with all complex social phenomena, adequate explanation requires attention to both the agency of individuals and the structures and cultures within which they are embedded. It would be misguided, for example, to use our findings to suggest that retention policies should target male elementary school teachers because they are at a heightened risk for role changing. Instead, policies aimed at either retaining or encouraging role changers must be based on an explanation of career movement that takes into account a broad range of factors. Below, we discuss these factors relative to both our well-prepared sample of teachers and the education profession more generally.

What Explains Role Changing within our Population?

Many individuals within our population identify themselves as "social justice educators" and seek out opportunities to be change agents beyond the classroom. This disposition may incline them to change roles more than other well-prepared teachers. In addition, poor working conditions in the high-poverty urban schools where all of the teachers in our sample begin their careers may contribute to both dissatisfaction and heightened opportunities for role changing, given the relative dearth of well-prepared teachers in these schools. We briefly review below two related studies taken from the same study population that provide more systematic insights into the workplace contexts, individual motivations and social networks of role changers.

In their qualitative study of 15 Center X graduates, Olsen and Anderson (2007), probed teachers' reasons for anticipated role changes. Jiao, one the 5th year teachers they followed, was planning to leave for graduate school and reported always having viewed teaching as a "stepping stone," in his case to a district position working with curriculum and instruction. Although Jiao reports that he would have taken this path regardless, there are several aspects of teaching with which he expresses frustration. He describes the profession as "stagnant" concerning salary and status: "In the business world, you can always become an 'associate-' this and then you can become 'vice-' this and then 'director.' In teaching, you're just a teacher." Olsen and Anderson outline other reported reasons for role changing including the desire to make a bigger impact in urban education, family pressure to achieve higher status, as well as more typical career dissatisfaction variables such as lack of administrative support and the emotional and physical toll of day-to-day teaching. The authors also point out the potential role of professional development and leadership opportunities in influencing the construction of career pathways that differentiate and expand teachers' work and influence while keeping them closely connected to the schools where they are arguably most needed (Anderson and Olsen, in press).

In a related study, Thomas (2005) explored the career-related discussion networks (i.e., who talked to whom about their career choices) of a sub-sample of this study population. Thomas found that social capital—as manifested in the age, occupational and status level diversity of a teacher's professional contacts—was positively associated with

role changing. Teachers who changed roles were those who maintained and mobilized a diverse group of professional contacts who tended to occupy non-teaching positions in the educational system; whereas teachers who continued fulltime classroom teaching tended to be closely linked to their in-school colleagues and to value collegiality highly.

These two studies of role changers provide further insight into our population of well-prepared urban educators and the factors that shape their career choices. From the Olsen and Anderson's qualitative portraits of early-career educators and Thomas' research on the heightened social capital among role changers, we learn that well-prepared urban teachers either seek out or are presented with opportunities to move up the educational ladder. We turn in conclusion to the broader policy context within which role changers are embedded in order to examine how the move to professionalize teaching has encouraged role changing as a form of sanctioned attrition.

What Explains Role Changing within the Education Profession?

The National Commission for Teaching and America's Future (NCTAF) recently framed the key to solving the retention crisis as "finding a way for school systems to organize the work of qualified teachers so they can collaborate with their colleagues in developing strong learning communities that will sustain them as they become more accomplished teachers" (NCTAF 2003, p. 7). This long-term policy goal represents a broader professionalism movement that has deep roots in American education. As Zeichner (2003) describes, it is "the quest to establish a profession of teaching through the articulation of a knowledge base for teaching based on educational research and

professional judgment" (p. 498). The professionalism movement integrates four policy arenas—targeted teacher recruitment, specialized preparation, induction, and career advancement—in its effort to secure a more stable, qualified workforce for the schools most in need of good teachers (Quartz, Lyons & Thomas, 2005). These policy arenas seek to create a professional culture of teaching and schools where learning is not packaged into stages or programs but instead is viewed as a continuum that lasts throughout a teacher's career. Instead of isolating, bureaucratic structures, schools are viewed as professional learning communities—sites where both students and teachers can grow and develop.

On one hand, this move to heighten teacher professionalism is a hopeful and far-reaching solution to the retention crisis. It seeks to elevate the status of teachers by setting up structures and regulations that ensure high quality work supported by continual learning. With these structures and regulations come new roles for educators, both within and outside the K-12 system. Induction coordinators are hired, trained and supervised. Staff developers proliferate within districts and across a staggering array of educational organizations. Instructional coaches are recruited to facilitate school-wide reform. Organizations such as the National Board for Professional Teaching Standards are created to support teachers. Evaluators are brought in to gauge the success of new packages and programs. And the agency for all of this lies within an entity we call "the educational system." As Jiao observed, "in teaching, you're just a teacher," yet the larger system is ripe with opportunities for professional advancement. National workforce data

reveals that these opportunities for role changing are on the rise. At the same time, the teaching workforce is experiencing negative growth.

Nationwide, as illustrated in Figure 10 below, teachers make up only half of the education workforce. [2]

[Insert Figure 10 here]

During the past decade, different roles within the education profession have grown at different rates. The number of education staff working in elementary and secondary public school systems grew by 25.4% - from 4.7 million up to 5.9 million – between 1992 and 2001. Of all role categories, teachers experienced the least growth, growing 3.5% less than expected if proportions had remained static, while other categories like district administration, instructional coordinators, and instructional aides outpaced their expected growth by between 13% and 14%.

