Paths to Leadership: Understanding Teacher Influence in Hiring

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Since the development of the distributed leadership framework almost two decades ago, substantial research has focused on how school leadership functions are distributed across individuals (Camburn, Rowan, & Taylor, 2003; Devos, Tuytens, & Hulpia, 2014; Scribner, Sawyer, Watson, & Myers, 2007; Spillane & Kim, 2012). While distributed leadership can include many different types of individuals, teacher leadership is an inextricable part of distributed leadership within a school (A. Harris, 2005). Both distributed leadership and teacher leadership have been linked to important outcomes for schools. For example, an extensive body of research explores the relationship between distributed leadership and instructional leadership, school improvement, and school effectiveness; distributed leadership is often regarded as a precondition to successful reform and implementation (Camburn et al., 2003; Datnow & Castellano, 2001; Muijs & Harris, 2006). Likewise, teacher leadership is positively associated with collegial norms, instructional effectiveness, and organizational improvement (A. Harris, 2005; York-Barr & Duke, 2004). Teacher leadership and distributed leadership have also been

associated with teacher motivation, organizational commitment, and retention (Hulpia, Devos, & Keer, 2011; Muijs & Harris, 2006). There is also some suggestive evidence that distributed leadership and teacher leadership can improve student outcomes, although the effects are context-dependent (A. Harris, 2004; Heck & Hallinger, 2009; Muijs & Harris, 2006). In summary, decades of scholarship on distributed leadership and teacher leadership suggest that teacher engagement in leadership and decision-making has the potential to positively affect school, teacher, and student-level outcomes (A. Harris, 2005; York-Barr & Duke, 2004).

Both distributed leadership and teacher leadership have also been loosely defined constructs. Distributed leadership has been studied in many different contexts but has also been defined in a variety of ways and with varying degrees of specificity (Spillane, Camburn, Pustejovsky, Pareja, & Lewis, 2008; Woods, Bennett, Harvey, & Wise, 2004). Teacher leadership has also been studied under different contexts and defined in various ways ranging from "teachers who are leaders within and beyond the classroom" (Katzenmeyer & Moller, 2009, p. 17) to teachers having influence over school decisions (Jackson & Marriott, 2012; Katzenmeyer & Moller, 2011). Given the varied uses of these terms, it is important to identify how we define these constructs. Similar to Camburn and colleagues (2003), we define leadership as a set of organizational tasks that leaders might be expected to perform, including instructional leadership and school and building management. Teacher leadership is the extent to which teachers have influence outside their own classroom, which includes influence in school-level decision-making. In other words, despite the multiple conceptualizations of distributed leadership and teacher leadership, they overlap to the extent they both include the influence of teachers on school-wide decision-making.

We focus specifically on the leadership task of teacher hiring, which is a critical organizational management task of school leaders (Horng, Klasik, & Loeb, 2010). Principals who are more effective at organizational management tasks such as hiring teachers see greater gains in student achievement and have more satisfied teachers (Horng et al., 2010; Loeb, Kalogrides, & Béteille, 2012). This suggests that teacher leadership in the form of influence over hiring may also be an important component of distributed leadership. Distributed leadership in teacher hiring, then, means the inclusion of multiple individuals in decisions related to teacher hiring. With the increased policy focus on identifying and recruiting effective teachers has come the recognition that we need to know more about how teacher hiring decisions are made (Engel, Cannata, & Curran, 2015; Engel & Curran, 2016; D. N. Harris, Rutledge, Ingle, & Thompson, 2010; Rockoff, Jacob, Kane, & Staiger, 2011).

The growing body of research on teacher hiring has focused primarily on understanding principals' preferences, principal recruitment and hiring practices, and principal hiring authority compared to districts (Cannata et al., 2017; Cannata & Engel, 2012; Engel, 2013; Engel & Cannata, 2015; D. N. Harris et al., 2010; Jabbar, 2016). The role of teachers in the teacher hiring process remains largely unexplored, even though a distributed leadership perspective suggests that the tendency of research on teacher hiring to focus exclusively on the principal is shortsighted (Leithwood et al., 2010; Spillane & Healey, 2010). There is limited, but suggestive evidence on how this leadership function is distributed within schools or whether there are benefits to doing so. For example, a recent qualitative study found wide variation within a single district, the Chicago Public Schools, in the extent to which principals involved their teachers in the hiring process (Engel & Finch, 2015). These authors found high school principals were more likely to report including their teachers in the hiring process and more likely to describe a

collaborative hiring process within their schools, than their elementary school counterparts. In a study that surveyed a sample of new teachers in four states, Liu and Johnson (2006) found about 46% reported being interviewed by teachers at the school where they were eventually hired. Given the importance of fit in hiring (D. N. Harris et al., 2010; Liu & Johnson, 2006), involving teachers in the hiring process can provide more information for both schools and prospective teachers regarding fit. Further, hiring authority has become more decentralized from the district to the school, with principals gaining autonomy in hiring (Engel et al., 2015). With this greater school-level autonomy comes questions about how influence over hiring is distributed to teachers within schools.

