

Teacher Attrition, Social Capital, and Career Advancement: An Unwelcome Message

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Abstract

In the diversifying field of education, some teachers leave their fulltime classroom teaching positions for other jobs within the field. Do these teachers—who are part of the “teacher attrition crisis”—have an “investment goods” orientation toward their careers? Such an orientation theoretically entails mobilizing heterogeneous social capital to attain “higher status” positions. In an analysis of the social networks of 99 urban educators, this study found that *position changers* (those who had moved from full-time teaching to other positions within the field of education) had more heterogeneous ego networks than retained teachers in terms of age, occupation, social role and relative contact status. Logistic regression showed that heterogeneous social capital and teaching longevity—both manifestations of an investment goods career orientation—exerted significant positive effects on position changing. These results send an unwelcome message: predictable status attainment behavior may account for a substantial portion of attrition by highly qualified teachers.

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Introduction and overview

Over the last decade, the specter of an eminent teacher shortage has worried school officials and policy makers. In response, substantial research has been conducted to explore this “crisis.” This research has shown that teacher attrition has many causes, one of which is *human capital*. Studies demonstrate that teachers with advanced degrees from prestigious colleges or teachers with degrees in “high market-value” subjects such as mathematics, engineering and science typically leave teaching for jobs in other, non-education fields at higher rates than do their colleagues without these educational qualities (summarized in Guarino, Santibañez, Daley, & Brewer, 2004 p. 34). This outflow occurs because these teachers, by virtue of their widely marketable knowledge and skills, find opportunities for increased income elsewhere. For them, the *opportunity costs* of staying in the classroom are higher than they are for teachers with skills and knowledge less well rewarded outside teaching. If human capital increases opportunity costs of staying for highly educated teachers, *social capital* may increase the opportunity costs of staying for well-connected teachers. It is an unsettling proposition.

Research on teacher careers has revealed attrition to be a multifaceted phenomenon. Attrition can be divided into several different types, each affected differently by human capital and by social capital. Some teachers leave fulltime classroom teaching either for jobs in unrelated fields or to depart the workforce all together. Others remain working as teachers, but “migrate” to other schools (Bobbitt, Leich, Whitener, & Lynch, 1994; Ingersoll, 2001, 2003; Luekens, Lyter, Fox, & Chandler, 2004). Still others leave temporarily, perhaps to have children, and then return to the classroom after a hiatus (Murnane, Singer, Willett, Kemple *et al.*, 1991). Finally, some teachers leave for different jobs in the field of education (Anderson & Olsen, 2005; Quartz, Thomas, Anderson, Lyons *et al.*, Forthcoming). Analysis of national school staffing data (1999-2000 SASS, 2000-2001 TFS) indicates that about 4% of teacher attrition is due to teachers departing their posts and taking other positions within the field of education (Lyons, Forthcoming 2007). Some of this in-field job mobility doubtless consists of “downgrading” into more flexible, perhaps part-time positions, but some of it may be

career advancement: teachers trying to attain higher status somewhere in the education profession.

Increases in human capital are associated with the first type of attrition—teachers taking more lucrative jobs in other fields. Social capital, however, is more likely associated with the last kind of attrition—teachers changing positions within the field of education in an effort to advance their careers. This connection arises because, as we know from status attainment research, social capital is a necessary ingredient in career advancement. Just as individuals with high levels of human capital have the knowledge, skills and credentials that are required for financially rewarding jobs outside the field of education, those with high levels of social capital have the personal contacts, influence and access to information that makes opportunities for career advancement within the field of education possible.

In order to test whether high levels of social capital are associated with in-field teacher mobility, it is necessary to define and measure social capital and determine who has more or less of it. This paper explains and presents the results of a study designed to find evidence of mobilized social capital in the occupational decision-making processes of former teachers who took new positions in the field of education. These former teachers were termed “position changers.” Measuring social capital using sociometric techniques and social network analysis (SNA), as described in more detail below, I was able to compare the career-decision related ego-networks of two groups of teachers: a) those who had left positions as fulltime classroom teachers to take other jobs in the field of education (position changers), and b) those who had remained working fulltime in the classroom (stayers). The logic behind the study was that, if no evidence could be found showing that position changing was correlated to mobilized social capital, then position changing among the teachers in this study was not likely to be career advancement. If, however, the opposite were true, if data showed that position changers had mobilized their social capital in the process of acquiring new positions within the field of education, those teachers could theoretically be classified as career advancers.

Results were that mobilized social capital was highly correlated to position changing; thus, career advancement was associated with position changing. This finding suggests the following hypothesis: *if teachers both have access to social capital and an “investment” orientation toward their careers that motivates them to mobilize that social capital, they are “at risk “ of quitting their teaching jobs to take other, perhaps higher status, jobs in the field of education.*

The next section of this paper explains the theoretical framework used in the study, including an overview of relevant career advancement and status attainment research and social capital theory. Next comes a discussion of the study population and data collection procedures as well as a description of the social network analysis and inferential statistical procedures used in the data analysis. The penultimate section is a report of the results. The paper then concludes with implications for further research on occupational behavior and teachers’ careers, as well as insights that may inform teacher professionalization and retention debates.

Theoretical Framework

Status Attainment and Social Capital

Teacher career research has not emphasized or comprehensively investigated the role of career advancement in teacher occupational behavior¹. This may be partly because defining career advancement for teachers is difficult. Education has been a profession with what Kanter (1976) termed a “low-mobility opportunity structure,” historically typical of predominately female occupations (Strober & Tyack, 1980). Teachers typically do not climb a progressively higher status career ladder, as some do in other professions.