[2] Figure 10 and Figure 11 rely upon categories reported in National Center for Education Statistics Common Core Data. Instructional coordinators include any staff supervising instructional programs at the school or district or sub-district level. Instructional aides include staff members assigned to assist teachers in activities requiring minor decisions regarding students and in such activities as monitoring, conducting rote exercises, operating equipment and clerking. Support staff include administrative support staff (secretarial and clerical staff and persons whose activities are concerned with support of the teaching and administrative duties of the office of the principal or department chairpersons, or central office administrators), library, media and medical support staff, professional and supervisory staff providing non-instructional services to students (e.g., school psychologists, speech pathologists, audiologists, social workers and attendance officers), and any support services staff (and those who supervise them) not reported in other categories (e.g., data processing, health, building and equipment maintenance, bus drivers, security and food back workers).

[Insert Figure 11 here]

Although these workforce categories provide limited information about the nature of non-teaching professional roles, the fact that they are outpacing teaching warrants careful policy attention. Efforts to track and shape the dynamics of the educational workforce should ask, "Do the benefits of role changing outweigh the costs?" Presumably, role changing is beneficial because it helps professionalize teaching by creating layers of support personnel for teachers. It also provides pathways for career development and advancement, thus benefiting individuals and perhaps keeping well-prepared educators in the system if not in classrooms. But at what cost? While clearly a complex question, there are basic costs to students to consider. If our study population is representative of well-prepared teachers nationwide, then the career movement in and out of non-teaching roles is a phenomenon that affects the majority of well-prepared teachers over time. Students experience this movement as a direct loss of well-prepared teachers. Granted, this loss may translate into support for other teachers who are able to thereby improve their practice, but the extent to which this benefit outweighs the direct cost to students is rarely scrutinized. The retention literature focuses on the costs of attrition to the system and schools, assuming that a net loss at either level decreases the quality of education for students. When we expand this policy frame to include role changers as a retention category, the question becomes more complicated: does attrition from teaching into other roles increase or decrease the overall quality of education for students?

Accurate analysis of this issue is clouded by the intense political debate surrounding bureaucratic "bloat" and effectiveness of our public education system. National workforce data is used by critics of the system to lob charges of self-serving inefficiency and "mission creep" (Antonucci, 1999) based on the ratio of teachers to other educational professionals. Those within the system respond that never before have schools been asked to do so much. The purported "bloat," if it exists at all, is both justifiable and necessary (see, for example, Association of California School Administrators, 1996). Instead of probing the value of non-teaching educational roles, the debate is too often polarized by adherence to bureaucratic centralization on one end and radical decentralization on the other. Some advocates of professionalism, however, seem to be seeking a middle ground; as Darling-Hammond (1997) recommends:

> A new vision of the teaching career is needed that rewards the knowledge and expertise of those who work closest to children as highly as the skills of those who work furthest away and that makes those skills more widely available, thus enabling teachers to take on complementary hyphenated roles as school and program leaders, curriculum developers, mentors, staff developers, teacher educators, and researchers while they remain teachers (p. 327).

This vision recognizes the direct costs of role changing to students and therefore advocates for flexible structures that will allow teachers to have it all—career advancement tied to their core work as teachers. One example of this vision in action is Rochester's *Career in Teaching* framework, which includes four stages of teacher

development: intern, resident, professional and lead teacher. Here, advancement does not mean leaving the classroom. Lead teachers, who are selected by a joint panel of teachers and administrators, take on leadership roles such as mentor, staff developer, and curriculum specialist, but continue their accomplished teaching at least half time. In return, lead teachers have the potential to earn more than administrators. As Urbanski and O'Connell (2003) explain, this staffing framework provides "an opportunity for exemplary teachers to inspire excellence in the profession, share their knowledge and expertise with others, and actively participate in instructional decision-making *without* leaving."

Although promising, Rochester's program runs counter to a long history of disrespect for those working closest to children—a history that makes Jiao's decision to leave teaching seem reasonable. In 1911, Frederick Taylor's influential *Principles of Scientific Management* helped shape this history (see Oakes, Quartz, Ryan, & Lipton, 2000). Refining Weber's concept of the division of labor, Taylor argued that if an organization's goal is efficient production, the greatest good results when workers toward the bottom of the organizational hierarchy perform ever more repetitions of increasingly simple tasks. This quest to take the "brainwork" off the shop floor (Braverman, 1975) is reflected in many current features of the teaching job: mandated prescriptive curricula, salary structures that reward movement away from students, the increasing emphasis on mundane test preparation, to name just a few. As teachers climb the educational ladder, many become in charge of keeping these structures in place, working as testing

coordinators or curriculum specialists. This is not to say that all educational roles beyond teaching simply serve a Taylorist mill or bloat the bureaucracy. Rather, we advocate using the concept and study of role changing to track the impact of these roles on student learning while being mindful of the deep structures and norms that make them seem reasonable.

We also advocate exploration into more emergent leadership roles created by and for teachers themselves. Informal and often financially uncompensated, these teacher leadership roles often arise out of communities of practice and in response to the immediate and situated needs of school staff and students (Murphy, 2005). Within our own population, many have taken on such roles – convening and participating in inquiry groups, spearheading school change projects, writing grants, initiating teacher-led professional development, conducting research in classrooms and school (Anderson & Olsen, in press; Olsen & Anderson, in press; Goode et al, 2005). Though they may lack the official legitimacy of roles specified within the education bureaucracy, these emergent leadership roles are often viewed as legitimate, meaningful, rewarding and career-sustaining by those who enact them (e.g., Lieberman & Miller, 2001). Though more difficult to capture quantitatively, these roles have an important story to tell and should be incorporated into a larger research effort that probes the impact on students of the range of educational roles that teachers take on in addition to or instead of classroom teaching.

