Career Orientation of Urban Educators: A Social Network Analysis of Teacher Attrition

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A Social Network Analysis of Teacher Attrition

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Abstract

This study examined ego-centered career decision-related communication networks and other data on a group of 99 teachers to test whether some teachers had an "investment goods" orientation toward their careers that entailed mobilizing heterogeneous social capital to attain arguably "higher status" positions in the field of education. Results showed *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. Further, a logistic regression quantified the main and interaction effects, which generated the hypothesis that position changers are more likely than fulltime classroom teachers to have heterogeneous social capital and higher longevity.

(Approx. 115 words)

Introduction

Recent research on teacher career paths has made apparent the multifaceted nature of teacher attrition, but it has not emphasized or comprehensively investigated the role of career advancement in teacher occupational behavior[i]. In order to empirically explore the conceptual problem of defining "career advancement" in the education profession and identifying attrition that counts as career advancement, this study compared career-decision related ego-networks of teachers who had changed positions from fulltime classroom teachers to other jobs in the field of education to teachers who had remained working fulltime in the classroom. In terms of the characteristics of these ego-networks and job staying or changing decisions, some teachers in the study displayed a discernible "investment orientation" toward their fulltime classroom teaching jobs. This finding generated the hypothesis that *career orientation*, manifested in ego-network composition, may be a predictor of teacher attrition.

The definition of teacher attrition has been complicated in recent studies. First, when teachers leave schools they often "migrate" to other schools (Bobbitt, Leich, Whitener, & Lynch, 1994; Ingersoll, 2001, 2003; Luekens, Lyter, Fox, & Chandler, 2004). Others leave temporarily, for example to have children, and then return to the classroom after a hiatus (Murnane, Singer, Willett, Kemple *et al.*, 1991). Still others leave fulltime classroom teaching for other jobs in the field of education. The UCLA Longitudinal Study of Urban Educators (discussed in more detail below) recognized and investigated "role changers"—educators who have moved on to various occupational

positions specifically in the field of education, but outside the classroom (Anderson & Olsen, 2005; Quartz, Thomas, Anderson, Lyons *et al.*, Forthcoming). This occurrence, which I prefer to call "position changing"—appears to be nationwide; analysis of national school staffing (1999-2000 SASS, 2000-2001 TFS) data 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).

Position changing may be a qualitatively different phenomenon from other types of attrition because, at least in some cases, it may involve teachers who are oriented towards career advancement. Johnson and The Project of the Next Generation of American Teachers (2004) argue that among recent cohorts of teachers in U.S. schools, a number view their jobs as intermediate, rather than final, steps in a varied career path. Understanding teachers who are oriented towards career advancement is important because this orientation conceivably influences how individuals will react to initiatives designed to retain them. Incentives that are appropriate for those who view their teaching jobs as "final" career destinations may not apply to teachers who seek advancement and status attainment in their careers and view their teaching job as an intermediate step. For instance, educational researchers and policy makers have recognized the importance of improving working conditions as a way of retaining quality teachers (Darling-Hammond, 2003; Firestone & Pennell, 1993; Loeb, Darling-Hammond, & Luczac, 2005; Rosenholtz & Simpson, 1990; Schneider, 2003) but this prescription may have less affect on teachers who seek to advance their careers by taking on varied roles and changing jobs within the field of education.

In this paper, I differentiate two career orientations: an *investment goods* and a *final goods* orientation. Those teachers who possess an investment goods career orientation view their teaching positions as intermediate steps analogous to an intermediate good, or an investment good, which is a good used as an input in the production of other goods. Those teachers who their jobs as a final good, or a consumer good could be described as having a "completed product" orientation. These teachers do not have a strong interest in advancing their careers through moves into other occupational positions in education.