¹ Ingersoll (2001, 2003) reports that the SASS instrument recorded “leaving to pursue another job” as a self-reported reason that accounted for about a quarter of all teacher departures, but he groups this result under “organizational issues,” and uses it for his organizational analysis rather than exploring the issue of career advancement or status attainment. Likewise, a regional study of teacher turnover in Tennessee (Tennessee Tomorrow Inc., 2002), uncovered evidence of career advancement in the form of teachers leaving to take additional courses or to pursue administrative positions, but this study also concentrates on issues other than career advancement.

Wage increases for teachers have been associated with tenure, seniority or relative educational attainment, rather than positional advances (Belfield, 2005; Brewer, 1996 p. 314; Kelley, 1997 p. 17; Lortie, 1975; Rosenholtz, 1989). Teachers who sought to attain greater status in their careers traditionally had one choice: they could become school administrators. This has been a limiting choice for at least two reasons: one, administrative tasks and duties are qualitatively different from teachers' work, and two, many fewer administrator positions exist than teacher positions. Consequently, teachers have moved to these jobs in small numbers. (Fiore & Curtin, 1997; Gates, 2003). Recently, however, the proliferation of charter, small, and alternative schools, as well as non-profit educational organizations, corporate education and many vectors of instructional support and policy making both in the public and private education sectors have increased the potential career scenarios for teachers. Categorizing these new jobs in a status ranking has not been done and may present difficulties. Organization researchers have considerable work ahead of them in analyzing and understanding the new diversification of the education profession.

Therefore, to distinguish career advancement from other types of position changing, it is necessary to observe behavior that is characteristic of status attainment. Fortunately, status attainment is understood well by sociologists and political economists. Decades of research have demonstrated that "status attainment can be understood as a process by which individuals mobilize and invest resources for returns in socioeconomic standings (Lin, 1999 p. 467)." In this context, "socioeconomic standings refer to valued resources attached to occupied positions (*ibid.*)" "Returns," in economics and political economy, are rewards distributed to various suppliers of the resources needed for production. In the case of teacher job changing for the purpose of career advancement, what is produced is a newly attained socioeconomic standing. Thus, when a schoolteacher invests resources (as defined in the next paragraph) and subsequently takes an occupational position that affords more wealth, status or power, this new job represents a "return," which is a reward for an investment of resources.

Resources needed for production can also be termed “factors of production,” which, in classical economics, are labor, land and capital. Recent social and economic theory has extensively debated and expanded the notion of “capital,” which, in classical theory, mainly referred to tools, machinery, factories, or office buildings. Notably, “capital” today includes the concepts of human capital (Becker, 1993) and social capital, both of which, in addition to labor (time and effort), are needed to produce higher status occupational standings. In status attainment research, human capital is analogous to personal resources and social capital is analogous to social resources (Lin, 1999).

Social capital has been defined in terms of various aspects of human relations in society (compare Bourdieu, 1985; Coleman, 1988; Putnam, 2000), but to the benefit of researchers who require common definitions for purposes of establishing external validity, consensus has emerged that social capital “should be conceived in the network context: as resources accessible through social ties that occupy strategic network locations and/or significant organizational positions (Lin, 2001 p. 24).” Further, these resources are “...accessed and used [mobilized] by actors [to achieve instrumental goals] (p. 25).”

Thus, status attainment is a process by which individuals invest human and social capital with the result (expected or not) that they receive returns in the form of enhanced socioeconomic standings (usually wealth, status, and/or power). When status attainment behavior is manifested in the form of career advancement, socioeconomic standings return in the form of more highly remunerated or more influential income-generating opportunities.

Human capital is not the focus of this study because it has been investigated extensively elsewhere in relation to teacher attrition (Boyd, Lankford, Loeb, & Wyckoff, 2005; Krieg, 2006; Murnane et al., 1991) and because evidence suggests social capital plays a larger role than human capital in later stages of career progression (Lin, 1999).

Social Capital and Social Network Analysis

Since social capital is utilized by individual actors and is embedded in social networks, social network analysis (SNA) offers a method to observe it. Specifically, the procedure for observing individual social capital is ego-centered social network analysis. In this method, networks are conceived as centered on a focal member, or “ego.” They also include ego’s contacts, or “alters.” Ego networks can be general and comprehensive, encompassing as many of ego’s friends, relatives, colleagues and acquaintances as possible. Such networks represent what Lin calls “accessed” social capital, or all the social capital to which ego has access. Another kind of ego network represents “mobilized” social capital. These networks only include those relations that came into play in the service of one of ego’s particular instrumental goals or activities. Ego networks that represent mobilized social capital are thus defined by a particular, researcher-specified activity or instrumental goal (e.g. “*With whom did you discuss your recent decision to change jobs?*”) (McCarty, 2002).

The process of collecting ego network data entails using a “name generator” instrument to gather a list of alters with whom ego has had contact. After collecting the names of contacts in an ego network, additional information is collected about the attributes of contacts. This kind of information is known as network *composition*. Information can also be collected that characterizes the strength and character of the ties between alters and between ego and alters. This kind of information is called network *structure*.

Previous research has linked specific compositional and structural attributes of ego networks to status attainment. In general, the composition of ego networks relates to status attainment because contacts represent potential *information capacity*; they know things and talk about them. Knowing the “right” people—whatever that may mean to each person in particular situations—provides access to valuable information. Networks also mediate flow of information in the other direction. “The network that filters information coming to you also directs, concentrates and legitimates information about you going to others...Personal contacts get your name mentioned at the right time in the right place so that opportunities are presented to you (Burt, 1992, p. 14).”