This paper addresses questions that lie at the intersection of these two research domains to explore the extent to which influence over teacher hiring is distributed between principals and teachers within a school and the paths by which teachers gain influence over this leadership function. As such, this paper contributes to research in both distributed leadership and teacher hiring. We address the following two research questions: 1) *To what extent do teachers have influence over hiring new teachers in their school? 2) What are the paths by which teachers obtain influence in hiring?* The first question provides insight into the distributed nature of this critical organizational decision. The second research question not only provides additional insight into the hiring process but also contributes to our understanding of the ways in which teachers come to enact distributed leadership functions.

Paths to Leadership

Research has identified several characteristics of teachers and schools that are associated with greater enactment of leadership by teachers. Indeed, much of the research on teacher leadership focuses on the conditions inside schools through which it can be facilitated and

characteristics of teachers that make them seek out ways to engage in leadership (Donaldson et al., 2008; Mangin & Stoelinga, 2008; York-Barr & Duke, 2004). Recent attention has focused on the role of social networks in distributing leadership functions, particularly those related to influencing classroom instruction (Spillane, Kim, & Frank, 2012). Less is known about how leadership over school-wide decision-making becomes distributed. We posit there are three main paths by which teachers come to exert influence over school-wide decisions such as hiring: communal, positional, and affinitive. Together, these paths recognize that understanding distributed leadership requires attending to both organizational structures and social dynamics (Scribner et al., 2007). We describe each path, and key characteristics by which we may operationalize these paths, in turn. We also recognize that, regardless of path, the process by which teachers come to exert influence involves both the "taking" of influence by teachers who wish to have more leadership influence and the "giving" of influence by principals as they distribute leadership influence among others in the school.

Communal

The communal path to leadership focuses on the extent to which the school has an inclusive and participative culture. That is, schools with more communal and collaborative cultures and norms of working will have teachers who report greater influence over school-wide decisions such as hiring (Muijs & Harris, 2006). Schools that have an expectation for teamwork, shared responsibility and decision-making, and high trust between teachers and administrators are key facilitators of teacher leadership and influence (Katzenmeyer & Moller, 2009; Silva, Gimbert, & Nolan, 2000; York-Barr & Duke, 2004). We hypothesize that schools where teachers report greater cooperative effort among colleagues will report greater influence over teacher hiring.

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School characteristics such as size and grade levels served have been empirically linked to more communal cultures and, thus, are likely to also be associated with greater teacher influence over hiring. For instance, smaller schools have greater professional community and positive teacher attitudes (Lee & Loeb, 2000). Indeed, prior research on teacher influence on other school decisions suggests smaller schools had teachers who reported greater influence (Ingersoll, 2003). Secondary schools are larger, organizationally more complex, and politically more complicated; typically having multiple administrative layers and subject-based teachers and other specialists (Grossman, Wineburg, & Woolworth, 2001), which can result in more disagreement around goals, policies, and practices and less communal culture. Such factors can make change more difficult in secondary schools (Firestone & Herriott, 1982). Due to this research, We hypothesize that elementary schools, which are typically smaller and more amenable to a communal culture, will have teachers who report more influence over teacher hiring, even though there is some initial evidence that high school principals are more likely to include teachers in hiring (Engel & Finch, 2015).

Finally, research has also suggested that charter schools have more communal cultures, although the evidence is more mixed. For example, Cannata (2007) finds that charter school teachers report greater influence over school-wide decisions and a more professional community, on average. Similarly, some researchers find that charter schools have better organizational conditions, more professional opportunities for teachers, and more teachers who want to influence school policy (Cannata & Penaloza, 2012; Goldring & Cravens, 2008). In contrast, other studies have found that charter school teachers feel less empowered in the school-wide arena than their peers in traditional public schools (Bomotti, Ginsberg, & Cobb, 1999). Still, some studies find that charters focus more on hiring teachers who fit their mission and

community (Cannata & Engel, 2012; DeArmond, Gross, Bowen, Demeritt, & Lake, 2012), which may lead to greater teacher involvement in assessing candidate fit.

Positional

The positional path to leadership focuses on the extent to which teachers come to exert influence based on the positions they hold. This may be due to teachers who desire more leadership and influence seeking out formal organizational positions by which such leadership can be enacted or because principals who want to share leadership and influence look to teachers with characteristics that signal expertise and credibility. For example, teachers who feel competent and are at a personal or career stage that provides time for additional responsibilities tend to become teacher leaders (Katzenmeyer & Moller, 2009; Kirkpatrick & Johnson, 2014). Relatedly, one study suggests as teachers feel more competent and gain experience, they begin to seek out new ways to engage in their schools (Donaldson et al., 2008). Further, teacher leadership requires perceived expertise and credibility (Hatch, White, & Faigenbaum, 2005). For example, when teachers were asked to name peers they said were influential, they cited expertise as the most common explanation for their influence (Supovitz, 2008).