As the well-prepared urban educators in our population move away from teaching into roles distanced from the core work of schools, they are searching for ways to increase the scope of their work and eventually make more of a difference in the lives of urban schoolchildren. Alongside this search for meaning is a constant barrage of cultural messages and rewards that affirms their decisions to leave the classroom and advance their careers by taking on other roles within the educational system. Although largely hidden from policy view, role changing, as we have argued throughout this paper, is a form of sanctioned attrition that should be added to the landscape of teacher retention research. Policymakers currently struggle with how best to sanction or encourage attrition among "bad" teachers, yet there is virtually no attention paid to all the ways the educational system sanctions attrition of the nation's most well-prepared teachers.

Figure Captions

Figure 1. Cohort sequential design.

Figure 2. The proportion of attrition due to role changing versus leaving education.

Figure 3. Role changer categories by career year.

Figure 4. Map of graduates movement across educational roles over time.

Figure 5. Example of a career pathway over time.

Figure 6. Hazard probabilities by race/ethnicity.

Figure 7. Hazard probabilities by gender.

Figure 8. Hazard probabilities by gender and credential type.

Figure 9. Hazard probabilities by age and gender.

Figure 10. Public elementary and secondary staff, by category.

Figure 11. Growth of educational roles from 1992-2001.

Table 1

Basic Retention Response Rates by Survey Year

Survey Year	2000	2001	2002	2003	2004	2005
Basic Retention Response Rate	208/237 (88%)	306/325 (94%)	503/557 (90%)	630/714 (88%)	771/894 (86%)	832/1084 (77%)

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CAREERS IN MOTION—Figures

Figure 1. Cohort sequential design.

Cohort	Novice	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9
1					00	01	02	03	04	05
2				00	01	02	03	04	05	
3			00	01	02	03	04	05		
4			01	02	03	04	05			
5			02	03	04	05				
6			03	04	05					
7		03	04	05						
8	03	04	05							
9	04	05								
10	05									

Figure 2. The proportion of attrition due to role changing versus leaving education.