The informational capacity of one's network is one way to assign value to one's store of social capital. The more diverse a network is, the greater its informational capacity (Baker, 2000; Burt, 1992). If contacts are diverse in terms of their occupational positions, social roles (family members, friends, mentors, etc.) and other demographic characteristics (age, sex, race/ethnicity), they are likely to bring varied informational resources to the relationship.

While the diversity of one's contacts might affect career advances, it is not diversity alone that counts. The *relative status* of contacts also matters. A number of studies have shown that contact status matters to status attainment in occupational mobility (Erickson, 1995, 1996; Lin & Dumin, 1986; Volker & Flap, 1999). Theoretically speaking, the effects of contact status in one's personal network on goal achievement can be understood by imagining a hierarchical macrosocial structure within the domain of the education profession (or, by extension, within society at large.) This structure consists of "positions ranked according to certain normatively valued resources such as wealth, status, and power (Lin, 2001, p. 80-81)." Since this structure is hierarchical, positions near the top have advantages "in terms of...number of occupants (fewer) and accessibility to positions (more) (ibid. p. 81)." For attaining increased status (or for achieving any goal, for that matter) "the better strategy would be for ego to reach toward contacts higher up in the hierarchy. These contacts would be better able to exert influence on positions...whose actions might benefit ego's interest (ibid.)." In addition, these higher-up contacts are more likely to connect vertically to others at their status level to help ego, who is stationed at a lower level, to move up.

The effect of at least one type of personal network diversity—occupational diversity—on goal achievement also can be understood in terms of this conception of social resources embedded in a hierarchical macrosocial structure. As noted above, the status rank structure for teachers and educators in general has few steps. Since many non-teacher jobs (e.g. arguably, to various degrees, administrators, policy makers, researchers) occupy higher positions in the status hierarchy of the education profession, obtaining

higher status positions for teachers is most often a matter of leaving the teaching position. When individual teachers aspire to these higher positions, they must reach *up* (higher contact status), which is most often also reaching *out* (occupational heterogeneity). Reaching out also gives teachers access to more and different information about diverse job opportunities.

Associational Styles

These compositional attributes can be grouped into two *associational styles*. One style is *heterogeneous*, marked by association with contacts from diverse occupational backgrounds and ages. These contacts also have high status relative to ego and represent different kinds of social roles—friends, relatives, spouses, colleagues, mentors, and others. The other style is *homogeneous*. Those with a homogeneous associational style, on the other hand, tend to associate with a group of contacts similar to themselves and to each other. They may all occupy the same job position and be approximately the same age and the same gender. They may be mostly friends or colleagues or some other single category of social role. They are not notably more influential, wealthy or powerful than ego and they probably all know each other well enough that anyone of them could transmit the same information through the network.

A heterogeneous associational style in a mobilized ego network may be evidence of an “investment” career orientation. By this, I mean that some teachers view their teaching positions as intermediate steps toward some greater goal. Thus, for them, the teaching job is analogous to an intermediate good, or an investment good, which is a good used as an input in the production of other goods. But it is important to clarify that an investment orientation may either lead a teacher to develop a heterogeneous associational style, or the other way around; a diverse network may inspire a teacher to view his or her teaching position as an ascending career path. Commonly, people “accidentally” develop networks rich with opportunity potential. In fact, society’s most advantaged groups are organized around influential, affluent and powerful family networks, though members of these groups find they have the benefit of networks rich with opportunity without necessarily having exerted any intentional effort of their own. In these cases, the network itself seems

to drive career advancement. As Burt notes, “the probability of success is its own motivation (1992, p. 35).” Among other network characteristics, heterogeneity in a network presents opportunity to ego and ego, in changing positions, consequently finds in retrospect that his or her teaching job was an investment in some future standing. The point I want to make clear is that social capital theory suggests a link between associational style, career orientation, and occupational behavior, but it says nothing inherently about intentionality or causal direction. Likewise, this study does not provide evidence that social capital with certain characteristics *causes* career advancement, or that an investment goods orientation *causes* a heterogeneous associational style. It seeks instead to demonstrate that a certain occupational outcome—position changing within the field of education—is likely for those teachers who exhibit a heterogeneous associational style in the context of their career decisions.

This theoretical framework can be expressed and tested as the following hypothesis:

A heterogeneous associational style is more likely to be associated with teachers who later change positions in education than it is likely to be associated with teachers who remain working as fulltime classroom teachers.

Research design and procedures

Data, Population and Sampling Method

Data come from a survey administered via the Internet to multiple cases that were extracted using information-oriented sampling from the respondents to UCLA’s Longitudinal Study of Urban Educators (LSUE). In addition, data derived from this group’s responses to items on the LSUE graduate questionnaire were integrated into the analysis where appropriate.

The LSUE was an in-depth study of a population of “highly qualified” urban K-12 schoolteachers consisting of UCLA’s Center X Teacher Education Program (TEP) graduates. Following a traditional cohort sequential design, LSUE consisted of a series of

surveys that were administered both by mail and online each spring over a six-year period (2000-2005) to all Center X program graduates. One thousand eighty-four (1,084) graduates, extending from first-year teachers to graduates in their ninth career year, responded to the surveys. Center X is an intensive two-year program leading to state certification and a master's degree. It attracts students with relatively high level of academic achievement. Thus, the LSUE population is not representative of a general population of teachers, but instead is paradigmatic of "highly qualified" teachers. An analysis of the 1999-2000 National Center for Education Statistics' Schools and Staffing Survey (SASS) revealed that approximately 9% of the nation's first year teachers enter the profession with a level of preparation comparable to that of the LSUE population (Lyons, 2006). More LSUE details and results are reported elsewhere (Quartz et al., Forthcoming).