Substantial research on distributed leadership and teacher leadership suggests teacher influence can be enacted through formal organizational positions (Camburn et al., 2003; Firestone & Martinez, 2007; Katzenmeyer & Moller, 2009; Mangin & Stoelinga, 2008; Spillane & Kim, 2012; York-Barr & Duke, 2004). For example, teachers who were members of a faculty improvement or advisory committee were seen as more influential by their peers, and that formal authority was critical to the perceived influence (Supovitz, 2008). Likewise, holding a formal leadership position can lead to stronger social ties to colleagues (Spillane et al., 2012). Indeed, a common approach for teachers who want to engage in teacher leadership is to take on additional

responsibilities through formal organizational roles (Donaldson et al., 2008; Kirkpatrick & Johnson, 2014). At the same time, it is clear that influence does not necessarily flow from formal positions. For example, a study of teachers certified by the National Board for Professional Teaching Standards found that taking on more leadership responsibilities did not necessarily result in greater influence over school-wide policies (Cannata, McCrory, Sykes, Anagnostopoulos, & Frank, 2010). Teachers come to exert influence through both formal and informal channels (Stoelinga, 2008).

Affinitive

The final path of teacher influence comes through affinity-based relationships between the principal and individual teachers. Research on teacher leadership indicates successful enactment of these roles depend on positive working relationships with the principal (Smylie & Brownlee-Conyers, 1992; York-Barr & Duke, 2004) and that the principal is a key facilitator of teacher involvement in decision-making (Ingersoll, 2003; Katzenmeyer & Moller, 2011; Mayer, Donaldson, LeChasseur, Welton, & Cobb, 2013). Indeed, teacher influence appears greater when they share a common vision of school goals and teacher leadership activities with the principal (Camburn, Kimball, & Lowenhaupt, 2008; Stoelinga, 2008). Relatedly, principals' social connections to teachers shapes the school climate and teacher investment in reform (Moolenaar, Daly, & Sleegers, 2010). Although there is no research that links teacher influence to being hired by that principal, we hypothesize that teachers hired by a principal (as compared to being hired by their predecessor) are more likely to have shared values and positive relationships.

There is also no research on the relationship between teacher leadership or influence, distributed leadership, and sharing the same race or gender with their principal. However, recent research on distributed leadership has focused on the role of social networks in shaping how

leadership is enacted (Spillane et al., 2012), and research indicates social networks are shaped sharing similar social characteristics with others (Moolenaar, 2012). There is also clear evidence of the role of racial and gender match between principals and teachers for teacher satisfaction, teacher turnover, and teacher supplemental pay (Grissom & Keiser, 2011; Grissom, Nicholson-Crotty, & Keiser, 2012). While there is limited research on the mechanisms for this association between teachers and principals, there is substantial empirical support in public administration and sociology, which highlights how shared demographic characteristics are more likely to reflect shared values, attitudes, and perspectives, as well as improved communication and collaboration (Lang, 1986; Lim, 2006).

Changes in Distributed Leadership over Time

In addition to operating through multiple pathways, a small body of research suggests that the prevalence of teacher leadership may not be stagnant over time. As previously mentioned, recent evidence suggests that hiring authority has become more decentralized over time, with principals gaining autonomy in hiring relative to principals (Engel et al., 2015). This shift has taken place concurrently with the rising prominence of distributed leadership and teacher leadership suggesting that principals may utilize their increased autonomy over hiring to distribute hiring responsibilities to teachers. On the other hand, a recent analysis of the Schools and Staffing Survey (SASS) found that teachers reported having less autonomy over issues that affect their classroom in 2012 compared to 2003, suggesting that perhaps this distribution of influence has not reached teachers (Sparks & Malkus, 2015). To date, however, little empirical research has directly explored the changes in teacher influence over teacher hiring over time.

This paper makes two key contributions to the literatures on distributed leadership, teacher leadership, and teacher hiring. First, by exploring trends over time in teacher influence

on hiring, we examine how distributed leadership and teacher leadership over a key organizational function has changed over the past 25 years when these ideas have risen to national prominence. Second, by examining paths to teacher influence, we examine the potential mechanisms (communal, positional, and affinity) by which distributed leadership and teacher leadership come to be enacted.

Data

We use data from the SASS, which consists of nationally representative samples of districts, schools, principals, and teachers that have been drawn over time for seven successive cohorts. For this study, we use all iterations of the SASS that include measures of teacher influence over hiring; specifically, 1993-94, 1999-2000, 2003-04, and 2011-12. These data allow us to explore national trends in teacher influence over teacher hiring over the past two and a half decades. We focus on how teachers rated their influence over the hiring of new teachers in their schools. Our pooled analytic sample contains 39,686 principals and 117,067 teachers. We employ case-wise deletion for missing data.