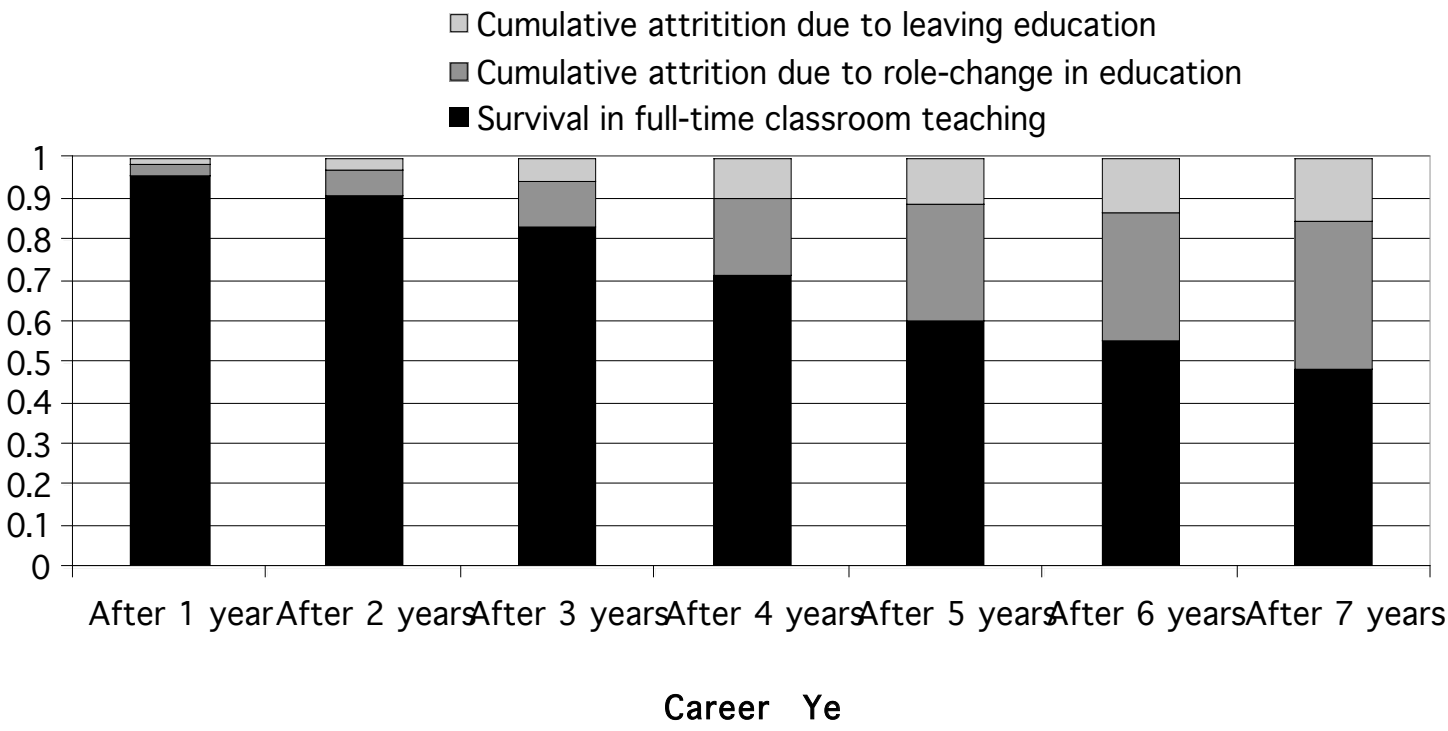

Figure 3. Role changer categories by career year

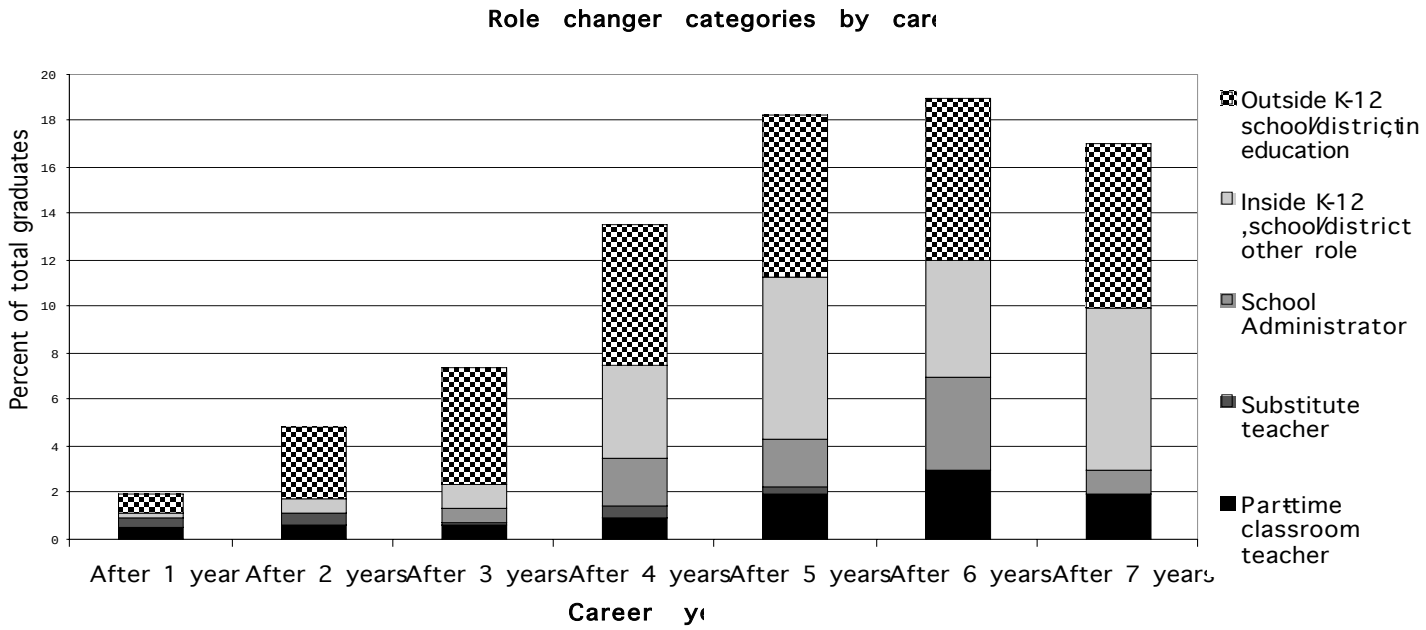

Figure 4. Map of graduates movement across educational roles over time.