How can researchers identify the career orientation of teachers? It would seem that position changing itself might represent a form of career advancement and therefore signify an investment goods orientation. But some position changing is simply shifting from full time to part-time status and some position changers are seeking flexibility or less pressure rather than career advancement. Categorizing specific occupational positions in a status ranking is theoretically possible, but difficult because education has been a profession with what Kanter (1976) termed a "low-mobility opportunity structure," historically typical of predominately female occupations (Strober & Tyack, 1980). Consequently, wage increases 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). Of course, one avenue for career progression has been for teachers to move into administration, but administrative tasks and duties are qualitatively different from teachers' work and teachers have moved to these jobs in small numbers, if only because many fewer

administrator than teacher positions exist (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. Researchers and policy makers have considerable work ahead of them in analyzing and understanding the new diversification of the education profession, but it is clear that new categories will be needed to understand teachers' careers.

This paper uses an empirical investigation of a group of teachers to test the proposition that when status attainment behavior is observed in position changers, these educators can be said to exhibit an investment goods career orientation. If evidence supports the association of position changing and an investment goods career orientation, it will be possible to hypothesize—and test empirically in further, generalizeable, research—that an investment goods career orientation is an indicator that a quit decision is likely.

In the next section, this paper provides a detailed explanation of the theoretical framework used in the study, including an overview of relevant career advancement and status attainment research and social capital theory. Next, the study population and data collection procedures are described along with a discussion of the social network analysis and inferential statistical procedures used in the data analysis. Finally, I report the results of the data collection and analysis and conclude the paper 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

Career advancement is a form of status attainment, which is a process that sociologists and political economists understand well. 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 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 was 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

All of these compositional attributes can be combined and simplified 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. Those with *homogeneous* associational styles, 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 all mostly be friends or colleagues or some other 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 could just as well transmit the information anyone else is able to transmit through the network.

Previous status attainment research that supports social capital theory suggests that a heterogeneous associational style in a mobilized ego network can be evidence of an investment goods orientation. The direction and sequence of effects is important to clarify here. In some cases, a prior investment goods orientation may *lead* a teacher to mobilize accessible social contacts in the service of a career move. In other cases, a teacher whose ego network is incidentally heterogeneous may *develop* an investment goods orientation towards his or her career. Effects can be bidirectional and out of sequence in this conceptual framework. A person can "accidentally" develop a network rich with opportunity potential. In fact, society's most advantaged groups are organized

around influential, affluent and powerful family networks. Members of these groups find they incidentally, and not necessarily through intentional effort of their own, have the benefit of networks rich with opportunity. As Burt noted, "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 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* heterogeneous social capital. It seeks instead to demonstrate that a certain occupational outcome is likely to be an expression of an investment goods career orientation to the extent that it co-varies with a heterogeneous associational style manifested in the described network compositional measures.

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 a group that was extracted using information-oriented sampling from the respondents to UCLA's Longitudinal Study of Urban Educators (LSUE). In addition, data derived from this subgroup'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 eight-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 subgroup for the present study was 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 responded. Sixty-four of the 70 solicited stayers provided responses. Overall, 99 subjects completed the survey, which was a 72% overall response rate. I should stress that the respondent

group, extracted using the procedure just described, was neither representative of a general population of teachers, nor representative of LSUE study participants. Instead, this respondent group is best interpreted as multiple cases.

The 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 50% response rate for position changers was a data collection artifact 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 methodology made it easier to connect with teachers who had worked at the same school for several years. Analysis of LSUE data not detailed here showed that position changers in general were more distant than stayers from their teacher preparation program and from the world of teaching. However, to determine whether this missingness masked any tendencies that, if revealed, might contradict findings from this study, I scrutinized attributes of the 31 missing position changers available in LSUE data and found that the evidence of possible asymmetry in associational style between respondents and non-respondents was mixed.

On the one hand, missing cases were younger, had graduated more recently and had less experience working in education. These characteristics suggest that the social capital of missing position changers may have been *less* developed and *less* heterogeneous as compared to the social capital of respondents. Along these same lines, those who had been math and science teachers (more likely to leave teaching than other kinds of teachers) were represented slightly more often among respondents, as were those

who had been secondary school teachers (also considered more likely to leave). 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. Missingness among position changers, therefore, did not appear to distort significantly 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 hetereogeneity 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:

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

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 proportions for this variable did not necessarily add up to 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.