Teachers were asked to rate their own influence with regard to teacher hiring in 1993, 1999, 2003, and 2011. While these questions have been asked in four SASS waves of teachers, the number of response categories has varied across years. For example, in 1993-94, principal reported on teacher influence using a Likert scale ranging from 1 (no influence) to 6 (a great deal of influence). The scale was reduced to 5 categories for 1999 iteration and to 4 categories (ranging from "no influence" to "major influence") for 2003 forward. For consistency, we recoded principal reports of teacher influence and teacher rated influence so that the response categories were consistent across years to a 0 to 3 scale. For years with a 6 item scale (i.e., 1993-94), we converted categories 2 and 3 to 1, categories 4 and 5 to category 2, and left the top and

bottom categories intact. For the year with a 5-item scale (i.e., 1999-2000), we converted categories 2 and 3 to category 1, category 4 to category 2, and left the top and bottom categories intact. This recoding resulted in a consistent scale from 0 to 3, with 0 always representing the lowest rating of principal or teacher influence and 3 always representing the highest rating of principal or teacher influence.

The key explanatory variables reflect the three paths to leadership described above. Three of the variables that reflect the communal path to influence come from the school-level: school size is identified as total enrollment; school instructional level is identified as elementary, secondary, or other based on grade levels served (elementary is used as the omitted variable); charter schools are identified with a dummy variable beginning in 1999. Cooperative effort comes from the teacher survey, where teachers report their level of agreement with the statement "there is a great deal of cooperative effort in this school." The variables reflected by the affinity path were created using data from both the principal and teacher survey. Racial/ethnic match is a dummy that indicates the teacher and principal are of the same race/ethnicity. Gender match is a dummy that indicates the teacher and principal are of the same gender. Hired by principal is a dummy that indicates the year the teacher began teaching in this school is after the year in which the principal became the principal. For example, for a principal who had been principal of the school for three years, a teacher who started teaching there two years ago would be classified as being hired by the principal. The positional path to influence is indicated by a dummy variable that indicates the teacher has taken on one of three leadership roles: serving as department/grade lead or chair, serving on a school or district wide committee or task force, or serving as a lead curriculum specialist.

Table 1 provides descriptive statistics on these explanatory variables and other teacher-level variables by year. Data on leadership positions is only available in 2003 and 2011. About 75 percent of teachers are female, and the average teacher has a little more than thirteen years of teaching experience. About 5 out of 6 teachers are white, six or seven percent are black, a comparable percent are Hispanic, and two percent are Asian. The vast majority of teachers have state certification. Slightly less than a quarter of teachers held a position as a department or grade chair, about half of teachers served on a committee or task force, and about 10 percent of teachers served as a curriculum specialist. Around 56-60 percent of teachers held any of these roles. Across years, about 35 percent of teachers were hired by their principal, over three-fourths share the same race as their principal, and about half are of the same gender. Lastly, on average, teachers indicated they somewhat agree that "there is a great deal of cooperative effort among the staff members."

Table 2 provides descriptive statistics for the school and district level variables used. About a quarter of schools are classified as urban schools with 73 percent classified as primary school and 20 percent as secondary school. Some noteworthy general trends include a decrease in average years of experience among principals from 8.7 to 7.2 years, the percentage of students within schools eligible for FRPL increased from 37 percent in 1993 to 51 percent 2011, and an increase in the average percentage of minority enrollment. These changes provide an overview of some of the shifts in the education landscape in America in the last 25 years. It should be noted that charter school status was not available in 1993.

Methods

We begin by providing descriptive statistics showing trends in teacher reports of influence on teacher hiring over time. We then examine bivariate relationships between teacher reports of influence over hiring the key independent variables including, leadership position, racial/ethnic match, gender match, hired by principal, small school, school instructional level, and charter status. We then explore the relationship between these independent variables and teacher ratings of teacher influence on teacher hiring, controlling for relevant school and district covariates. Specifically, we use ordered logistic regression models of the form:

$$Influences_{sdy} = \beta_0 + \beta_1 CBA_{sdy} + \beta_2 Urban_{sy} + \beta_3 Charter_{sdy} + \beta_4 \boldsymbol{School}_{sy}$$

$$+\beta_5 \boldsymbol{Principal}_{sy} + \beta_6 \boldsymbol{Teacher}_{sy} + \beta_7 \boldsymbol{District}_y + \beta_8 Year_y + e \quad (1)$$

Influences$_{sdy}$ represents the teacher's self-rated influence on teacher hiring for school *s* in district *d* in year *y*, *Charter* is a binary variable for charter schools, *School* is a vector of school level control covariates, *Principal* is a vector of principal control variables, *Teacher* is a vector of teacher control variables, *District* is a vector of district level control variables, and e is an stochastic error term. The coefficients of interests are β_1, β_2, β_3, and β_6, which represent the relationship between teacher reported influence over hiring with variables that reflect the communal, positional, and affinitive pathways.