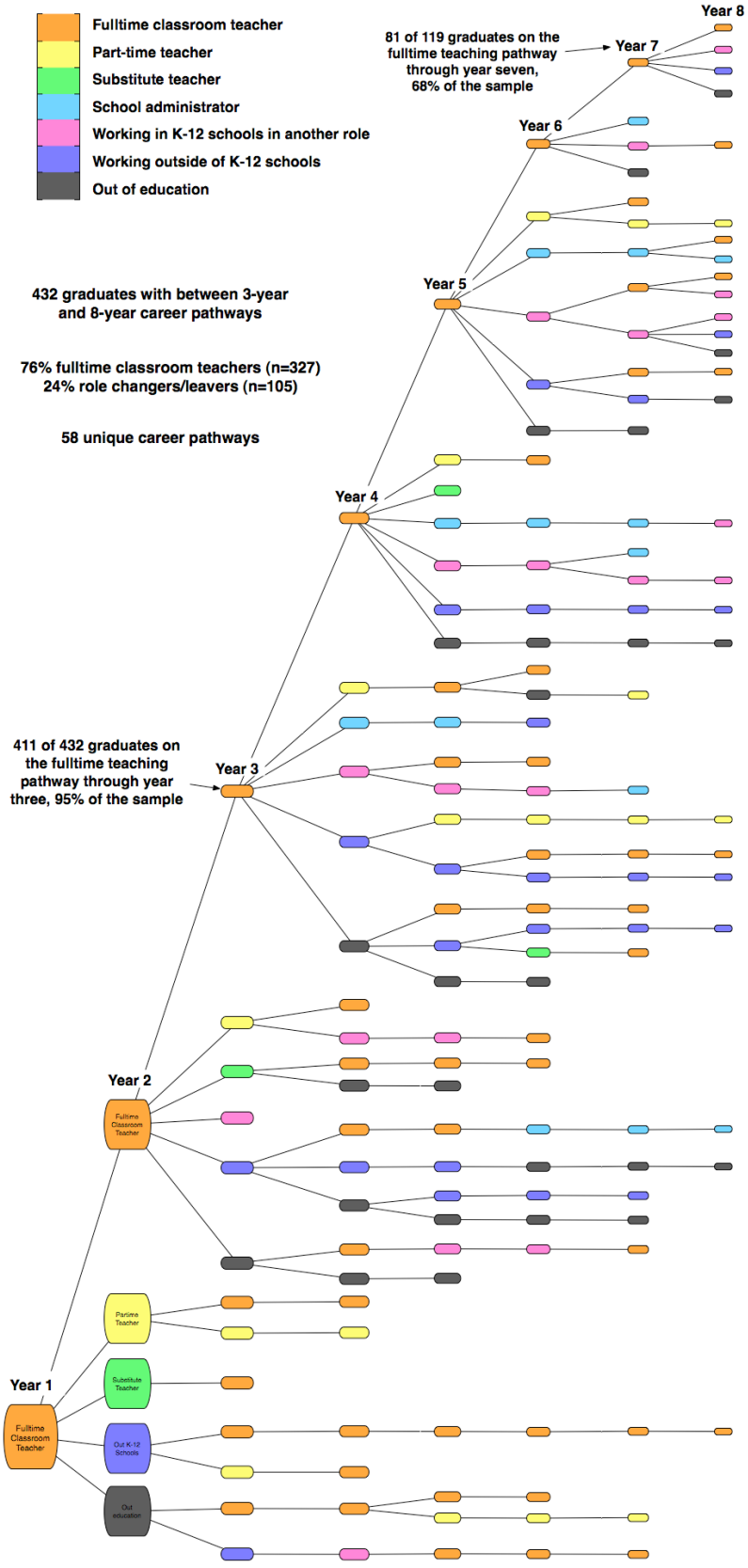
Fulltime classroom teacher
Part-time teacher
Substitute teacher
School administrator
Working in K-12 schools in another role
Working outside of K-12 schools
Out of education
81 of 119 graduates on the fulltime teaching pathway through year seven, 68% of the sample
Year 8
Year 7
Year 6
Year 5
Year 4
Year 3
Year 2
Year 1
432 graduates with between 3-year and 8-year career pathways
76% fulltime classroom teachers (n=327)
24% role changers/leavers (n=105)
58 unique career pathways
411 of 432 graduates on the fulltime teaching pathway through year three, 95% of the sample
Fulltime Classroom Teacher
Parttime Teacher
Substitute Teacher
Out K-12 Schools
Out education

Figure 5. Example of a career pathway over time.

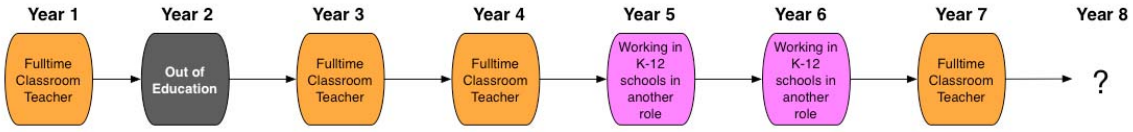

Figure 6. Hazard probabilities by race/ethnicity.