Among many other queries, the LSUE surveys asked respondents to indicate 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 six (plus the option of having left the education profession) formed the primary role dependent variable used in this study. Primary role information was the basis upon which the cases for the present study were extracted.

This primary role information revealed 66 graduates who had at least three years of teaching experience (LSUE data showed little career movement among graduates until their third year out of the teacher education program), had left full-time classroom teaching, but remained employed in the field of education, and who could be reached via e-mail. In addition, 70 graduates who had been teaching for at least three years and remained full-time classroom teachers were added to the subject pool for comparison purposes. The entire group of 136 stayers and position changers received e-mail, which included a link that connected respondents to a website where they could fill out the interactive survey.

Of the 66 position changers extracted from the larger dataset, 35 (53%) responded. Sixty-four of the 70 solicited stayers (92%) provided responses. The lower response rate for position changers produced sufficient cell sizes for the comparison of observed versus expected frequencies. However, position changer missingness likely was not at random. Most likely, the 47% missing rate for position changers was due to the method of contacting study participants through their home addresses and/or the school placements where they had been employed prior years. This contact method made it more likely that teachers who had worked at the same school for several years would be reached and subsequently participate in the data collection. Position changers, on the other hand, were, by definition, more distant not only from the classroom, but often from their teacher education program and were consequently sometimes more difficult to reach and less likely to respond when they were contacted. This non-random missingness, however, did not necessarily distort tendencies manifested in the data. Represented position changers did not necessarily differ significantly in their associational styles from non-represented (missing) position changers. In order to determine whether missingness was likely to have skewed results, available LSUE data was used to scrutinize the attributes of the 31 missing position changers. Evidence of possible asymmetry in associational style between respondents and non-respondents was mixed.

The question was: were missing position changers less likely to have heterogeneous associational styles than represented position changers? Missing cases were younger on average, had graduated more recently and had less experience working in education, all of which suggests fewer opportunities for heterogeneous career-related associations to develop. On the other hand, as compared to respondent position changers, missing position changers had a more varied pattern of position changing, with more changing jobs later in their careers and more often finding work in the field of education outside of K-12 schools, which suggests that as teachers they may have had access to more non-colleagues in non-teacher occupations—attributes of a *more* heterogeneous associational style. It is by no means certain, therefore, that missingness distorted core findings of this study.

The average age of the respondent group was 27, with position changers being slightly, but not significantly older than stayers on average (stayers 26, changers 28). Sex distribution was 82% female/18% male, which was not significantly associated with position changing. The respondents were 43% white, 25% Asian, 16% Latino, and 6% African American. Ethnic distribution was also non-significant when frequencies were compared between stayers and position changers. Average number of years experience working as teachers was about five. Position changers had worked about six (6) years on average and stayers had worked only four-and-a-half (4½). The difference in longevity here of a year and-a-half proved significant and useful to the analysis, as described below. Those who changed roles did so, on average, after their third or fourth year of working in the field.

Questionnaire

The survey instrument sent to this group consisted of four short sections: (a) Significant career decision: respondents were asked to “think back on the last significant career decision” they had made and then to describe, in a few words, that decision. It could have been to remain teaching and stay at a current workplace, to move schools, to quit working, to change positions, or to take on new job-related tasks, such as becoming the chair of a department; (b) Name generator: respondents were asked to think back to the time of their significant career decision and then to name up to six contacts who had assisted them, provided them with useful information, advised them, or encouraged them at that time; (c) Composition of alters: respondents were asked to characterize the contacts by answering a series of questions about each contact, including relationship type, occupation, and status; and (d) Tie strength: respondents were presented with each possible pair of contacts and asked how well these two people knew each other.

It is important to note that this network questionnaire was designed to identify and provide descriptions of respondents’ “mobilized ego networks,” which in this case were career-related decision communication networks. Respondents were asked to self-report these networks in retrospect. Therefore, most often, the pertinent career decision had

been made when the respondents were teachers, even if they were not teachers at the time of the data collection, and therefore the networks should be interpreted as *teacher networks*.

Statistical Procedures and Variables

Logistic regression is the appropriate procedure for measuring the likelihood that position changers would exhibit heterogeneous associational styles in the context of making a significant career decision. Since my purpose was to differentiate stayers and position changers from each other in terms of their social networks, discriminant function analysis (DA) would have been another method of statistical analysis to use. DA indicates the factors that contribute most significantly to the differences between groups, but logistic regression is preferred to DA when independent variables are not normally distributed, or are not linearly related to the dependent variable, or when group sizes are unequal. All three of these conditions are characteristic of this study. Also, logistic regression is robust, handles categorical as well as continuous variables, and is more easily interpreted than DA (Long, 1997).

The dependent variable used for this regression was, as noted above, “primary role” derived from responses to the primary role tracking item in the LSUE. For this analysis, primary role was recoded as dichotomous, with those who had never changed positions in the course of their careers (from career year 3 through career year 8), and had remained fulltime classroom teachers coded as 0 and anyone who had changed positions, even if they had subsequently returned to fulltime classroom teaching, coded as 1.