We use ordered logistic regression because the dependent variables are ordinal and differences across response categories cannot be interpreted as uniform or cardinal. Estimates from these models can be interpreted as the predicted change in the outcome in the ordered log-odds scale for a one-unit change in the independent variable of interest. As log-odds are difficult to interpret, we report odds ratios. An odd ratio greater than 1 indicates greater odds of predicted

change in the outcome level, an odd ratio of 1 indicates no change, and an odd ratio less than 1 indicates smaller odds. Robust standard errors clustered by district-year are employed.

Results

Overall trends in teacher influence over hiring

Table 3 shows the proportions for each response category by year for teacher reports of their own influence over hiring. Teacher reports that indicate their influence over hiring increased between 1993 and 2003, remaining stable between 2003 and 2011. The average teacher rating of their influence over hiring increased from .63 in 1993 to .83 in 2011. This shift came from more teachers reporting that they have some influence over hiring (category 2) than having no influence at all (category 0). Very few teachers, ranging from just three to five percent, ever reported having major influence over teacher hiring. The SASS principal survey also has data from principals reporting the extent to which teachers have influence over teacher hiring. One advantage of using the principal reports of teacher influence over hiring is that the data cover a period from 1987-88 to 2007-08, allowing for a longer exploration of trend in hiring influence. Principals generally report that teachers have more influence over teacher hiring than teachers themselves report. However, principal reports also indicate that teacher influence over hiring has risen consistently since 1987. The average principal rating of teacher influence over hiring increased from .81 in 1987 to 1.86 in 2007. These descriptive statistics suggest that the teacher hiring process has become more distributed within schools over the past 25 years.

Communal path to teacher influence

To explore how teacher reported influence on hiring is influenced by each of the variables in the communal, positional, and affinitive paths, we first analyze a simple bivariate analysis of the teacher reported influence and a variable of interest (column 1 of Table 4). Each

coefficient in column 1 of Table 4 represents a separate regression as indicated by the horizontal dividers. To further describe these associations, we estimate the change in predicted teacher reported influence on hiring using ordered logistic regression for each of the three paths of influence in models 2 through 4 in Table 4. Finally, we have a fully saturated model, column 5, that considers all of these influences simultaneously, and in this model, we pool all years of available data and include year dummy variables accounting for secular trends.

Looking across the school and teacher characteristics that reflect the communal path to influence, we see considerable evidence that these characteristics are associated with greater teacher influence. Across columns 1, 4, and 5, we find that teachers report having less influence in larger schools, with results statistically significant in all models and similar estimates. In the fully saturated model, increasing the school enrollment by 1000 students is associated with .9 odds of reporting one additional unit of influence, such as moving from no influence to minor influence, over hiring. There is also consistent evidence that teachers' report of the amount of cooperative effort in a school is associated with increased odds of teacher reports of more influence over hiring. Again, the estimates are consistent in size across models, and all statistically significant.

Another variable that represents the communal nature of schools is whether the school is a charter school. Teachers in charter schools have greater odds of reporting higher levels of influence over teacher hiring. The estimates decrease slightly across the models, but is still statistically significant in the fully saturated model. There is less consistent evidence on the relationship between school instructional level and teacher influence over hiring. In the bivariate model, teachers in secondary schools have lower odds of reporting higher levels of influence

over hiring. However, the estimate is no longer statistically significant once control variables are included.

It should be noted that Table 4 pools data from only 2003 and 2011, the only two years in which data are available for all variables. We also examined whether the patterns are consistent in all years, and for each year separately, with results shown in the appendix. In each of these tables, we analyze the influence of the variables in each path for by wave and for the pooled data for all waves containing the particular variables. This analysis allows us to identify any changes in the relationships over time while also ensuring that the results in Table 4 were not specific to the two waves that contained all of the covariates. In Table A3, we observe that teacher reports of the amount of cooperation among staff remain consistently and statistically significant associated with their reports of influence over hiring. Estimates for the size of the school and instructional grade level remain similar in size to the pooled model in all years, but are not always statistically significant. Secondary school status is significant in the 2003 wave but it is insignificant in 1999 and 20011 and in the pooled sample. Teachers in charter schools have much larger odds of reporting more influence over hiring in 2003 than in 2011, and the estimate is only statistically significant in 2003. It should be noted that while charter school is present in the 1999 wave, the model is unable to detect any relationship due to the small number of charter schools in 1999.

Positional path to teacher influence

There is also consistent evidence for the positional path to teacher influence over hiring. Across the three measures of teacher leadership positions, teachers with a leadership position have greater odds of reporting higher levels of influence over teacher hiring. For instance, the odds of reporting one additional unit of having more influence over hiring, such as from having

minor influence to some influence or from some influence to major influence, are 1.21 times greater when the teacher has served as a department lead or chair. In Column 2, we are testing the relationship between the positional variables and the teacher reported influence over hiring controlling for teacher experience and a host of school-level and district-level characteristics while account for secular trends. The results indicate that the odds of reporting having more influence over hiring are highly statistically significant and 1.18 to 1.23 times greater, ceteris paribus, when the teachers have served in some leadership position. Finally, in our saturated model where we test all the paths simultaneously (column 5), we find that the majority of our previous findings remain unchanged. Teachers were more likely to report having higher influence over hiring when they have served in leadership positions. Results are consistent when we examine the positional variables in each year in Table A1.

