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Administrator-Teacher Relations and Novices' Intent to Remain Teaching

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Abstract

Using survey data from novice teachers at the elementary and middle-school level across 11 districts, logistic regressions were estimated to examine the association between novices' perceptions of administrator-teacher relations and their desire to remain teaching within their schools. We find that the probability that a novice teacher reports a desire to remain teaching within her school is reduced when she perceives negative relations between teachers and administrators within her school, even after controlling for a prior measure of intent to remain teaching. The robustness of this inference was quantified with respect to concerns about omitted confounding variables. The findings from this study have implications for influencing novice teachers' attitudes and behaviors regarding their commitment to teaching through improving relations between teachers and administrators throughout a school.

Keywords: organizational climate, retention, socialization

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Administrators and teachers have come under increasing pressure to raise student achievement to meet the requirements of the No Child Left Behind Act, at the same time that many districts across the country are facing serious declines in resources. Administrators and teachers must work together to maintain and improve organizational effectiveness and efficiency, and their ability to do so is directly related to the organizational climate of the school and district (Strunk & Grissom, 2010). Administrator-teacher relations within a school are an important element of a school's organizational climate. Organizational climate arises from the routine practices that are important to the organization and its members, reflecting the *personality* of the organization (Hoy & Miskel, 2008; Litwin & Stringer, 1968; Taguiri, 1968). In many respects, the organizational climate influences the attitudes and behaviors of organizational members because it is linked to the thoughts and feelings of organizational members (Gilmer, 1966; Hoy & Miskel, 2008).

In this study, we were particularly interested in developing a better understanding of the impact of perceived negative administrator-teacher relations on teacher outcomes. Conflictual relationships between the administration and teachers within a school may not only impede organizational effectiveness, but may further impact a district's or school's ability to recruit and retain highly effective teachers, thus further reducing organizational capacity to improve student achievement (Author, 1992; Hoy & Miskel, 2008). In other words, a teacher who perceives a conflictual climate within her school may have low commitment to the organization and may be more likely to seek employment in a school with more positive administrator-teacher relations or to leave teaching all together (Chan, Lau, Nie, Lim, & Hogan, 2008; Hoy & Miskel, 2008). This may be particularly true for novice teachers, who likely have fewer investments in the school psychologically and/or financially (e.g., district pension) compared to more senior teachers. High

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rates of teacher turnover are costly to districts and inhibit their organizational capacity to effectively implement reforms (Barnes, Crowe, & Schaefer, 2007).

Therefore, the purpose of this study was to measure novice teachers' perceptions of the relations between teachers and administrators within their schools, and to then examine the association between novices' perceptions of this climate and their intent to remain teaching within their schools. Researchers and practitioners should be concerned with novices' intent to remain teaching because it has been shown to be highly correlated with actual career decisions (Chan et al., 2008; Kushman, 1992; Ladd, 2011; Mitchell, Holtom, Lee, Sablinski, & Erez, 2001), and is also indicative of the amount of effort they put into their current work. Ultimately, school costs and effectiveness are impacted by novice teachers' commitment to the organization.

Building upon previous studies which have examined teachers' evaluation of administrator practices and effectiveness (e.g., Allensworth, Ponisciak, & Mazzeo, 2009; Boyd, Grossman, Ing, Lankford, Loeb, & Wyckoff, 2011; Horng, 2009), and guided by a theory of organizational climate, we specifically focus on novice teachers' perceptions of the relationships between administrators and teachers across a school. In other words, even if a novice teacher believes their administrator is caring and effective, she may perceive relations between the administrator and teachers across the school as negative and this can impact her attitudes and behaviors towards the organization (Author, 1992; Hoy & Miskel, 2008; Litwin & Stringer, 1968). The findings from this study have implications for improving administrator-teacher relations within schools which would then be aimed at improving teacher and student outcomes that are associated with teachers' intent to remain teaching within a particular school (i.e., their investment of time and resources in their work as well as their career decisions).

Administrator-Teacher Relations and Teacher Attrition

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Individuals decide to stay in or leave their current positions for a variety of reasons, both endogenous and exogenous to their jobs and the organization. Teacher turnover impacts schools and districts not only financially (i.e., costs associated with recruiting, hiring, and training new teachers), but also impacts their ability to maintain effectiveness as organizations (Alliance for Excellence in Education, 2004; Smith & Ingersoll, 2004). Generally, beyond external shocks (e.g., spousal relocation, illness, etc.), “job attitudes combined with job alternatives predict intent to leave, which is the direct antecedent to turnover” (Mitchell et al., 2001, p.1102).

Several aspects of a teaching position impact job attitudes and have been found to be associated with teacher turnover, including teacher background characteristics (e.g., training, experience, and effectiveness), student and school characteristics (e.g., student socio-economic status), and economic factors (e.g., salary and salary schedule) (Allensworth, Ponisciak, & Mazzeo, 2009; Boyd, Grossman, Lankford, Loeb, & Wyckoff, 2006; Goldhaber, Gross, & Player, 2011; Guarino, Santibanez, & Daley, 2006; Hanushek, Kain, & Rivkin, 2004; Lankford, Loeb, & Wyckoff, 2002). Additionally, the literature suggests that the relationships that novice teachers have with their colleagues and administrators, both formal and informal, have potential consequences for the development of their beliefs, goals, and practices, as well as their career decisions (e.g., Bryk & Schneider, 2002; Horng, 2009; Johnson & Birkeland, 2003).

