Explaining Teacher Turnover –
School Cohesion and Intrinsic Motivation in Los Angeles

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Abstract

Purpose: Raising the quality of urban schools depends on stemming the exit of effective teachers. The annual rate of teacher turnover continues to climb, according to national studies, after setting aside retirements. One causal account – underlying contemporary incentive programs – emphasizes the *intrinsic motivators* that the individual teacher variably experiences. A second account focuses not on the individual teacher, but instead on the *social cohesion* of the school organization, including shared perceptions of resourceful school leaders, along with the trust and commitment to lifting achievement held in common by teachers within a school, perhaps contributing to the likelihood of remaining in or exiting from one's school. This study examines the relative strength of social-organizational factors relative to intrinsic motivators in shaping teachers' intentions to leave their school.

Research methods: We draw on a sample of 602 teachers working within 13 central-city schools of Los Angeles that historically have experienced high rates of turnover. We examine whether social-organizational features of schools operate in concert with, or independently of, intrinsic motivators when estimated within a structural equation model (SEM), drawing on item-response theory. We then estimate the ability of social-organizational factors and intrinsic motivators to predict teacher intentions of leaving or staying at one's current school, along with testing alternative mediating pathways.

Findings: We find that elementary-level teachers report higher levels of social cohesion within their school, along with stronger intrinsic motivation, compared with peers

teaching at the high school level. Overall, social-organizational features of the school are moderately correlated with reported levels of intrinsic motivators. However, the former organizational facets, not intrinsic motivation per se, more strongly predict the likelihood of leaving or staying at one's school. We discuss the implications for shaping retention-incentive efforts that aim to lift the individual teacher's personal rewards or strengthen the school's leadership and social cohesion more broadly.

Retaining effective teachers is one necessary strategy for lifting the quality of urban schools. One-sixth of the nation's teachers exit their school each year. About half of these leavers move to another school; the other half leaves teaching altogether (National Center, 2012). And teacher turnover is growing worse nationwide. The share leaving the profession after just one year of teaching rose from 9.8% to 13.1% between 1988 and 2008 (Ingersoll & Merrill, 2012). About one-half million teachers leave their schools each year nationwide (just one-sixth of these are retiring; Alliance, 2008). In turn, districts face high costs in replacing staff and pupils forgo sustained relationships (Barnes, Crowe, & Shafter, 2007). The financial cost to school districts equals about one-fifth of the departing teacher's annual salary to find and induct her replacement, according to one estimate (Gordon & Crabtree, 2006).

Most worrisome for equity advocates is that turnover remains most severe in urban schools, and exit rates can be higher for well-prepared teachers. Thirty-nine percent of New York City teachers considered leaving their current school or the profession entirely in the coming year (Pallas & Buckley, 2012). More than 5,000 teachers left their current school in 2008, and half of these departed from the profession (Boyd et al., 2010). Among teachers scoring in the top quartile of New York's certification test, Boyd, Lankford, Loeb, & Wykoff (2005) found that one-third left City schools that served mostly low-achieving students after just one year. Over half left each year from several central city schools in Los Angeles during our field work, a mix of young teachers hit by layoffs and experienced teachers migrating to suburban schools.

Despite the severity of the problem, disagreement persists over the underlying causes of teacher turnover. And this bears on the likely benefits of varying efforts to reduce

turnover in central-city schools. Earlier research focused on the individual attributes of teachers, often in relation to neighboring labor markets, to explain the incidence of turnover. Teachers' age, prior university training, verbal proficiencies, or family plans – along with labor market alternatives, given one's skill set – do help to explain who stays and who leaves teaching (Boyd, Lankford, Loeb, & Wyckoff, 2005; Murnane, Singer, Willett, Kemple, & Olsen, 1991).

In turn, this individual-level focus tends to highlight programs that attempt to alter decision-making the by the lone teacher, at times disregarding the dynamics of their surrounding school context. This frame has long been shaped by a social-psychological emphasis on intrinsic motivators experienced by the individual teacher, for example, one's sense of efficacy resulting from classroom practice, or the status tied to holding a professional job with specialized knowledge (authors' citation; Rosenholtz, 1989). While less material and utilitarian than early economic models, the emphasis on intrinsic motivators may distract attention from the social-relational nature of work and membership within a school organization.

Social theorists, in contrast, emphasize the teacher's role and motivated participation within an organization: a collectivity that variably affords the material tools, unifying norms, and tacit expectations that lend meaning to social action (Durkheim, 1961; Lortie, 1972; Waller, 1932). Work on school climate or culture, emerging in the 1970s, continues to advance theory and empirical study of how features of the organization help to account for between-school variability in mean levels of job satisfaction, turnover rates, and student learning (Argyris, 1958; Rutter, Maughan, Mortimore, Ouston, & Smith, 1979; Van Houtte & Van Maele, 2011).

Recent work in this tradition returns to site-level leadership as an "essential support", emphasizing how principals can be "catalytic agents" for school improvement (Bryk, Sebring, Allensworth, Luppescu, & Easton, 2010, 45). Byrk's long-term study in Chicago schools shows that leadership and collateral organizational features – a steady focus on improving practice, a welcoming and safe environment for pupils, and shared commitment to high expectations for achievement – may be predictive of learning gains. But we don't well understand how school leadership and such features of the social organization may be related to the teacher's intrinsic motivation (e.g., efficacy or trusting social relations within the school), or the likelihood of leaving one's school.

Our study of teacher turnover, conducted in historically hard-to-staff schools in Los Angeles, advances this line of research in two ways. First, we ask whether organizational features of schools, reported by teachers, co-vary with their levels of intrinsic motivation. Are perceptions of the school's leadership, trust, and collectively held commitment to student learning, for example, tied to discrete intrinsic motivators experienced by the individual teacher? Or, do these two sets of factors – elements of the school's social cohesion versus what I get intrinsically from my own work – vary independently? Second, if these two sources of teacher motivation and engagement can be distinguished empirically, do they contribute independently to the likelihood of teacher turnover?

We begin by reviewing the early work on school climate and culture, including parallel interest in the intrinsic motivators perceived by professionals, like teachers. This also sparked firm-level, not individual-level, theory and features of the school organization that manifest cohesive social relations. We then describe the problem of teacher turnover in central city schools as found in L.A., and why a clearer understanding of underlying causes can inform alternative interventions. Our analytic strategy, measures,

and findings are detailed, drawing on survey and administrative data for 602 teachers from 13 schools serving low-achieving students.

WHAT MOTIVATES TEACHER TURNOVER?