One variable that we include as a covariate but that may be particularly relevant for discussions of the positional path to leadership is teacher experience. We include it as a covariate in all models as an important teacher characteristic. Across models, teacher experience is consistently negatively associated with reported influence on teacher hiring. Teachers with more years of experience have lower odds of reporting more influence over hiring.

Affinitive path to teacher influence

Examining the variables that reflect the affinitive path to teacher influence, there is strong empirical support for some, but not all of these variables. There is consistent evidence that being hired by the principal is associated with about 1.2 times odds of reporting higher levels of influence over hiring. This is also evident in Table A3 when years are examined separately. In terms of affinity by race, the bivariate results indicate the odds of reporting more influence are 1.32 times greater when there is racial congruence between the teacher and the principal. When

including covariates, the estimate reduces in size, but is still statistically significant. In column when the full set of variables are included, the estimate for racial congruence is no longer statistically significant. Teacher-principal race congruence is not statistically significant for each individual wave but it is significant in the pooled sample. However, we are likely overpowered having more than 126,000 observations.

Similarly, there is not consistent evidence that working for a principal of the same gender is associated with greater teacher influence over hiring. In Table 4, neither the bivariate nor fully saturated results are statistically significant. Table A2 also shows inconsistent results for gender congruence. While the estimates of odds-ratios are consistently above one, suggesting the association is positive, they are rather small and only statistically significant in some years.

Discussion and Conclusion

Overall, we find that reported teacher influence over teacher hiring has increased over time. From 1987 to 2011, teachers and principals alike report that teachers have more influence over hiring new teachers in their schools, suggesting a decentralization within schools with regard to a key area in organizational decision-making in schools. This increased teacher influence is noteworthy given the importance of distributed leadership and collaborative school cultures (Camburn et al., 2003; Ingersoll, 2001; Johnson, Kraft, & Papay, 2012; Ronfeldt, Owens Farmer, McQueen, & Grissom, 2015). When considered in light of recent research finding that principals reported increased influence over teacher hiring during this same time period (Engel, Cannata, & Curran, 2015), it provides further evidence of substantial decentralization of teacher hiring decisions and shifts in the distribution of authority related to teacher hiring over the past quarter century.

We find several school-level variables to be consistently related to the amount of reported influence teachers have over hiring, such as school size, amount of cooperation in the school, and charter status. This is consistent with the literature on teacher leadership that emphasizes the conditions inside schools that can facilitate or impede teacher leadership and influence (Mangin & Stoelinga, 2007; York-Barr & Duke, 2004). We find consistent evidence that the communal nature of schools leads to greater teacher influence over hiring. Given the importance of collaborative school culture for teacher turnover and student outcomes (Kraft, Marinell, & Shen-Wei Yee, 2016), future research should explore how to help schools build such cultures.

In particular, teachers in charter schools report more influence over teacher hiring, which may reflect organizational conditions in charter schools that lead to more communal and collaborative school cultures (Cannata, 2007; Goldring & Cravens, 2008). It also supports related research which has found that charter schools organizing their teacher hiring and recruitment practices in ways that differ from traditional public schools (De Armond, Gross, Bowen, Demeritt, & Lake, 2012; Grogan & Youngs, 2008) as well as research finding that teachers attracted to charter schools are themselves more eager to play a role in schoolwide decisions such as hiring (Cannata & Penaloza, 2012). Examining the results by year suggests that the charter school estimate was reduced and not statistically significant in later years. Future research should explore the interaction between charter status and time trend, to disentangle the increasing influence of teachers in hiring decisions with being in a charter school. For example, is this difference over time due to the fact that more charter schools have moved past their startup years, which require substantial time demands on teachers (Johnson & Landman, 2000) or to the changing composition of charter schools as charter management organizations grow in size (Miron & Gulosino, 2013)?

We also find that several teacher characteristics are associated with greater influence over hiring. In particular, teachers with formal leadership roles report more influence over hiring. Contrary to research which has found that experienced teachers are eager to seek out ways to engage in schoolwide endeavors (Donaldson, Johnson, Kirkpatrick, Marinell, Steele, & Szczesiul, 2008; Kirkpatrick & Johnson, 2014), our results indicate that teacher experience was negatively associated with influence over teacher hiring. Future research should examine teacher characteristics in more depth; SASS measures of teacher demographic characteristics may not be nuanced enough to capture characteristics the literature associates with greater teacher leadership, such as desire for additional challenges and need for collaboration with peers (Katzenmeyer & Moller, 2001; LeBlanc & Shelton, 1997; Wilson, 1993).