In order to systematically specify as complete, but non-redundant, a model as possible, I explored correlations between all the variables available in this study and determined which ones were significantly associated with position changing for use as independent variables in the logistic regression model. Of the individual graduate attributes collected from the larger LSUE graduate survey and the position changer survey, only *longevity* (years experience working in the field of education) exerted significant influence on position changing ($r(97) = .48, p < .01$). The average position changer had been working

in the field of education for about six and a quarter years and had shifted away from full-time classroom teaching after about four years. Educational researchers have long known that longevity is related to turnover (Hanushek, Kain, & Rivkin, 2001). Many of the jobs available for non-teacher educators can be acquired only after several years of teaching experience. Administrators, for example, most often come from the ranks of former teachers (Fiore & Curtin, 1997). It makes sense that the longer one has participated in the educational workforce, the more likely one is to have shifted out of the classroom. Therefore, I included longevity in the model as a control.

Of the network composition variables, *age*, *occupational*, and *social role heterogeneity* proved significant. I excluded age heterogeneity because it was correlated with longevity. Heterogeneity measures were derived from the name generator instrument and were measured relative to the respondent (ego). Letting g represent the number of nodes in each ego-centered network, the calculation of heterogeneity was as follows:

$$\frac{\text{Number of alters different from ego}}{\text{Total number of alters } (g-1)} = \text{heterogeneity}$$

Heterogeneity ratios reflected the diversity of ego-networks. Occupational diversity was based on the same seven possible occupational categories on which the dependent variable, primary role, was based: full-time classroom teacher, part-time classroom teacher, substitute, administrator, other role in K-12, other role in education outside K-12, outside education. The mean occupational diversity for stayers was 55%, but position changers had 72% mean occupational diversity, meaning almost two-thirds of their alters held different positions than they themselves did in the field of education. The association between occupational diversity (a continuous variable) and position changing was positive and significant ($r(92)=.28, p < .01$). The data show that position changers tended to know more people who worked in education outside of K-12 schools than did stayers. Similarly, stayers tended to name more full-time classroom teachers as people with whom they discussed career decisions than did position changers. Consider this pair of findings: 44 stayers (71% of all stayers) did not list a single person in their career-related

decision networks who worked in education outside of K-12 schools. Conversely, 21 (60%) of the position changers did not name a single full-time teacher in their career decision networks prior to leaving teaching. This finding supports the theoretical expectation that information capacity in a network opens opportunities. Social capital theory suggests that the teachers who stayed might have been constrained (either intentionally or unintentionally) by the relative occupational homogeneity of their networks.

Social role heterogeneity was based on seven values: friends, spouses, family members, colleagues working at the same workplace as the respondent, associates from the field of education working elsewhere, mentors, and community members. For this measure, alters could be designated as belonging to only one, or as many as all seven of these categories. Therefore, the sum of proportions for this variable did not necessarily equal 100 for each respondent. The highest aggregate mean ratio (for stayers and position changers) was for colleagues and the lowest was for community members. The second-most-common social role category was friend and the third most common was mentor.

Figure 1 shows social role ratios differentiated by position changers and stayers. As this figure indicates, the most striking difference between these two groups is the higher ratio of colleagues in stayers' networks. In this case, position changers had a significantly ($p < .01$) and dramatically lower proportion of colleagues among their contacts (22%) than did stayers (41%). This finding meets theoretical expectations that those exhibiting status attainment behavior mobilize social resources outside their immediate milieu, whereas those who plan to remain in their positions would have no need—or, perhaps, capacity—to seek out advice from an occupationally diverse network. Ratio of colleagues was therefore the measure I included in the model.

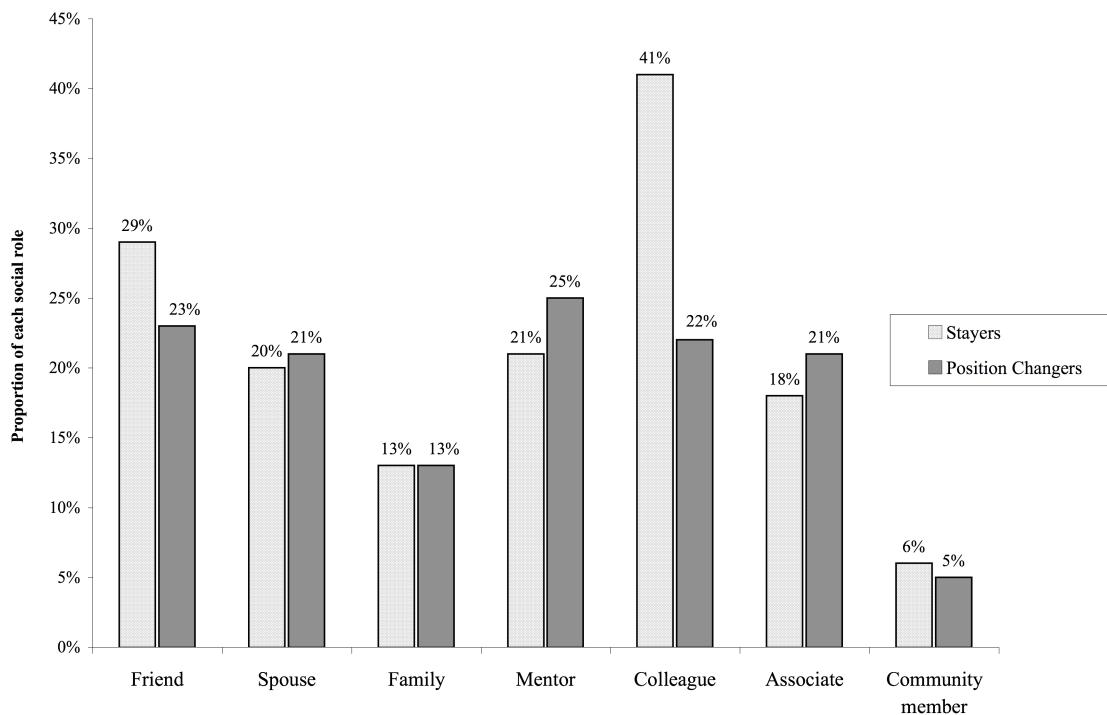


Figure 1: Mean social role (relationship type) ratios for position changers and stayers. The two most dramatically different categories are friends and colleagues.