—INSERT FIGURE 1 ABOUT HERE—

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 (χ^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:

$$\Pr(y_i = 1) = \log it^{-1}(\alpha + \beta \mathrm{X}_i), \text{ for } i = 1, \ldots, n,$$

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 both models. 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.

—INSERT TABLE 1 ABOUT HERE—

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.

—INSERT TABLE 2 ABOUT HERE—

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.

—INSERT TABLE 3 ABOUT HERE—

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. 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.

—INSERT FIGURE 2 ABOUT HERE —

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.

—INSERT TABLE 4 ABOUT HERE—

—INSERT TABLE 5 ABOUT HERE—

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 by 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 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 and status attainment suggests an investment goods orientation towards one's career, this study demonstrates that identifying investment goods career orientations 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

The findings presented in this paper suggest a possible reframing of the discussion of teacher attrition in several ways. First, it is clear that status attainment should be acknowledged as a motivational factor driving some early career educators' career aspirations. Those who have these aspirations should be given opportunities that benefit students and contribute to educational attainment. The aspirations of these teachers could be leveraged for the benefit of the educational system.

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 goods orientation toward their careers. 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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[i] 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.

TABLES AND FIGURES

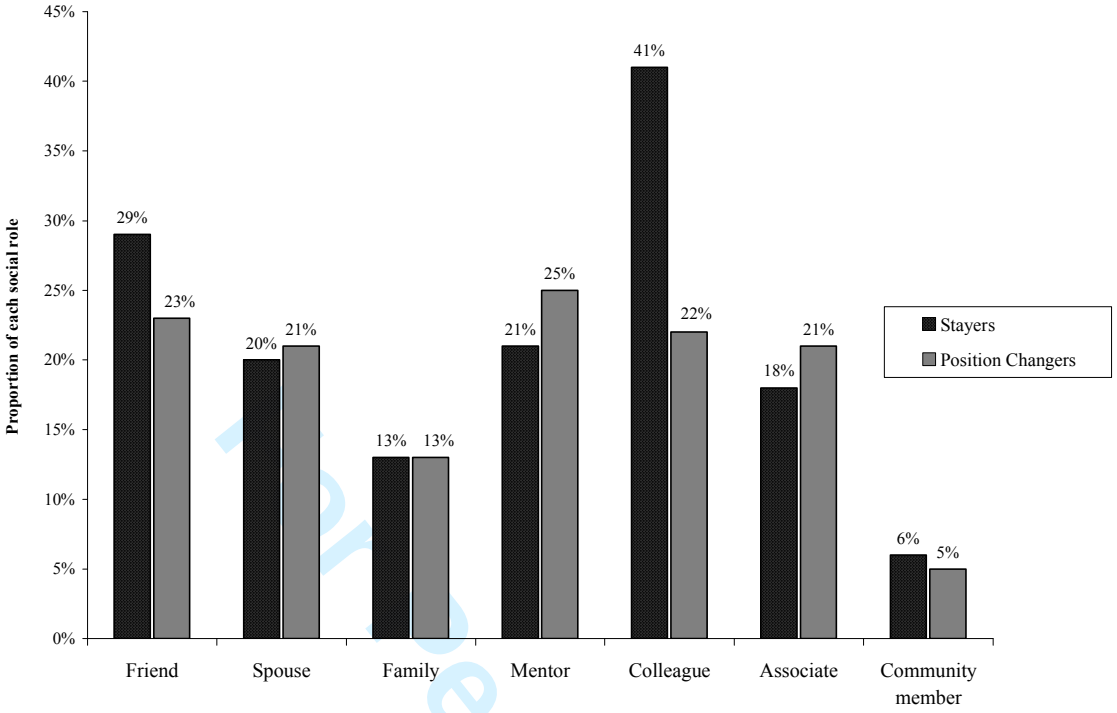


Figure 1: Mean social role (relationship type) ratios for position changers and stayers. The two most dramatically different categories are friends and colleagues.