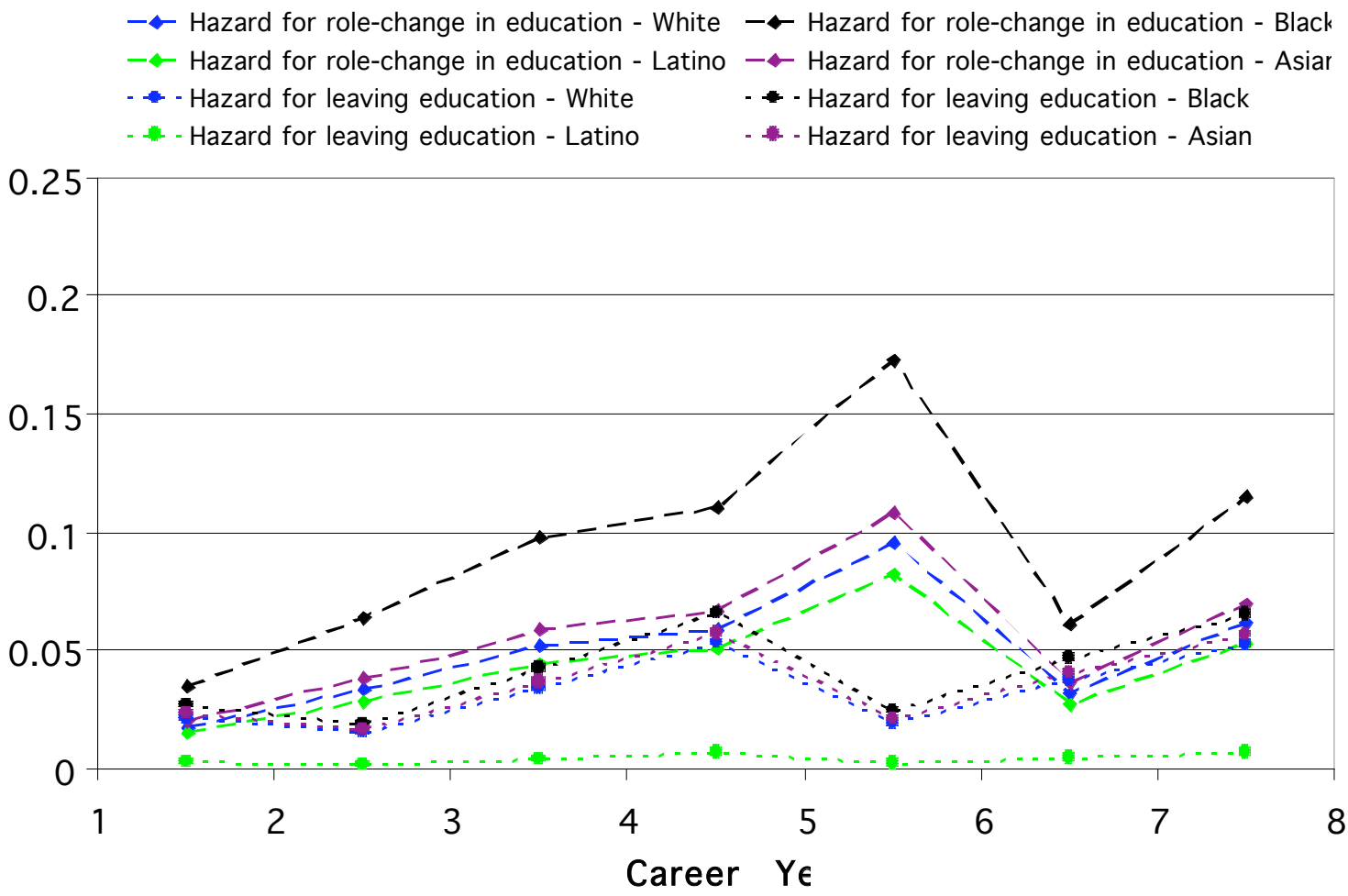

Figure 7. Hazard probabilities by gender

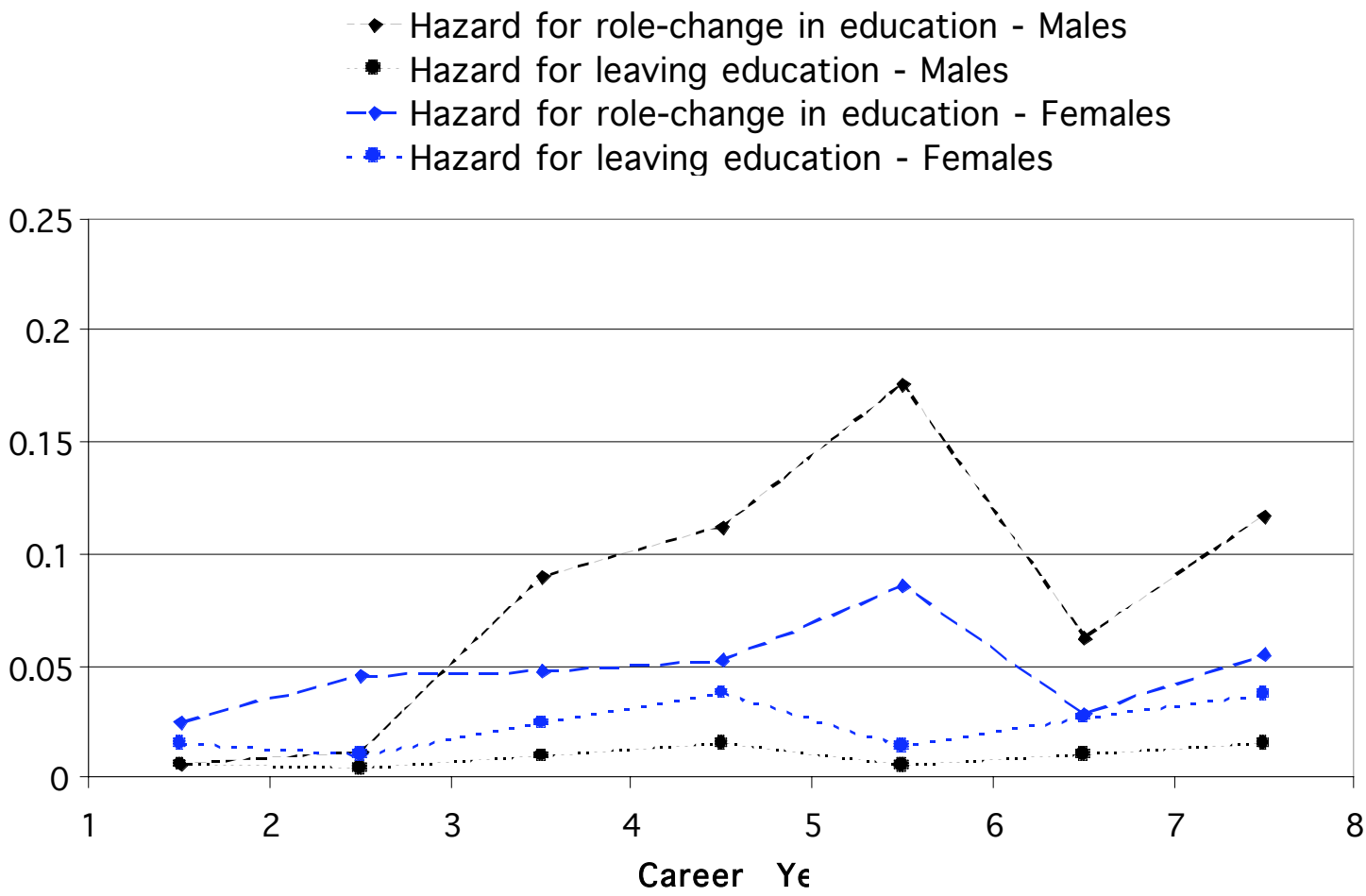

Figure 8. Hazard probabilities by gender and credential type.