It is worthwhile to digress for a moment to discuss contact status. Social capital theory suggests that, as compared to stayers, position changers would be expected to have had a higher proportion of high status contacts in their networks. To test this expectation, the name generator instrument allowed the construction of average contact status, which indicated the mean of the aggregated occupational statuses of alters as considered within their own fields or hierarchical organizations, reported by ego. The questionnaire item asked respondents to characterize alters as “at or near the low ends of their hierarchy,” “near the middle of their hierarchy,” or “closer to the top of their hierarchy.” These three values were coded as one, two and three, respectively, summed and then divided by total number of alters. Thus, the maximum value was 3. Among these cases of ego-networks, the mean average contact status was 2 and the standard deviation was 0.6. Mean average contact status varied little between position changers (2.13) and stayers (1.93) and, as a continuous measure, was not significantly correlated with position changing. When I transformed average contact status into a categorical variable with groups corresponding

to quartiles, however, position changers' frequency of higher status contacts was greater than would be expected by chance ($\chi^2(3, N=99) = 8.84, p < .05$). Two-thirds (66%) of position changers had networks with contacts that were on average above the mean in terms of relative status, whereas 59% the stayers had similarly high-status contacts in their career-related decision networks.

The relatively high level of average contact status among the two groups as well as the small difference between them can be explained in several ways. First, in the profession of teaching, most teachers, no matter their career orientation, have access to the same kinds of social resources; they know administrators in various positions, fellow teachers, instructional coaches, parents, students, aides, counselors and other professionals such as school psychologists and therapists. Also, as graduates of a relatively high status teacher preparation program and holders of master's degrees from a major and prestigious university, they have met prominent figures in the educational establishment. In addition, status positions in the school system, as noted earlier, are ambiguous. Finally, this data is based on self-reported, retrospective perceptions of relative status and has its own limitations in terms of reliability and internal validity. The results should therefore be taken as suggestive of a relationship between contact status and position changing, especially given prior research and social capital theory that predicts a relationship, but it also warrants further research with a larger sample size. For this reason, I did not include average contact status in the logistic regression model.

Incidentally, network structure independent variables were also derived from the name generator instrument. The networks in this study consisted of valued relations between nodes. But network structure showed little between-group variability, probably due to the small size (maximum seven) of the ego networks, and was subsequently discarded for the purpose of this analysis.

The logistic regression model can be expressed as:

$$\Pr(y_i = 1) = \text{logit}^{-1}(\alpha + \beta X_i), \text{ for } i = 1, \dots, n,$$

Where i represents each case in the study and X is the matrix of independent predictors for each subject: Longevity, occupational diversity, and ratio of colleagues. The

appropriateness of this model was tested. A *linktest* was not significant for the model, which indicated that it was probably specified correctly. Next, collinearity was tested by measuring the variance inflation factor (V.I.F.), which would be high in a misspecified model and 1 if all predictor variables were completely uncorrelated. In fact, the average V.I.F. for the independent variables in this model was 1.06, meaning the variables all represented separate effects. The process of skimming off redundant and extraneous effects seemed to have addressed any problems with multicollinearity in the model. Last, the Pearson χ^2 Goodness-of-fit test produced a non-significant (at .05 level) statistic, which indicated the model was reasonably well fitted to the observed values.

Results

The logistic regression model produced significant results (Likelihood-ratio χ^2 (3) = 42.25, $p < .01$). Logistic regressions produce log odds and odds ratios, which can be translated into probabilities that the outcome will occur given a unit change in the predictor variable, while holding all other variables constant at their means. As expected, as longevity and occupational diversity of contacts increased, the probabilities that these factors were attributes of position changers also climbed. An increase in the ratio of colleagues resulted in a marked *decrease* in the probability that the observed network attributes were associated with a position changer. For example, it was likely that an eight-year teacher in this group was a position changer. It was also likely that a teacher with high occupational diversity in her network was a position changer, whereas it was unlikely that teacher with a network full of colleagues was a position changer.

Independent main effects are shown in Tables 1 and 2. Table 1 shows the probabilities that position changing will occur as longevity increases and the other two predictors are held constant at their means. This relationship is also graphed in the top panel of Figure 2. The chances that a position changer is being described increase to 78% when longevity has increased to eight years (and occupational diversity is held at its mean of .6 and ratio of colleagues is held at its mean of .36) in these cases. On the other hand, after three

years, the chances that a position change has occurred are only about 4% under these conditions, making years in education the strongest effect of the model.

Table 1

Predicted probabilities that position changing will occur given a year change in longevity, holding the other two effects constant at their means.

Longevity	Prediction
3 yrs	0.04
4 yrs	0.10
5 yrs	0.21
6 yrs	0.38
7 yrs	0.60
8 yrs	0.78

Table 2

Predicted probabilities that shifting will occur given a unit change in occupational diversity of personal networks, holding the other two effects constant at their means.