Intrinsic Motivators within Organizations

Two theoretical lines have long informed how we think about the motivated engagement of teachers and the features of school organizations that nurture such cohesion. Research in the *human relations* tradition goes back to the 1930s and early observational studies of intrinsically motivating experiences that predicted the individual's engagement with a formal organization. The first studies in manufacturing plants led scholars to the social structuring of everyday tasks and one's feeling of membership and recognition from fellow workers as two sources of intrinsic rewards (Mayo, 1933; Roethlisberger and Dickson, 1939; Scott, 1981).

Social psychologists by the 1970s were measuring task structures – variably prompting the individual's perception of competence, novelty, and recognition – that empirically predicted levels of intrinsic motivation and commitment to the organization (Deci, 1975; Hackman & Oldham, 1990). Parallel work also showed that strict controls, reliance on external sanctions or rewards, or routinized tasks all tended to displace the individual's experience of intrinsic motivation (Harter, 1981; Lepper, Greene, & Nisbet, 1973; Ryan & Deci, 2000).

The Social Organization of Schools

A second line of work emerged in the education section by 1970s, drawing in part from the basic research on intrinsic motivation. Initially dubbed *school climate* or *effective-schools* research, this line continues to illuminate elements of social relations – operating within the organization – that characterize how work gets done and social

integration is advanced (Argyris, 1958; Brookover et al., 1979; Lee, Bryk, & Smith, 1993; McDill, Rigsby, & Meyers, 1969; Rutter et al., 1979; Teddlie & Reynolds, 2001). Van Houtte & Van Maele, 2011). Rather than focusing on the teacher's intrinsic rewards (or felt alienation) when laboring in an organization, this second scholarly tradition centers on how the individual is variably animated by organization-wide norms or expectations, perceptions of trust and belonging, along with tacit or cultural understanding for how work gets done. These constructs adhere to the organization, since they are formed through interaction among individuals; they are not simply perceptions that stem from one's own work inside the classroom.

Structural components and leadership. This burgeoning field of school climate, at times labeled *school culture*, has split into at least three subfields, each highlighting social or organization-level dynamics that operate above the individual, structuring a context *a priori* into which various individual enter and at times leave. First, discrete structural features of schools that do help set the teacher's context – class size, instructional time, classroom activities, teacher credentials and salary levels – were first identified as inputs that might drive student achievement, while their relationships with teacher motivation and turnover remain less well understood (Clotfelter, Glennie, Ladd, & Vigdor, 2008; authors' citation).

Second, the effective-schools literature continues to emphasize the principal's role and attention to instructional improvement as one key feature of the social organization (e.g., Leithwood, Seashore Louis, Anderson, & Wahlstrom, 2004). Principals or teacher leaders variably provide material tools necessary for classroom practice, select high-quality staff, and provide social recognition for good work. These leadership processes have been empirically tied to teachers' reported propensity to stay or exit their school in

the case of New York City (Pallas & Buckley, 2012). But we don't know how the strength of such key organizational features in shaping teacher retention compares with the influence of intrinsic motivators experienced by the individual teacher.

A portion of such features of the organization has been empirically tied to the propensity of teachers to leave their school. Boyd et al. (2010) detail how administrative support – "the extent to which principals and other school leaders make teachers' work easier and help them to improve their teaching" – was the strongest driver of the likelihood of exit among New York City teachers, after taking into account personal attributes and a variety of other covariates. Ladd (2009) reports similar results for teachers in North Carolina. We know little, however, about whether these leadership efforts may be mediated through intrinsic motivators to drive turnover, or whether the perception of these organization-level characteristics is the core driver.

Social processes and intrinsic motivators. Third, after finding uneven achievement effects from the school's material facets or single factors trumped by school-effects theorists, organizational scholars began to ask widen the conception of school climate or culture to involve a set of complementary features built through social interaction. As Hoy (1990, 152) defined climate as, "…the relatively enduring quality of the school environment that is experienced by participants, affects their behavior, and is based on their collective perceptions of behavior in schools." Climate is typically operationalized and measured by pooling reports of individual teachers from scales that includes items like, "Teachers spend time after school with students who have individual problems", or " students respect others who get good grades" (Hoy et al., 1991). What's not well understood is whether the behavior effects on teachers are direct, as postulated, or mediated through intrinsic motivators experienced by the teacher.

This recent framing of school climate at times also veers into the field of intrinsic motivation. For instance, much research centers on the teacher's feeling of being efficacious – that one's efforts in the classroom or school-wide lead to positive consequences – stemmed from the climate literature and persists in this effective-schools line of work (authors' citation; Raudenbush, Rowan, & Chong, 1992; Tschannen-Moran & Johnson, 2010). A recent study of teacher turnover in Chicago found lower rates among those who report greater influence over school or classroom practices (Allensworth et al., 2009). Recent turnover studies ask whether anyone ever "recognized my accomplishments publicly", or "encouraged me to keep teaching at my school" (Jacob, Vidyarthi, & Carroll, 2012). But how prior behaviors by school leaders or material structures operate through such intrinsic motivators remains under theorized and not well understood empirically.

Social-organizational architecture. Recent work returns to dynamics operating at the organization level, that is, perceptions of organization-wide norms that are shaped through social interaction and shared expectations within the school. This emphasizes the durable social architecture of the organization and resources that derive from stronger cohesion. So, reported norms of collective responsibility for lifting student learning, or perceptions that leaders express recognition for good work, or have built trust and strong ties among teachers, are conceptualized as social-organizational properties (Bryk, Sebring, Allensworth, Luppescu, & Easton, 2010; Daley, 2011; Ingersoll, 2001). This stems from contemporary work on networks with rich social capital -- empirically manifest in high levels of trust, interpersonal reciprocity, closure, and the legitimate capacity to sanction members if they diverge from shared social norms (Coleman, 1988; Daley, 2011; Fine, 2012; Lin, 2001).

Early evidence suggests that these organization-level properties operate within teachers' social networks and host the movement of resources, ideas, and expressive camaraderie, which travel among these teacher ties (for review, Moolenaar, Daly, & Sleegers, 2010). But neither the social capital nor social network lines of research clarify how individual teachers may experience intrinsic motivation from these ties, or how this social architecture contributes to the likelihood of staying or exiting one's school.

The Interplay of School Cohesion and Individual Motivation

We are not arguing that intrinsic motivators are necessarily divorced from stronger social cohesion within the school organization. Stronger ties and collaborative action may sustain the individual teacher's perception of intrinsic motivators. We test, for example, whether the individual teacher's perception of efficacy (their efforts payoff in the classroom) and reported levels of recognition for their work help to predict the desire to exit from one's inner-city school. These constructs, traditionally defined as intrinsic motivators, are logically tied to the resourceful and responsive character of school leaders and fellow teachers – core constructs that have evolved within the school climate field.