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

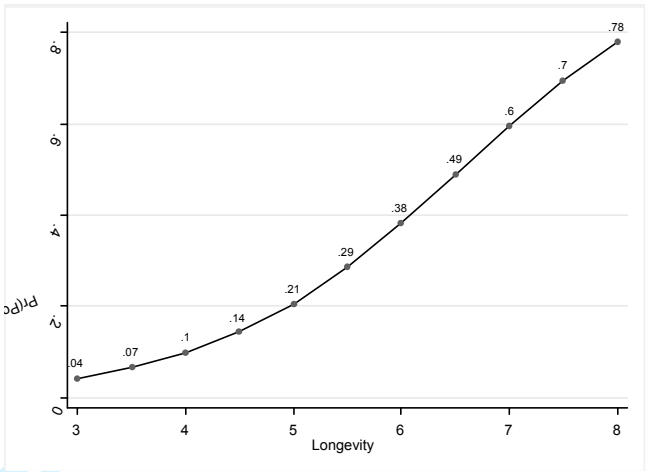
Predicted probabilities that shifting will occur given a unit change in occupational diversity of personal networks, holding the other two effects constant at their means.

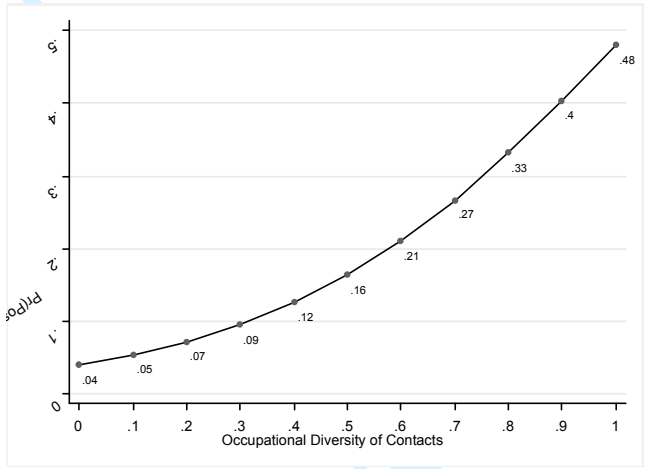
Occupational Diversity	Prediction
0	0.04
.2	0.07
.25	0.08
.33	0.10
.4	0.12
.5	0.16
.6	0.21
.67	0.25
.75	0.30
.83	0.35
1	0.48

Table 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





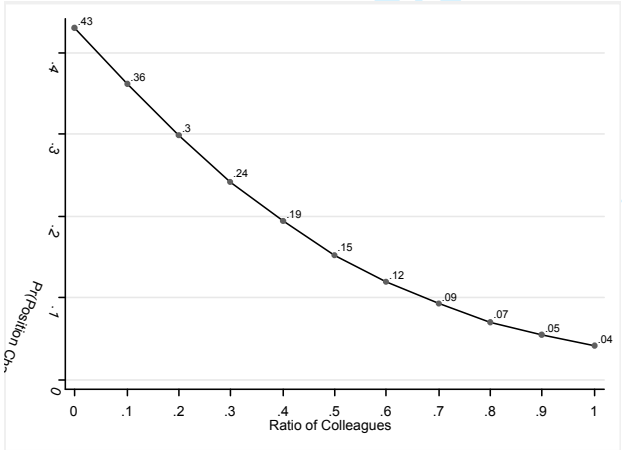


Figure 2: Changing probabilities that position changing will occur as independent variables either increase or decrease in value, holding all other variables constant at their means.

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.

	Occupational Diversity										
Longevity	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.

	Ratio of Colleagues										
Longevity	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

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