Occupational Diversity	Prediction
0	0.04
.2	0.07
.25	0.08
.33	0.10
.4	0.12
.5	0.16
.6	0.21
.67	0.25
.75	0.30
.83	0.35
1	0.48

Table 2 displays the probabilities that an increase in the occupational diversity of respondents' ego-networks is associated with position changing. Contact occupational

diversity is low among stayers and, at the upper ranges of heterogeneity, its ability to discriminate between position changing and staying becomes pronounced. When networks were 100% diverse in terms of the occupational positions contacts occupied, the probability that ego was a position changer increased to 48%, given that longevity and ratio of colleagues were held constant at 5 and .36, respectively, making this factor the second most powerful effect of the model. This relationship is seen in the middle panel of Figure 2.

Table 3

Predicted probabilities that position changing will occur given a unit change in ratio of colleagues (social role) of personal networks, holding the other two effects constant at their means.

Ratio of Colleagues	Prediction
0	0.43
.17	0.32
.2	0.30
.25	0.27
.33	0.23
.4	0.19
.5	0.15
.67	0.09
.75	0.08
.8	0.07
1	0.04

Table 3 shows the probabilities that position changing covaries with the ratio of at-school colleagues, which is one aspect of social role diversity. Here, the relationship is reversed. The probability that a position changer has mobilized no colleagues for help discussing a career related decision is 43%, given that contact occupational diversity and longevity are held constant at their means of .6 and 5, respectively.

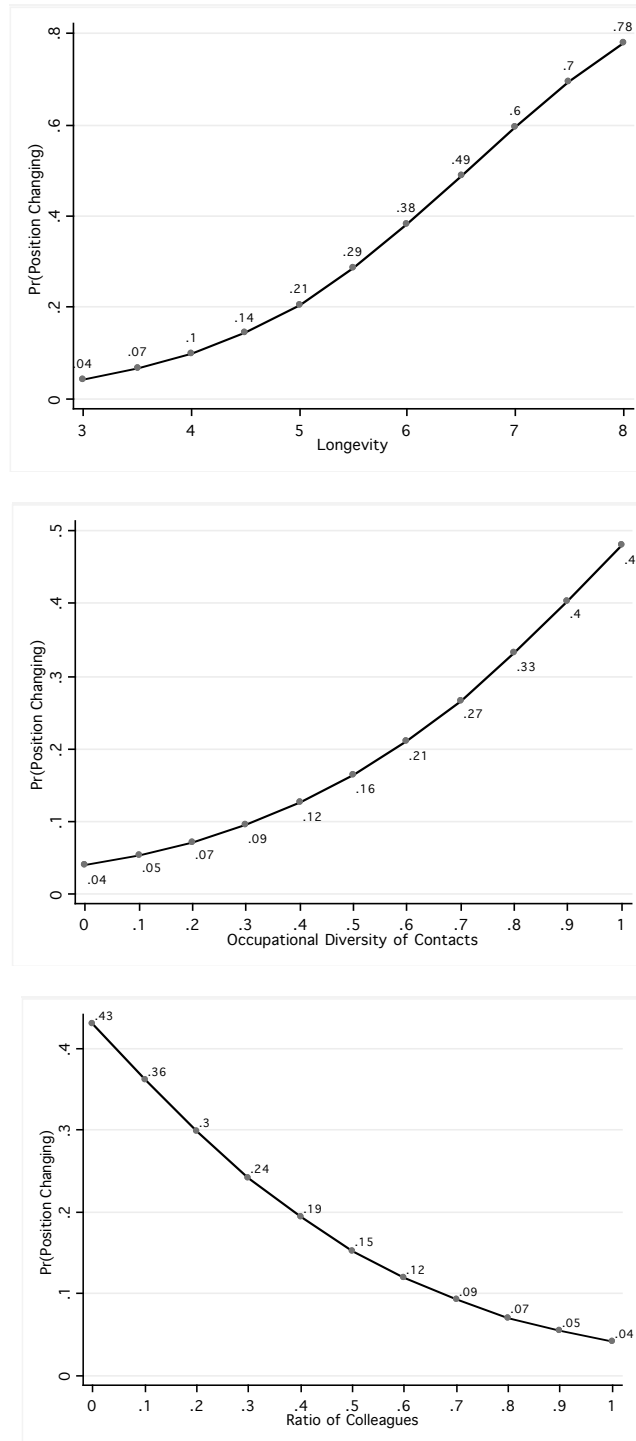


Figure 2: Changing probabilities that position changing will occur as independent variables either increase or decrease in value, holding all other variables constant at their means.

At the other end of the continuum, when a teacher’s career-related advice network is 100% comprised of colleagues, the chances of that teacher being a position changer is as low as 4% given that the other two effects are held constant at their means. These results make ratio of colleagues the third most powerful effect in the model, which is shown in the bottom panel of Figure 2.

Tables 4 and 5 combine occupational diversity and ratio of colleagues, respectively, with longevity to show the interaction of these effects. Table 4 shows, for example, that nine out of ten eight-year educators (92%) whose career decision networks at the time of their significant career decisions were 100% diverse in terms of contact occupational position, and approximately one-third comprised of in-school colleagues (.36), which is the mean for that factor, were position changers. Similarly, Table 5 shows that nine out of ten times (91%) an eight-year teacher who had no colleagues in her decision network and whose occupational diversity was held constant at 60% was a position changer.

Table 4

Predicted probabilities that shifting will occur given a year change in longevity, combined with a unit change in network occupational diversity, holding ratio of colleagues constant at its mean.