Still, interventions aimed at the lone teacher's skills, professional status, or internal motivation differ from a framework that centers on the school's social cohesion, including the interwoven ties and normative commitments formed among teachers within. We assess the extent to which social-organizational constructs behave independently of intrinsic motivators, and whether they separately help to predict teachers' intentions to exit their central-city school.

Research Questions and Analytic Strategy

Our work – focusing on organizational or individual-level determinants of teacher turnover – is informed by this evolving work on school climate and culture. We examine

how organization-level properties and the individual's intrinsic motivation may contribute independently to the likelihood of staying or leaving central-city schools in Los Angeles. We focus on teachers' perception of three social-organizational facets of the school: resourceful and responsive school leaders, shared trust among colleagues, and commonly held responsibility to lift student learning. The latter two factors have received ample theoretical attention in recent years, but have yet to be empirically tied to the propensity of teachers to stay or leave their school (Bryk & Schneider, 2002; Bryk, Sebring, Allensworth, Luppescu, & Easton, 2010).

We specifically ask whether these social-organizational factors are associated with higher levels of intrinsic motivators at the individual level, and whether they are mediated by general job satisfaction to shape the teacher's likelihood of leaving one's school. We also examine whether two intrinsic motivators – recognition for one's work and perceived efficacy – contribute to the likelihood of exit, after taking into account the three social-organizational factors and teachers' background attributes. Finally, we test whether the effects of social-organizational factors on the likelihood of exit are mediated by perceived levels of intrinsic motivation. These alternative pathways hold implications for how interventions may be aimed at the individual teacher's motivation or school wide efforts to build stronger cohesion. Framed as testable hypotheses:

H1. Higher levels of social-organizational cohesion – operationalized as teachers' perceptions of effective school leadership, collective responsibility for student learning, and trust among colleagues – are associated with higher levels of intrinsic motivation, such as the individual perception of social recognition and efficacy.

H2. The positive effects of social-organizational factors on stronger intentions to stay at one's school are mediated by higher levels of general job satisfaction.

H3. Individual-level intrinsic motivators contribute further to likelihood of staying at one's school, after taking into account social-organizational factors.

H4. The positive effects of social-organizational factors on stronger intentions to stay at one's school are mediated through the intrinsic motivators.

POLICY CONTEXT – TEACHER TURNOVER IN CENTRAL LOS ANGELES

Long suffering from high rates of teacher turnover, the post-2008 recession made matters worse for inner-city schools in Los Angeles. As the state budget deteriorated in California, the count of lay-off notices received by young and untenured teachers escalated, further worsening the instability of school staff. In spring 2010, fully two-thirds of all teachers received "pink slips" in three of L.A.'s low-performing schools (Song, Blume, & Felch, 2010). This worsening situation prompted a lawsuit, led by the American Civil Liberties Union, which aimed to protect 45 schools from seniority-based layoffs, aiming to stabilize generally young teaching staffs at these schools.

The courts initially sided with the ACLU in *Reed v. State of California*, after winning the support of the incoming superintendent, John Deasy (Superior Court, 2010). This prompted the present study and collateral efforts to identify organizational or motivational factors that drive teacher turnover. The district settled with the plaintiffs and the United Teachers of Los Angeles in 2013 on a set of interventions that intend to reduce turnover and strengthen the social cohesion of these schools. The court case prompted the present study of factors that help to explain teacher exit among the "Reed schools".

METHOD

Data

To inform the research questions we conducted a survey of 604 teachers (with complete data) in Fall, 2011 working in one of 13 schools originally protected under

Reed. This sample count represents a 78% response rate among the population of teachers working in these schools. The surveyed consisted of four components: (1) background characteristics, including ethnicity, preservice training and advanced degrees, subject(s) taught, whether the teacher served on the leadership team, years of teaching experience and tenure at one's current school; (2) the intention to remain at one's Reed school, move to another school, or leave the education field; these intentions were asked regarding the coming school year and five years out; (3) perceptions of the school's social organization, including support from and respect for the school's leadership (principal and leadership team), trust among colleagues, the perception that fellow teachers were committed to lifting the achievement of all students, and general job satisfaction; and (4) constructs pertaining to intrinsic motivators, including a perception of efficacy (my efforts in the classroom or school-wide pay off, and the degree to which the teacher felt recognized by colleagues for her pedagogical or school wide efforts.

Two local realities bound the study's scope conditions: participating teachers labored within central-city schools that historically displayed high staff turnover, and this prior condition was made worse during the recession. That said, our analysis did show that exit rates by even older, experienced teachers exceeded district averages. That is, turnover prior to and during the recession was not limited to young teachers with little seniority. Our findings likely hold external validity in accounting for social-organizational factors and intrinsic motivators that help to explain teacher turnover.

Measurement and Estimation Strategy

We first examined descriptive patterns to learn how the reported likelihood of exit and possible predictors varied among schools, across grade levels, and among teachers within schools. Then, our multivariate modeling strategy – aiming to explain individual-

level variation in the reported propensity to leave – relied on a generalized linear latent variable model (Bartholomew & Knott, 1999). This offers a modeling framework that encompasses both structural equation modeling (SEM; Bollen, 1989; Muthen, 2002) and item response theory (IRT; Rasch, 1960, 1980; Lord & Novick, 1968). This technique is most appropriate, given (a) our empirical interest in how social-organizational and intrinsic-motivation constructs may be intercorrelated; that is, the measurement model is of substantive interest. And (b) hypotheses 2 and 4 suggest that the effect of social-organizational factors on exit may be mediated by overall job satisfaction or through the intrinsic motivators. The general model appears in Figure 1.