Our findings also provide evidence that teacher influence over hiring depends not only on school or teacher characteristics, but the match between the teacher and the school. In particular, whether the teacher was hired by the principal and, to a lesser extent, whether the teacher and principal are of the same race. This finding reflects prior research on the important role of principals in facilitating teacher leadership (Mangin & Stoelinga, 2008). Yet, our work extends this research to highlight how principals may not uniformly foster leadership opportunities for teachers, but distribute leadership tasks to teachers for whom they have more affinity. More research is needed on how and why influence and leadership are distributed to certain teachers. Are principals using such opportunities as a way to reward or punish teachers who agree or disagree with their decisions (Ingersoll, 2003)? Or are principals using hiring as a key lever to build a collective vision for the school?

Teacher leadership and distributed leadership have important implications for school organizational change, turnover, and student outcomes (Camburn et al., 2003; A. Harris, 2005;

Muijs & Harris, 2006; York-Barr & Duke, 2004). As key leadership tasks, such as teacher hiring, become more distributed in schools, we need more research on the mechanisms by which leadership is distributed and the relative roles of both principals and potential teacher leaders in that distribution process. By outlining a theoretical framework for the paths by which teachers come to exert influence over schoolwide decisions and providing empirical support for this framework, this paper attempts to help the field provide clearer conceptualizations of these mechanisms of teacher leadership.

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Tables and Figures

Table 1. Descriptive statistics of teacher level variables

Variable	1993	1999	2003	2011
Department chair	.	.	0.23	0.22
On committee or task force	.	.	0.51	0.47
Curriculum specialist	.	.	0.11	0.10
Serve in any leadership role	.	.	0.60	0.56
Teacher experience	14.58	14.68	14.17	13.18
Female	0.73	0.74	0.75	0.75
State certification	0.96	0.95	0.87	0.90
Hired by principal	0.35	0.38	0.36	0.35
Teacher-principal race match	0.79	0.81	0.78	0.76
Teacher-principal gender match	0.49	0.50	0.52	0.54
American Indian	0.01	0.02	0.01	0.00
Asian	0.03	0.02	0.05	0.02
Black	0.05	0.06	0.06	0.07
White	0.83	0.84	0.82	0.83
Hispanic	0.07	0.06	0.05	0.08
Great cooperation at school	3.07	3.24	3.23	3.18
Observations	37150	26400	32300	30250

Note. Missing values (.) indicate that the question was not administered in that survey year.

Table 2. Means and proportions for school and district control variables

Variables	1993	1999	2003	2011
Panel A: School level characteristics				
Urban	0.24	0.23	0.25	0.26
Primary	0.73	0.76	0.74	0.73
Secondary	0.24	0.21	0.19	0.20
Combined	0.03	0.03	0.07	0.07
Charter school	.	0.01	0.02	0.04
Principal exp (years)	8.69	8.94	7.75	7.19
Approved for FRPL	.37	.40	.45	.51
Minority enrollment	.28	.32	.39	.43
Total K-12 enrollment	520	550	550	560
Panel B: District level characteristics				
Northeast	0.16	0.16	0.17	0.16
Midwest	0.29	0.29	0.27	0.26
South	0.34	0.35	0.35	0.35
West	0.20	0.21	0.22	0.23
Total K-12 enrollment	36560	37390	39810	36370
Minority enrollment	.28	.29	.35	.41
Observations	37150	26400	32300	30250

Note. Missing values (.) indicate that the question was not administered in that survey year.

Table 3: Means and proportions by response category for report of hiring influence by year

	Teacher's report of teacher influence					Principal's report of teacher influence
	0	1	2	3	Mean	Mean
1987	.	.	.	.	.	.81
1990	.	.	.	.	.	1.10
1993	0.57	0.27	0.14	0.03	0.63	1.55
1999	0.47	0.39	0.10	0.04	0.71	1.58
2003	0.44	0.32	0.18	0.05	0.84	1.81
2007	.	.	.	.	.	1.86
2011	0.44	0.33	0.18	0.05	0.83	.

Note. Recoded Likert scale ranges from 0 (no influence) to 3 (major influence). Missing values (.) indicate that the question was not administered in that survey year.

Table 4. Odds ratios and t-statistics from ordered logistic regressions predicting teacher rating of influence over teacher hiring using data pooled across years

Variable	(1) Bivariate	(2) Positional	(3) Affinitive	(4) Communal	(5) Full model
Serve as a department lead or chair	1.208***	1.177***			1.215***
	(10.93)	(4.81)			(5.74)
Serve on a school/district wide committee or task force	1.286***	1.186***			1.173***
	(16.95)	(6.02)			(5.55)
Serve as a lead curriculum specialist	1.316***	1.230***			1.238***
	(11.47)	(4.53)			(4.58)
Likely to be hired by current principal	1.203***		1.215***		1.224***
	(11.86)		(5.54)		(5.65)
Tch-prin race congruence	1.321***		1.123*		1.102
	(14.00)		(2.32)		(1.91)
Tch-prin gender congruence	1.019		1.060*		1.032
	(1.27)		(1.96)		(1.04)
Enrollment per 1,000 students	0.931***			0.892**	0.914*
	(-6.24)			(-2.85)	(-2.30)
Secondary school	0.931***			0.966	0.982
	(-4.78)			(-0.82)	(-0.44)
Combined	0.770***			0.829**	0.830**
	(-10.87)			(-3.17)	(-3.16)
Charter status	1.431***			1.311**	1.287**
	(8.76)			(2.92)	(2.79)
Great cooperation among staff	1.455***			1.463***	1.463***
	(39.25)			(18.94)	(18.77)
Teacher experience		0.991***	0.996**	0.991***	0.993***
		(-6.11)	(-2.59)	(-6.08)	(-4.49)
Controls		X	X	X	X
Year dummies		X	X	X	X
Observations	62550	62550	62550	62550	62550