Longevity	Occupational Diversity										
	0	0.2	0.25	0.33	0.4	0.5	0.6	0.67	0.75	0.83	1
3 yrs	0.01	0.01	0.01	0.02	0.02	0.03	0.04	0.05	0.07	0.08	0.13
4 yrs	0.02	0.03	0.03	0.04	0.05	0.07	0.10	0.12	0.15	0.18	0.27
5 yrs	0.04	0.07	0.08	0.10	0.12	0.16	0.20	0.24	0.29	0.34	0.47
6 yrs	0.09	0.15	0.17	0.21	0.25	0.31	0.38	0.43	0.49	0.56	0.68
7 yrs	0.19	0.30	0.33	0.39	0.44	0.52	0.60	0.65	0.70	0.75	0.84
8 yrs	0.35	0.50	0.54	0.60	0.65	0.72	0.78	0.81	0.85	0.88	0.92

Table 5

Predicted probabilities that position changing will occur given a year change in longevity, combined with a unit change in ratio of colleagues, holding network occupational diversity constant at its mean.

Longevity	Ratio of Colleagues										
	0	0.17	0.2	0.25	0.33	0.4	0.5	0.67	0.75	0.8	1
3 yrs	0.11	0.07	0.07	0.06	0.05	0.04	0.03	0.02	0.01	0.01	0.01
4 yrs	0.23	0.16	0.15	0.13	0.11	0.09	0.07	0.04	0.03	0.03	0.02
5 yrs	0.42	0.31	0.29	0.26	0.22	0.19	0.15	0.10	0.08	0.07	0.04
6 yrs	0.64	0.52	0.50	0.46	0.40	0.36	0.29	0.20	0.17	0.15	0.09
7 yrs	0.81	0.72	0.70	0.67	0.62	0.57	0.50	0.38	0.33	0.30	0.19
8 yrs	0.91	0.86	0.85	0.83	0.80	0.76	0.70	0.59	0.54	0.50	0.36

Interpretation and Conclusion

The results support the following observations. First, longevity is the independent main effect that has the greatest impact on position changing in these cases. This finding is not particularly informative since longevity itself presumably does not cause career change. Rather, latent factors obscured in the passage of time likely lead to career moves. This study provides insight into how longevity combines with the composition of career decision networks in the cases of position changers.

Second, in the process of making significant career decisions, future position changers were more likely than stayers in this group of cases to communicate with administrators, non-fulltime teachers and individuals working in positions either inside or outside K-12 education. Third, the data show that future position changers in the process of making a significant career decision were more likely than stayers to include non-colleagues in their career decision-related discussions.

Prevalence in a career related discussion network of non-colleagues and a diverse group of teachers and other educators signifies a heterogeneous associational style, which, prior research has shown, is associated with a process of status attainment. Interestingly,

longevity complicates the picture. In this group of cases, teachers who were earlier in their careers changed positions after contacting occupationally diverse non-colleagues in the process of making significant career decisions—they behaved in ways expected of those seeking to attain greater status. But teachers who were later in their careers made position changes in the context of mobilizing less diverse social resources, which suggests that teachers who are later in their careers do change positions, but that the connection to status attainment and career advancement is not as strong. Other factors may be contributing to their career moves.

In conclusion, this study both suggests a valid method for further research on teacher career advancement and status attainment in the education profession and generates a new hypothesis, which, in further research, should be tested with a sample suitable for generalization. This hypothesis is stated:

In early career teachers (1-5 years), a high level of social capital (a heterogeneous associational style in the context of a significant career decision) is more likely to be associated with those who later change positions in the field of education than it is likely to be associated with those who remain working as fulltime classroom teachers.

Since a heterogeneous associational style is linked to status attainment, this study demonstrates that identifying possible career advancers among early career teachers is a matter of inquiring about the associational styles of these teachers before they ever make position changes or career moves.

Insights for teacher retention

That social capital should be an undesirable quality in teachers may be an unwelcome message. Presumably, teachers should be of the highest possible quality, both in terms of academic achievement (human capital) and social ability. At the same time, these well-educated, high-achieving and socially skilled teachers should remain dedicated to the classroom as long as possible. Or should they be?

Researchers sometimes forget that attrition is not always negative. Some attrition is necessary to allow opportunities for newcomers, to encourage innovation and to prevent the effects of burn out. Attrition is a problem when it leads to a short supply. But even if it doesn't give rise to a teacher shortage, attrition that results from poor working conditions or low wages may be worrisome because the causes themselves are factors that negatively affect educational production. It is regrettable when teachers leave classrooms to get away from unsafe environments or onerous working conditions because this kind of attrition is unnecessary and preventable. However, attrition that occurs as the result of career advancement, whether within education or without, is not preventable. If they wanted to prevent this type of turnover, schools would need to hire less well educated and less well-connected teachers—teachers with less social capital, which probably is not a desirable proposition. Fortunately, although teachers with degrees in widely marketable areas (for example, science teachers) may leave teaching and move beyond the sphere of the educational system, teachers who move up to accept administrative duties or to work in some other capacity in an education-based organization are not lost forever to the social mission of education. Career advancers potentially can be leveraged to help improve educational production.

It is important to see that incentives designed to stem attrition by increasing pay or ameliorating poor working conditions may not motivate position changers to stay if they have an investment orientation toward their careers and can mobilize social capital toward their goal. Incentives are designed to increase the opportunity costs of change by making the status quo more valuable. But the opportunity costs of changing have decreased for ambitious educators as the educational system has diversified in large urban areas.

On the other hand, incentives centered on increased teacher empowerment may be appealing to some position changers who have an investment goods career orientation. Teacher-operated schools, for example, may retain these teachers. Another example would be small schools that are organized in such a way that teachers make important, substantial decisions concerning scheduling, curriculum, and even hiring, firing and

budgetary matters. If these reforms provide teachers with increased influence and status, they may positively affect retention.

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