Figure 1. General structural equation model of how social organization and intrinsic motivators may account for variance in the likelihood of teacher exit
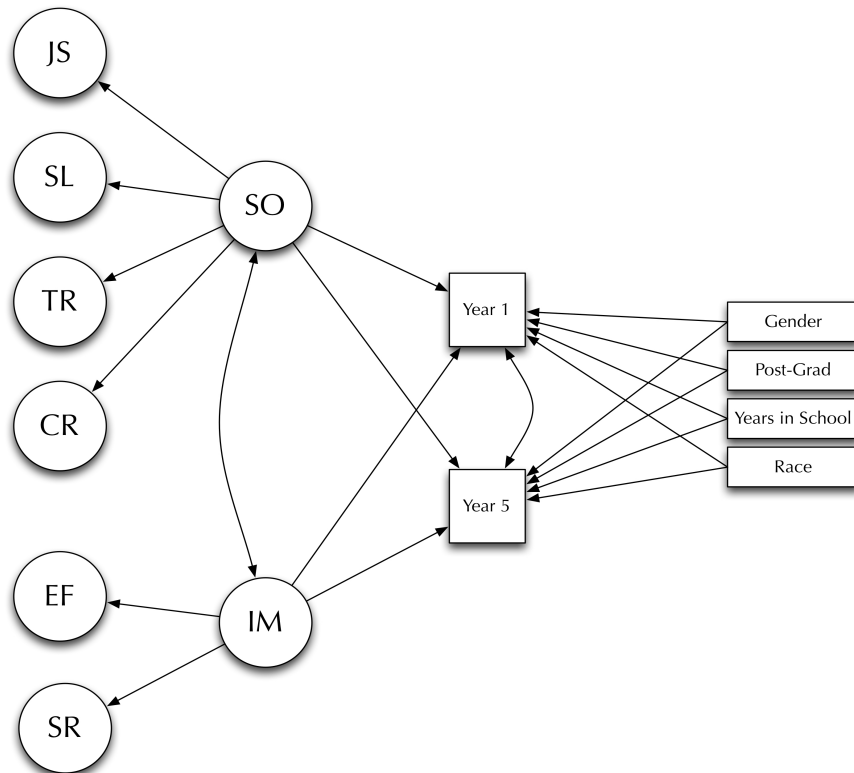
The measurement model within the SEM algorithm first estimates two latent constructs, which tracked well to prior theory. The first, *social organization* (SO) factors,

was estimated by the teacher's overall level of job satisfaction (JS), perception of supportive leadership (SL), trust in fellow teachers (TR), and collective responsibility for lifting student achievement (CR). The second latent construct identified, intrinsic motivation (IM), was best estimated from the teacher's perceived efficacy (EF) and social recognition (SR) for one's classroom or school wide work, based on fit statistics, as detailed below. In turn, SO and IM account for variation in a teacher's likelihood of exiting their present school, after taking into account the individual attributes specified on the right-hand side of the model (gender, ethnic membership, advanced degrees beyond the bachelor's degree, years serving in present school). All raw item scores were converted to IRT scores.

Measures

Outcome measure – likelihood of leaving current school. We asked teachers about our focal outcome with two parallel questions asking whether they expect to leave or stay at their current school next academic year and five years out. This option was posed along with alternatives: moving to an administrative post, leaving the district but staying the education field, or leaving the field altogether. For the SEM analyses we dichotomized these responses to simply indicate a preference for staying or leaving one's school in the coming year or five years out.

Predictors I – features of the school's social organization. Our first set of predictors included measures of three constructs that stem from the effective-schools or climate literatures. This first set includes s*upport from school leadership*. We elected to pull items from the worker motivation literature, which parallels earlier work in school effectiveness, and stems from measurement work inside schools and private sector

settings (Gordon & Crabtree, 2006). The scale included 10 items such as, "I know what is expected of me at work", and "I have the materials I need to do my job well (α=0.84).

To measure levels of *trust* in fellow teachers we utilized items from the scale designed by Hoy and Tschannen-Moran (2003). Relational trust indicates a teacher's perception that their colleagues are candid, reliable, competent, and caring about each other (Hoy & Tschannen-Moran, 2003). The seven items were scored on a six-point scale from strongly disagree to strongly agree. Teachers were asked the extent to which they agreed with statements like, "Even in difficult situations, teachers in this school can depend on each other" (α=.95). This scale does predict desired teacher or pupil outcomes, including growth in achievement, where comparatively high levels of teacher trust can be sustained (e.g., Bryk, Sebring, Allensworth, Luppescu, & Easton, 2010).

The perception that one's colleagues share collective responsibility for lifting the achievement of students was measured with a scale developed by the Consortium for Chicago School Research (Bryk et al., 2010). The scale measures the degree to which the teachers perceive a shared understanding that as a group, teachers are animated around the same goals of boosting kids' learning. Teachers responded to seven items, including "How many teachers in this school feel responsible to help each other do their best?", and "How many teachers in this school take responsibility for improving the school", and they could respond none, some, about half, most, or nearly all (α=0.93).

This scale holds predictive validity when estimating between-school achievement growth rates, at least in the Chicago research. This construct is a close cousin of *collective efficacy*, the perception that actors in a situation are looking out for and sanctioning others to serve a community's shared interests (Sampson, Raudenbush, & Earls, 1997).

General job satisfaction. We adapted three items to measure the teacher's overall level of job satisfaction from Gordon and Crabtree's (2006) measurement research inside schools and private firms. This scale includes items such as, "I am proud of this school", and "I enjoy teaching at this school". Inter-item reliability across this three items was moderate (α=0.76).

Predictors II – intrinsic motivators. We measured the teacher's perception of *efficacy*, the perception that one's efforts in the classroom or school wide pay off in terms of discernible results. Efficacy was measured using items adapted from the *Teachers' Sense of Efficacy Scale* (Tschannen-Moran & Woolfolk Hoy, 2001). Teachers were asked questions such as, "How much can you do to motivate students who show low interest in schoolwork?", "to what extent can you provide an alternative explanation or example when students are confused?" and "how much can you assist families in helping their children do well in school?". The 11 items ($\alpha = .89$) appear on a six-point scale anchored at "not at all" to "a great deal". Strong teacher efficacy has been linked not only to positive student achievement outcomes but also to teachers' openness to new ideas, and their enthusiasm for teaching (authors' citation).

We also asked teachers about the frequency with which their work was recognized by school leaders or fellow teachers (*social recognition*). This three-item scale included items such as, "Someone recognized or praised me for my work", and "Someone at work spoke to me about my progress" (α=0.80).

Teacher attributes as covariate controls. We aimed to estimate the relationship between the substantive predictors and likelihood of leaving or staying at a hard-to-staff school, after taking into account teacher background characteristics. This attributes were utilized as covariate controls. Teachers reported their gender, ethnic membership, years

teaching at their present school and within LAUSD, and whether they had completed a masters degree or higher.

Overall, we hypothesized that the social-organizational factors and intrinsic motivators would be mediated by a teacher's general level of job satisfaction, predicting the likelihood of school exit (H2). It turned out that job satisfaction is tightly correlated with the first latent construct that stems from the social-organizational measures, as detailed below. We also tested whether the effects of the social-organizational factors are mediated via the intrinsic motivators (H4), the results for which are reported below.

FINDINGS

We first describe the teachers who participated in the study from the 13 central-city schools, along with how they perceive the social organization of their schools and the intrinsic rewards of their work. We then describe results from differing SEM specifications for all teachers and by level (elementary, middle, and high schools), tracking against our four hypotheses, asking how social-organizational features and the intrinsic motivators may be interrelated, how each set may be predictive of the reported likelihood of exit, and whether job satisfaction or intrinsic motivators act to mediate the influence of social-organizational factors.