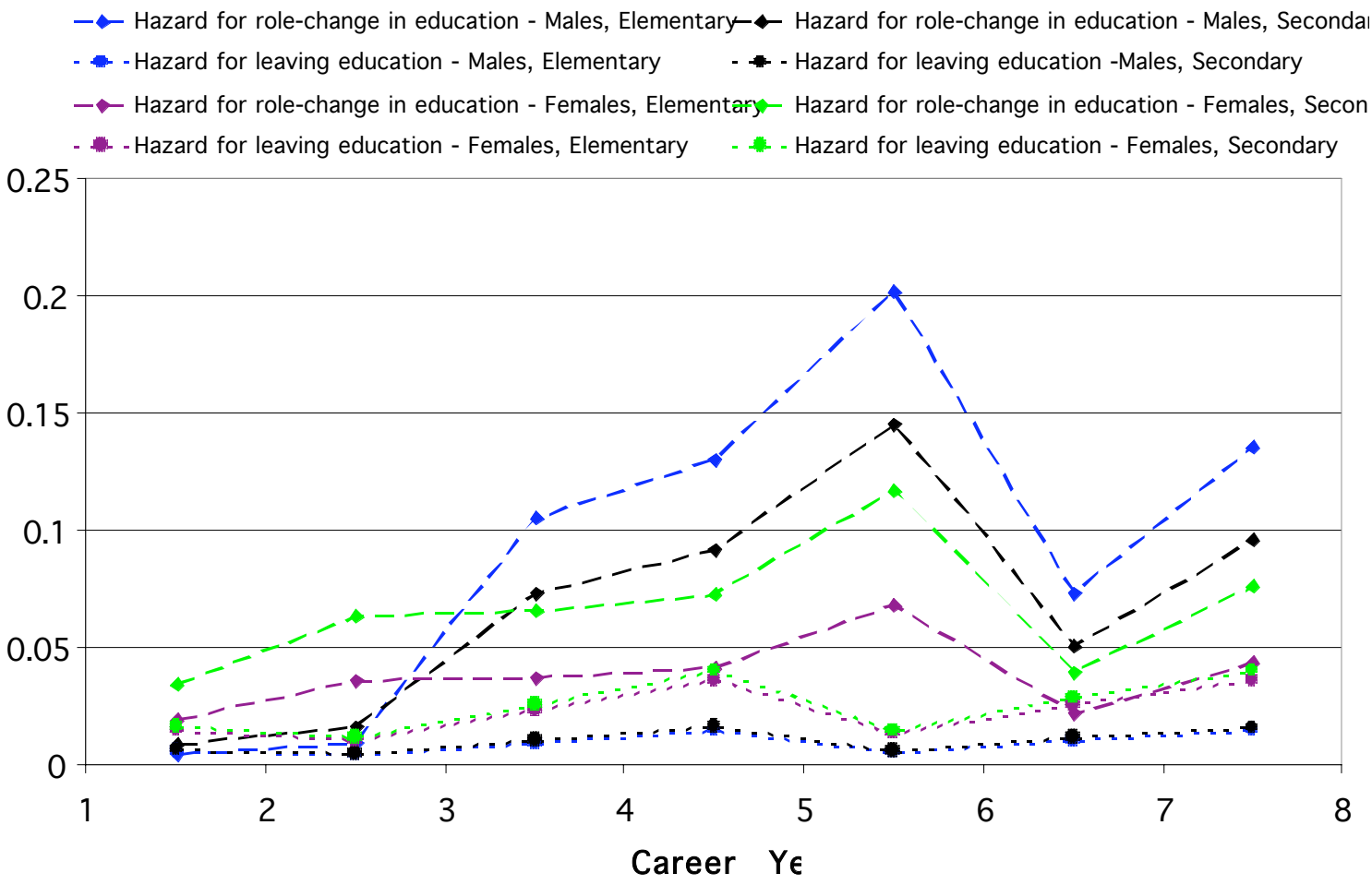

Figure 9. Hazard probabilities by age and gender.