Note. All models present odds ratios and t-statistics from ordered logistic regression with a set of controls including teacher experience, and t-statistics in parentheses. Controls include urbanicity, regions, principal experience, school level FRPL, percent minority students at school level, district enrollment, proportion of minority in district, teacher race, and year dummy for 2011 with 2003 as the base year.
$^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

Table A1. Odds ratios and t-statistics from ordered logistic regressions predicting teacher rating of influence over teacher hiring for positional variables.

Positional variables	(1) 2003 Wave	(2) 2011 Wave	(3) Pooled
Serve as a department lead or chair	1.152**	1.202***	1.177***
	(3.22)	(3.65)	(4.81)
Serve on a school/district wide committee or task force	1.170***	1.205***	1.186***
	(3.86)	(4.71)	(6.02)
Serve as a lead curriculum specialist	1.245***	1.211**	1.230***
	(3.37)	(3.03)	(4.53)
Teacher experience	0.988***	0.994*	0.991***
	(-6.57)	(-2.49)	(-6.11)
Controls	X	X	X
Year dummies			X
Observations	32300	30250	62550

Note. All models present odds ratios from ordered logistic regression with a set of controls including teacher experience, and t-statistics in parentheses. Controls include urbanicity, regions, principal experience, school level FRPL, percent minority students at school level, district enrollment, proportion of minority in district, and teacher race. The pooled model contains additional year dummies.

Table A2. Odds ratios and t-statistics from ordered logistic regressions predicting teacher rating of influence over teacher hiring for affinity variables.

Affinity variables	(1) 1993 Wave	(2) 1999 Wave	(3) 2003 Wave	(4) 2011 Wave	(5) Pooled
Likely to be hired by current principal	1.133**	1.185***	1.262***	1.168**	1.199***
	(2.66)	(3.35)	(4.77)	(3.11)	(7.20)
Teacher-principal race congruence	1.084	1.135	1.137	1.115	1.119**
	(1.28)	(1.89)	(1.92)	(1.48)	(3.18)
Teacher-principal gender congruence	1.106*	1.136**	1.037	1.079	1.084***
	(2.48)	(2.87)	(0.87)	(1.80)	(3.75)
Teacher experience	0.985***	0.991***	0.994**	0.999	0.993***
	(-6.78)	(-3.95)	(-3.26)	(-0.62)	(-6.10)
Controls	X	X	X	X	X
Year dummies					X
Observations	37150	26400	32300	30250	126100

Note. All models present odds ratios from ordered logistic regression with a set of controls including teacher experience, and t-statistics in parentheses. Controls include urbanicity, regions, principal experience, school level FRPL, percent minority students at school level, district enrollment, proportion of minority in district, and teacher race. The pooled model contains additional year dummies.

Table A3. Odds ratios and t-statistics from ordered logistic regressions predicting teacher rating of influence over teacher hiring for communal variables.

Communal variables	(1)	(2)	(3)	(4)
	1999 Wave	2003 Wave	2011 Wave	Pooled
Enrollment per 1,000 students	0.947	0.965	0.839**	0.899**
	(-1.16)	(-0.69)	(-2.84)	(-3.15)
Secondary school	0.926	0.891*	1.032	0.957
	(-1.18)	(-2.13)	(0.52)	(-1.25)
Combined	0.862	0.690***	0.967	0.832***
	(-1.56)	(-4.61)	(-0.41)	(-3.49)
Charter status	1.000	1.745***	1.163	1.323**
	(.)	(3.76)	(1.26)	(2.95)
Great cooperation among staff	1.361***	1.385***	1.542***	1.435***
	(12.47)	(12.29)	(14.79)	(22.38)
Teacher experience	0.988***	0.988***	0.994**	0.990***
	(-6.11)	(-6.18)	(-2.62)	(-8.06)
Controls	X	X	X	X
Year dummies				X
Observations	26400	32300	30250	88950

Note. All models present odds ratios from ordered logistic regression with a set of controls including teacher experience, and t-statistics in parentheses. Controls include urbanicity, regions, principal experience, school level FRPL, percent minority students at school level, district enrollment, proportion of minority in district, and teacher race. The pooled models contain additional year dummies.