Descriptive – Teacher Attributes, Predictors, and Likelihood of Exit

Table 1 reports basic demographic and background characteristics for the 602 teachers who participated and provided complete data. We see that a majority of teachers in these central-city schools are of Latino descent (44%), while Whites make up one-fifth of the teaching force. Teachers in these schools are relatively inexperienced: over half have been teaching for four years or less, although 55% have completed a masters degree. About one-third reported that they prefer to move to another school next year, and 57%

intend to move within the coming five years. This underscores the urgency of devising remedies that improve teacher retention.

<center>Table 1 about here</center>

Table 2 details mean scale scores (prior to calculating IRT scores) for the predictors, sorted between the two theoretically derived latent constructs: the social-organizational (SO) features of schools and the intrinsic motivators (IM). Mean levels on predictors tend to be higher – one-third to one-half a standard deviation higher – for teachers in elementary schools, compared with those working in middle or high schools. For instance, the mean trust scores for elementary teachers equaled 4.5, compared with 4.1 for high school teachers (a difference of 0.36 SD, $p<0.001$). Similarly, the mean efficacy score is 5.2 for elementary teachers versus 4.9 for high school teachers (0.46 SD, p<0.001). We also see that elementary and middle school teachers are a bit less likely to prefer leaving their present school (29% and 28%, respectively), compared with high school teachers (35%), although this difference is not statistically significant.

<center>Table 2 about here</center>

The predictors are clearly associated with teachers' preferences for leaving their present school, when described in bivariate fashion. Figure 2 displays mean levels of the predictors, expressed as standardized t-scores (mean=50, and SD=10), split between teachers reporting that they intend to leave in the coming academic year, versus those preferring to stay. These mean differences are moderate to large across the predictors and for the two latent constructs estimated by the SEM measurement model: social-organizational features and intrinsic motivators as reported by teachers. The mean difference in job satisfaction scores exceeds 1 SD between likely leavers and stayers. This gap is about 0.80 SD for the latent intrinsic-motivation (IM) construct estimated from the

efficacy and social recognition measures. Both latent constructs tend to sharpen mean differences between likely intended leavers versus stayers.

Figure 2 about here

Accounting for the Likelihood of Teacher Exit

Results for the full SEM model appear in Figure 3, including results for the measurement model and the paths of association between latent constructs and the likelihood of teacher exit in the coming academic year and five years out. The overall fit of the model was satisfactory as indicated by the Root Mean Square Error of Approximation (RMSEA=0.045), the Comparative Fit Index (CFI=0.98), and the Tucker-Lewis index (TLI=0.98).

The measurement model first shows the relationships between job satisfaction, supportive leadership, collective responsibility, and trust with the identified latent construct, *social-organizational cohesion* (SO). The coefficient adjacent to the supportive leadership scale (converted to IRT scores) indicates that it is slightly less correlated to the latent construct (0.98) than the anchoring scale, job satisfaction (1.00). The trust scale is most strongly associated with the latent SO construct (1.13). We also see that the two latent constructs are moderately correlated with one another for the entire teacher sample.

Figure 3 about here

The path coefficients, converted to odds ratios for ease of interpretation, show that it's social-organizational cohesion that's more highly predictive of teachers' likelihood of staying at their present school, compared with the intrinsic-motivation construct. For each unit increase in the social cohesion construct, teachers are 1.6 times more likely to stay at their present school next year, and 1.4 times more like to remain five years out. The intrinsic-motivation construct is associated with lower odds of staying and holds no

significant relationship with staying five years out. We underline significant coefficients (at $p<.05$ or better) in Figure 3. Overall fit statistics for this basic model are significant.

We tested to see whether the strong relationship between social-organizational cohesion and exit likelihood was mediated through overall job satisfaction (H2) or the intrinsic motivators (H4), but neither specification help to improve the model or reveal notable meditational paths.

Associations between teacher background characteristics and the likelihood of remaining in one's school (next year and five years out) appear on the right-hand side of Figure 3, again expressed as odds-ratios. Teachers with a masters degree or higher reported lower likelihoods of staying at their present school. But teachers who had worked at their present school for 12 years or more were almost two-thirds more likely to intend to stay, compared with teachers with less than four years experience at their present school (reference group). Anticipation of future seniority-based layoffs may help to explain a portion of this effect. We also see that Black teachers are less likely to stay next year or five years out, compared with white teachers (reference group) with all covariates entered into the model.

We attempted to fit the same model separately for elementary, middle, and high school teachers. This did indicate differing relationships for elementary teachers (Figure 4). These results should be interpreted cautiously since this SEM is estimated from 119 teachers with complete data (compared with 602 teachers in the full sample), the fit statistics for the elementary-only model are marginally significant.

<center>Figure 4 about here</center>

We see that the intrinsic-motivation construct is shaped more heavily by the social recognition scale for elementary teachers, perhaps linked to higher mean IM scores,

compared with middle and high school teachers. In turn, intrinsic motivation is now only weakly related to the social-cohesion latent construct, while being strongly related to staying at one's school five years out. And female elementary teachers are 1.79 times more likely to stay than their male peers. Overall, these findings suggest that how social-organizational cohesion and intrinsic motivation operate on teacher retention or turnover may well vary across school grade levels.

DISCUSSION – IMPLICATIONS FOR POLICY
AND TEACHER RETENTION EFFORTS

Two findings stand out from this analysis. First, how teachers perceive the social cohesion of their school – their views of the organization's leadership, trust among colleagues, and a shared commitment to raising achievement – varies independently of the individual's own intrinsic motivation. The correspondence or independence of these latent constructs may differ across school grade-levels. But overall, how teachers see the material and social support offered by school leaders and colleagues appears to shape their desire to stay or leave, separate from their own intrinsic rewards. We need to learn more about how a teacher's efficacy may stem from her everyday labor with students, or result from rewarding collaboration with fellow teachers. That is, one's own experience of efficacy is not necessarily divorced from the social cohesiveness of their school (authors' citation). Still, how a teacher views the entire organization varies somewhat independently of the internal motivation stemming from his own work.

Second, how teachers perceive the social-organizational cohesion of their school is more strongly related to the likelihood of staying or leaving, compared with the weaker association with the intrinsic motivators. The policy discourse around raising teacher quality often arrives at the goal of "professionalizing" teaching or allocating incentives to

the individual teacher who raises her pupils' test scores. Many reform activists and union leaders argue that turnover is driven by the loss of autonomy and professional discretion, along with the routinization of and pressure for didactic pedagogy. Our findings suggest that intrinsic motivators do indeed play a role. But how teachers view properties of the school organization – its leadership team, trusting relations among colleagues, and pulling together to lift achievement – were more strongly associated with one's desire to stay or leave these challenging schools in Los Angeles.