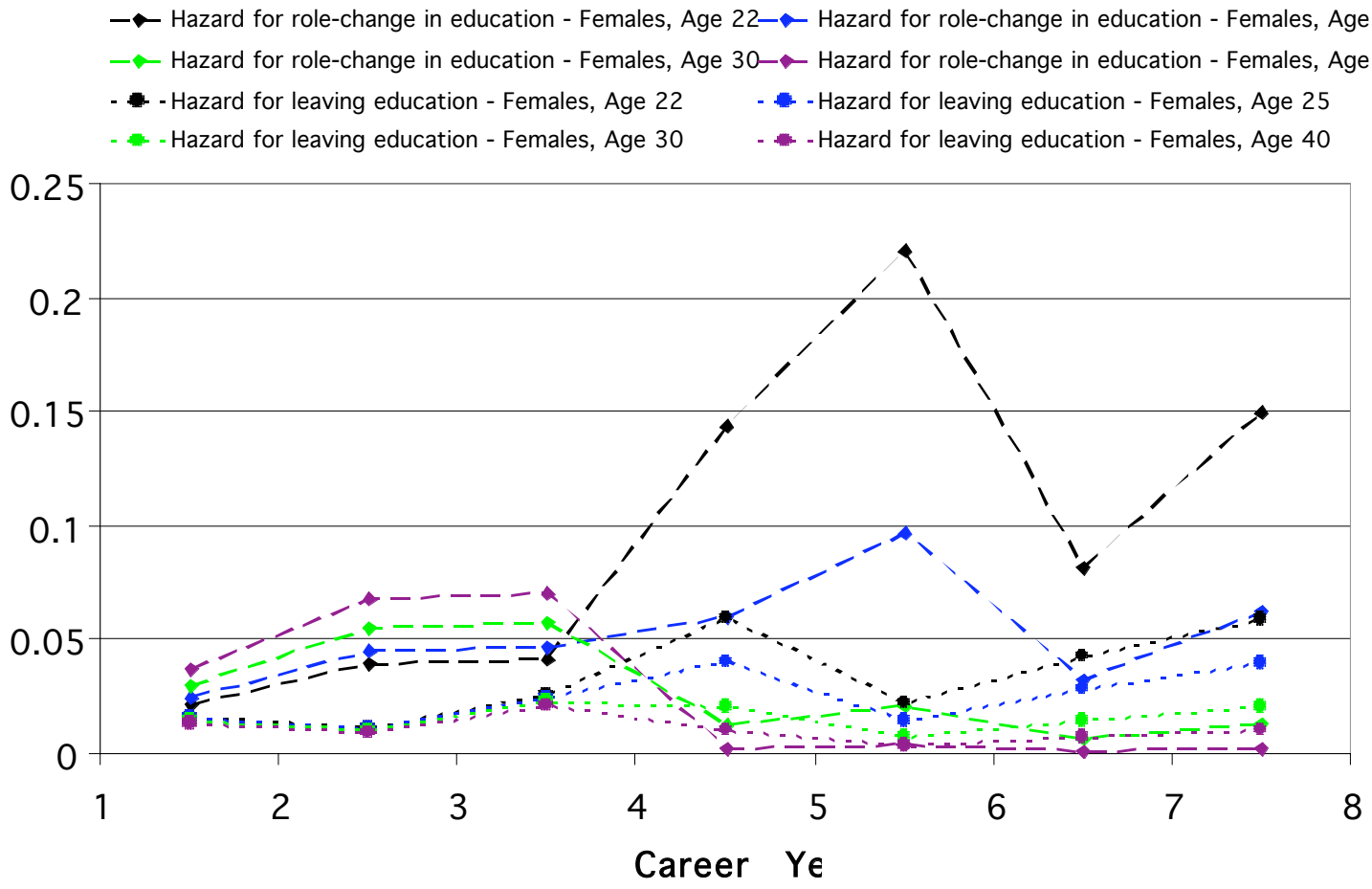

Figure 10. Public elementary and secondary staff, by category.

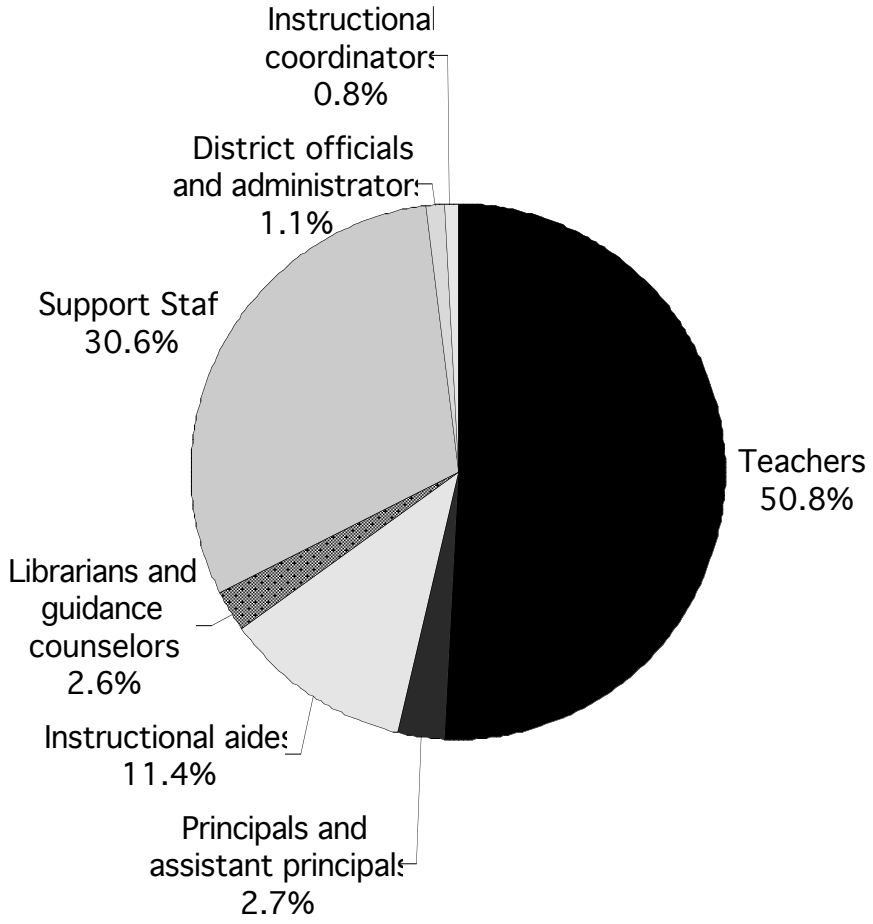

Figure 11. Growth of educational roles from 1992-2001.