Longitudinal research would greatly advance this line of work, examining the stability of teachers' perceptions of their school organization, given the turnover of principals and school leadership teams. Organizational cohesion may vary markedly year to year when leadership is unstable. Differing institutional traditions, especially distinguishing between elementary and high schools, seem to condition the extent to which social cohesion and intrinsic motivation operate on the likelihood of staff turnover in central-city schools. This may bring into play the more specialized knowledge and sources of intrinsic motivation held by secondary teachers vis-à-vis peers working in elementary schools. The gender mix of staff between grade-levels may further condition the dynamics of social ties inside schools, as well as the individual rewards stemming from one's own work inside the classroom.

Much more remains to be learned regarding the relative effectiveness of teachers who stay or leave these challenging schools. Exit by ineffective teachers is not necessarily a negative event, although they may remain within the district. Still, the literature on teacher turnover has yet to factor-in the capacities of stayers and leavers, both in the classroom and when contributing to the organization's social cohesion. Combining

administrative data with teacher surveys could help us understand the mobility of effective and ineffective teachers.

Overall, these findings suggest that a two-pronged approach may yield greater benefits in reducing \ turnover in hard-to-staff schools. Attending to what motivates individual teachers in their own daily work, largely from inside classrooms, may yield beneficial returns. To the extent that contemporary reforms act to deskill teachers or treat them unprofessionally, they may undercut intrinsic rewards and spur turnover – especially in central-city schools where daily challenges remain daunting.

At the same time, simply attending to individual rewards may distract policy makers and district leaders from building social cohesion within the entire school organization. Greater progress in reducing turnover may result from building resourceful school leadership, nurturing stronger collaboration and trust, and ensuring that all teachers are pulling in the same direction, mutually confident that achievement can be lifted. Teachers appear to be more loyal to their school when they are meaningfully engaged with each other, not simply toiling alone inside their classroom.

References

Alliance for Excellent Education (2008). What keeps good teachers in the classroom? Understanding and reducing teacher turnover. Washington, D.C.

Argyris, C. (1958). *Some problems in conceptualizing organizational climate*. Indianapolis: Bobbs-Merrill.

Bartholomew, D. J., & Knott, M. (1999).*Latent variable models and factor analysis* (2nd ed.). London: Arnold.

Barnes, G., Crowe, E., & Schaefer, B. (2007). The cost of teacher turnover in five school districts. Washington, D.C.: The National Commission on Teaching and America's Future.

Bollen, K. A. (1998). *Structural equation models*. New York: John Wiley & Sons, Ltd.

Boyd, D., Grossman, P., Ing, M., Lankford, H., Loeb, S., & Wyckhoff, J. (2010). The influence of school administrators on teacher retention decisions. *American Educational Research Journal*, 14 September, DOI: 10:3102/0002831210380788.

Boyd, D., Lankford, H., Loeb, S., & Wyckoff, J. (2005). Explaining the short careers of high-achieving teachers in schools with low-performing students. *American Economic Review, 95*, 166-171.

Brookover, W. et al. (1979). *School Social Systems and Student Achievement: Schools Can Make a difference*. New York: Greenwood.

Bryk, A. S., & Schneider, B. (2002). *Trust in schools: A core resource for improvement*. New York: Russell Sage Foundation.

Bryk, A. S., Sebring, P. B., Allensworth, E., Luppescu, S., & Easton, J. Q. (2010). *Survey measures, factors, composite variables, and items used in organizing schools for improvement: Lessons from Chicago*. University of Chicago Press. Retrieved from http://ccsr.uchicago.edu/publications/organizing_measures/.

Clotfelter, C., Glennie, E., Ladd, H., & Vigdor, J. (2008). Would higher salaries keep teachers in high-poverty schools? Evidence from a policy intervention in North Carolina. *Journal of Public Economics 92*, 1352–1370.

Daley, A. (2010). *Social network theory and educational change*. Cambridge, MA: Harvard Education Press.

Deci, E.L. (1975). *Intrinsic motivation*. New York: Plenum Publishing.

Gordon, G., & Crabtree, S. (2006). *Building engaged schools: Getting the most out of America's classrooms*. New York: Gallup Press.

Hackman, J., & Oldham, G. (1980). *Work redesign*. Reading: Addison-Wesley.

Hoy, W. K. & Tschannen-Moran, M. (2003). The conceptualization and measurement of faculty trust in schools: The omnibus T-Scale. In W. K. Hoy & C. G. Miskel, *Studies in Leading and Organizing Schools* (pp. 181-208). Information Age Publishing: Greenwich: CT.

Ingersoll, R. (2001). Teacher turnover and teacher shortages: An organizational analysis. Philadelphia: Graduate School of Education, University of Pennsylvania (Working Paper 9-1-01).

Ingersoll, R., & Merrill, L. (2012). Seven trends: The transformation of the teaching force. Philadelphia: Center for Policy Research, University of Pennsylvania (Working Paper).

Ladd, H. (2009). Teachers' perceptions of their working conditions: How predictive of policy-relevant outcomes? Washington, D.C.: National Center for Analysis of Longitudinal Data in Education, Working Paper 33.

Lord, F. M., Novick, M. R., & Birnbaum, A. (1968). Statistical theories of mental test scores. Reading: Addison-Wesley.

McGlone, A. (2013). As state watches, L.A. Unified tests new ways to grade teachers. Hechinger Report. New York. http://hechingerreport.org/content/as-state-watches-la-unified-tests-new-ways-to-grade-teachers_12230/.

Lee, V., Byrk, A., & Smith, J. (1993). The organization of effective high schools. Pp. 171-267 in L. Darling-Hammond (Ed.), *Review of Research in Education, 19*.

Leithwood, K., Seashore Louis, K., Anderson, S., & Wahlstrom, K. (2004). How leadership influences student learning. Toronto: Ontario Institute for Studies in Education.

Lepper, M., Greene, D., & Nisbett, R. (1973). Undermining children's intrinsic interest with extrinsic reward: A test of the "overjustification" hypothesis. *Journal of Personality and Social Psychology, 28*, 129-137

Mayo, E. (1933, 2003). *The social problems of an industrial civilization*. London: Routledge.

McDill, E. Rigsby, L. & Meyers, E. (1969) Educational climates of high schools: their effects and sources. *American Journal of Sociology, 74*, 567–586.

Murnane, R., Singer, J., Willett, J., Kemple, J., & Olsen, R. (1991). *Who will teach? Policies that matter*. Cambridge, MA: Harvard University Press.

Muthén, B. O. (2002). Beyond SEM: General latent variable modeling. *Behaviormetrika, 29*(1), 81-118.

National Center for Education Statistics. (2012). *Digest of Education Statistics, 2011*. Washington, DC: United States Department of Education.

Pallas, A., & Buckley, C. (2012). Thoughts on leaving: An exploration of why New York City middle school teachers consider leaving their classrooms. New York: Research Alliance for New York City Schools.

Rasch, G. (1960, 1980). *Probabilistic models for some intelligence and attainment tests*. Copenhagen: Danish Institute for Educational Research. Expanded edition (1980) with foreword by B. D. Wright (1980). Chicago: The University of Chicago Press.

Roethlisberger, F., & Dickson, W. (1939, 2005). Management and the worker. London: Routledge.

Rutter, M., Maughan, B., Mortimore, P., Ouston, J. & Smith, A. (1979). Fifteen thousand hours: secondary schools and their effects on children. Somerset, UK: Open Books.

Ryan, R. & Deci, E. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology, 25*, 54–67.

Sampson, R., Raudenbush, S., & Earls, F. (1997). Neighborhoods and violent crime: A multilevel study of collective efficacy. *Science, 277*, 918-924.

Scott, W.R. (1981). *Organizations: Rational, natural, and open systems*. Boston: Addison-Wesley.

Song, J., Blume, H., & Felch, J. (2010). Settlement limits L.A. teachers' seniority protection. *Los Angeles Times*, October 6, http://articles.latimes.com/2010/oct/06/local/la-me-lausd-20101006.

Superior Court of the State of California (2010). Notice of class action settlement for teachers: *Reed vs. State of California*. Los Angeles.

Teddlie, C. & Reynolds, D. (2001). Countering the critics: responses to recent criticisms of school effectiveness research. *School Effectiveness and School Improvement, 12*, 41–82.

Tschannen-Moran, M., & Woolfolk Hoy, A. (2001). *Teacher efficacy: Capturing an elusive construct*. Teaching and Teacher Education, 17, 783–805.

Van Houtte, M., & Van Maele, D. (2011). The black box revelation: In search of conceptual clarity regarding climate and culture in school effectiveness research. *Oxford Review of Education, 37*, 505-524.

We know that inspiring teachers can change students' lives. We also know that every year many of these teachers leave schools that serve students most in need of their skills and commitment.

So, we must uncover the factors that motivate these teachers to keep serving our children, and then shape strategies that work to retain them.

Such an effort is now underway within the Los Angeles Unified School District. Following the landmark case, Reed v. California–which found that high teacher turnover is tanta-mount to a violation of students' constitutional right to basic equality of educational opportunity, LAUSD asked UC Berkeley to identify the major drivers of teacher turnover in its schools. The District is focusing on stabilizing and lifting teacher retention rates at 45 "targeted" schools which have experienced high turnover or have been deemed in intense need of protection from layoffs.

In recent years the most prominent cause of turnover has been budget-based layoffs. However one-fourth of the turnover at 'Reed schools' was voluntary, stemming from transfers, resignations, and retirements. The Berkeley-LAUSD research aims to understand what drives teachers to voluntarily exit these schools.

Learning from Teachers

The study team assessed the extent to which teachers felt satisfied and engaged at a sample of 13 'Reed schools', and measured their intention to remain at their school in the following academic year, and then, if they would remain after five years.

We surveyed teachers about why some teachers express high job satisfaction and a commitment to remain at their schools, while other teachers sought other opportunities. Three factors proved most predictive of positive staff engagement:

- Dedicated efforts by principals to attract, develop, and retain staff (Human Capital Management).
- A spirit of trust and collegiality among teachers, and a view that fellow teachers are competent (Relational Trust).
- Belief that most teachers on the staff assume that all students can succeed and share a commitment to common learning goals (Collective Responsibility).

School	Percentage of students eligible for lunch subsidies	% Teachers participating in 2011 survey	Average # of years teaching in Reed school
28th St Elementary	85	57	11
99th St Elementary	91	34	6
Ambassador Global Education	87	100	4
Dorsey Senior High	73	29	7
Fremont Senior High	53	64	5
Garfield Senior High	90	83	9
Hoover Elementary	85	82	15
Escalante Elementary	79	100	2
Leichty Middle School	90	73	3
Cochran Middle School	91	82	8
Markham Middle School	82	89	6
Contreras Learning Complex	85	100	5
UCLA Community School	93	53	2

Table 1. Profiles of 13 'Reed schools' sampled for retention analysis.

Turnover of first-year teachers in 'Reed schools' prior to LAUSD budget crisis.

■ Of all teachers who stayed in their 'Reed school', % new hires
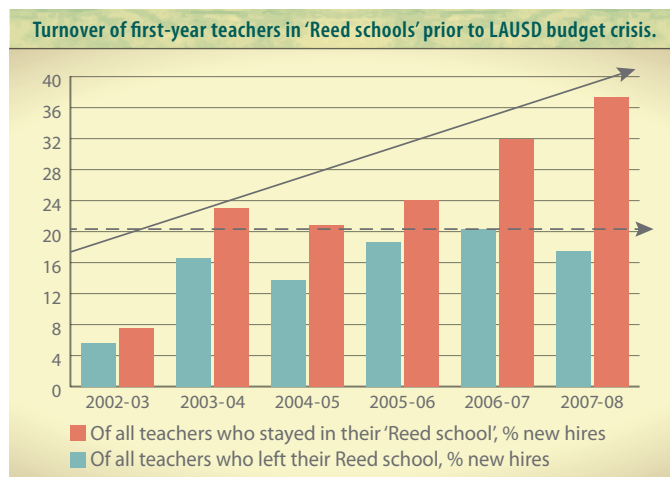■ Of all teachers who left their Reed school, % new hires

Fig. 1. Prior to wide spread layoffs, 2009-2012, new hires made up a rising share of all teachers in 'Reed schools', but their turnover rates remained fairly steady.
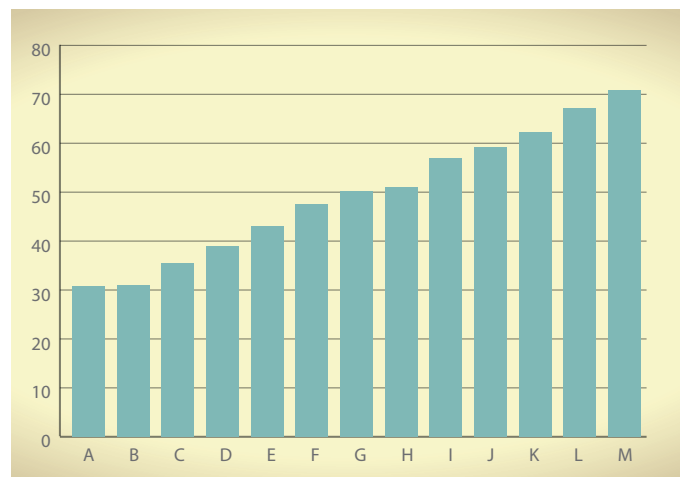
Fig. 2. Teacher Job Satisfaction in Percentile Scores for 13 'Reed schools' sampled for retention analysis.

New Hires and Teacher Turnover

Over the past four years most teacher turnover has been driven by budget-based layoffs. This has disproportionately impacted new teachers due to last-in first-out hiring practices. But turnover in 'Reed schools' is not only caused by the loss of new hires. As Fig. 1 shows in the years preceding the District's current budget crisis new hires made up a rising share of teachers in 'Reed schools'. But the proportion of turnover that was accounted for by new teachers leaving 'Reed schools' after their first year remained relatively constant, around 15-20% of total turnover. This indicates that we must look beyond the share of new hires to understand the broader drivers of turnover in 'Reed schools'.

Variation in Job Satisfaction among Schools

Beyond the disproportionate impact of seniority-based layoffs, which pushed annual turnover rates above 60% in some 'Reed schools', we found that unmotivating working conditions may further contribute to high turnover in these schools.

We observed wide variability in job satisfaction and engagement among the schools we surveyed. Figure 2 displays average levels of job satisfaction among the 13 schools, expressed as percentile scores. The school with the highest level of teacher satisfaction ranged up to the 71st percentile, down to the lowest school at the 31st percentile (the average for all Reed teachers is 50). We also surveyed teachers as to whether they were likely to remain at their 'Reed school' five years out—a yes answer indicating a strong commitment to stay. Figure 3 shows the distribution of schools based on the share of teachers predicting they will stay for five years.

What Factors Predict Stronger Job Satisfaction and Likelihood of Staying?

Our analysis suggests that District efforts to support and improve retention of effective teachers should address elements of school climate and culture that make a difference in teacher satisfaction and engagement.

Trust among colleagues, for instance, proved to be a strong predictor of job satisfaction and turnover across schools. Figure 4 shows that two schools in our sample, in particular, had comparatively high levels of trust. Understanding what is happening at schools such as these can provide important insights regarding how to reduce turnover.

Teachers who perceived strong principal leadership also reported higher levels of job satisfaction. Conversely, teachers who did not feel supported by school leaders reported lower satisfaction. Figure 5 plots responses from all 600-plus teachers exhibiting how the assessment of their principal's human capital management efforts relates to their job satisfaction.

When we include these key predictors (human capital management, relational trust, and collective responsibility), our statistical models explain about half of all the variation in job satisfaction across the 600-plus teachers and much of the variability in the likelihood that teachers will stay at their 'Reed school'.

Summary

Historical data can help identify structural causes of the variation in turnover rates among schools. Then, careful surveys of teachers can pinpoint working conditions that further explain both job satisfaction and teachers' likelihoods of staying.

The Fall 2011 Reed Teacher Retention survey found that teachers' positive perceptions of school leaders, trust among colleagues, and collective responsibility for boosting student learning, played a crucial role in reducing turnover by reinforcing their intentions to continue to serve students in some of the District's most historically challenging schools.
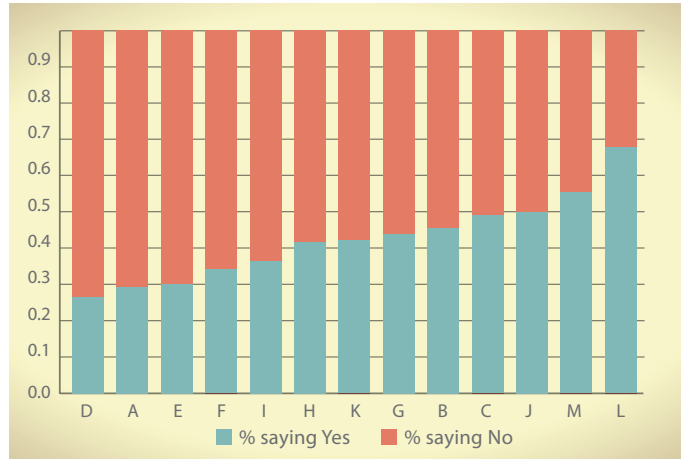
Los Angeles, 2013

Fig. 3. Percentage of teachers saying they will remain in 'Reed school' five years out.
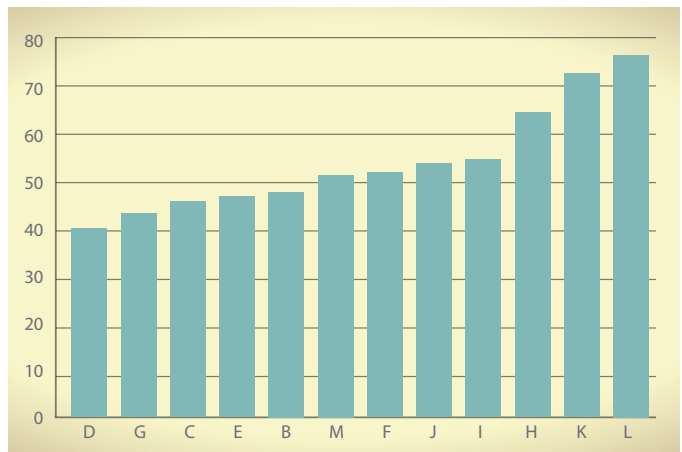

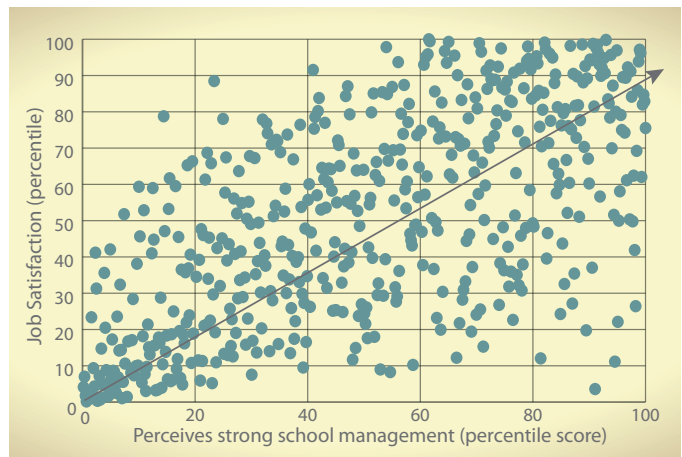Fig. 4. Teacher trust in percentile scores by school (50=average)

Fig. 5. Strong association between perceived support from school administration and teacher job satisfaction.