School administrators can also play a significant role in influencing novice teachers’ attitudes and behaviors regarding their work, through both direct interactions with novices as well as through influencing organizational climate (Author, 2007; Ebmeier, 2003; Spillane, 2003). The formal hierarchical position of a principal places them in a unique position to interact with teachers, and can influence the performance of a school through defining goals, coordinating activities, evaluating performance, and delivering resources and rewards (Bidwell,

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2001; Boyd & Crowson, 1981; Freidkin & Slater, 1994; Parsons, 1960). Additionally, administrators further influence support and resources that novices receive through establishing mentoring relationships and providing novice teachers with opportunities to collaborate with other teachers (e.g., establish curricular teams).

The relationships that teachers establish with their administrators and colleagues, therefore, largely define the professional context within which they work, thus influencing their future career decisions. In a multi-year study of 50 teachers, Johnson and Birkeland (2003) found that individuals in their sample who left teaching “described principals who were arbitrary, abusive, or neglectful, and they spoke of disappointment with colleagues who failed to support them as they struggled to teach” (p. 594). Additionally, in Horng’s (2009) study of teachers’ preferences for working conditions, teachers rated administrator support twice as important as student-body characteristics in influencing decisions about where to teach.

Recent quantitative studies have further examined the link between administrator leadership and teacher retention. In a longitudinal study of novice teachers in New York City, Boyd and colleagues (2011) investigated the impact school leadership, teacher autonomy, relations amongst teachers, and school conditions (e.g., student behavior, school safety, and school facilities) had on teacher retention. The researchers reported that there was a positive influence on teacher retention in schools where administrators were viewed as supportive, an effective discipline policy was established, teachers were evaluated fairly, and teachers were included in decision making. Additionally, the study found that school leadership was the only factor that significantly predicted teacher retention decisions after controlling for several other school contextual variables.

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A study by Allensworth, Ponisciak, and Mazzeo (2009) reported similar results regarding the influence that administrator leadership has on teacher retention. Focusing on novice teachers, the researchers found that teacher retention rates were higher in schools a) that had principals who demonstrated strong instructional leadership, b) where teachers and administrators collaborated on making school decisions, and c) where there were high levels of trust between the administration and teachers (Allensworth, Ponisciak, & Mazzeo, 2009). Even when considering the different elements of climate together, principal leadership remained a strong predictor of retention.

In another recent study, Ingersoll and May (2010) utilized data from the 2003-04 Schools and Staffing Survey (SASS) and the 2004-05 Teacher Follow-up Survey (TFS) to identify organizational factors that predicted the retention decisions of first-year mathematics and science teachers. Although they did not find a direct statistically significant causal link between administrator support and teacher retention (after controlling for other factors), other organizational climate factors which are influenced by administrator action were found to influence retention. For example, they found teacher autonomy, professional development focused on content as well as classroom management, and a low degree of student discipline problems to be the strongest predictors of math teacher retention.

Finally, Ladd (2011) drew on a statewide survey of teachers in North Carolina to identify the relationship between teachers' perceptions of working conditions and their planned and actual departure from their schools. The findings showed that the quality of school leadership was the strongest predictor of teachers' planned and actual departures compared to other school working conditions (e.g., student demographics). High quality leadership was marked by principals who maintained high expectations for students and teachers, supported teachers with

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regard to instruction and student discipline, cultivated trust between themselves and the teachers, and involved teachers in decision making (Ladd, 2011).

The study presented here builds upon previous research specifically by framing novice teachers' intent to remain within their schools in the context of the organizational climate within which they work, specifically in the context of administrator-teacher relations. Although intent to remain teaching does not equate to actual career decisions, it has been shown to be associated with future career decisions and is reflective of teachers' attitudes towards their school. Additionally, administrator-teacher relations are based not only on one-to-one relationships between a principal and teachers, but the collective relationship between a principal with their teaching staff as a whole (Author, 1992). Therefore, this study not only investigated the association between novices' perceptions of administrator-teacher relations within their schools and their intent to remain teaching within their schools, but also their perceptions of administrator-teacher relations relative to that of their teacher colleagues.

A Framework of Administrator-Teacher Relations

Organizational climate pertains to the properties of an organization which arise from routine organizational practices that are not only important to the organization and its members, but also influence members' behaviors and attitudes (Denison, 1996; Gilmer, 1966; Halpin & Croft, 1963; Hoy & Miskel, 2008; Litwin & Stringer, 1968; Poole, 1985; Taguiri, 1968). As it relates to schools, organizational climate includes the internal characteristics that distinguish one school from another and influence the behaviors and attitudes of members of a school (Hoy & Miskel, 2008). According to Hoy and Miskell (2008), "More specifically, school climate is a relatively enduring quality of the school environment that is experienced by participants, affects their behavior, and is based on their collective perceptions of behaviors in schools" (p. 198).

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One important element of the organizational climate is the relationship between administrators and teachers within a school. At the school-level, this aspect of the organizational climate reflects the degree of respect and cooperation between teachers and the administration, the extent to which the administration gives teachers autonomy and includes them in decision making, the degree of bureaucratic restrictions, and the presence of frequent and genuine praise (Hoy & Miskel, 2008). Therefore, administrator-teacher relations within a school have the potential to greatly influence the behaviors and attitudes of members throughout the school. Research indicates that administrator-teacher relations within a school are associated with teacher job satisfaction, the strength of teacher loyalty, and battles over goals and the design of policy (Bascia, 1997; Kerchner, 1986; McKelvey & Kilmann, 1975; Streshly & DeMitchell, 1994; Taylor & Cangemi, 1983).

In line with properties of organizational climate, administrator-teacher relations are concerned with the entire school as an organization. In other words, administrator-teacher relations are based not only on a one-to-one relationship between a principal and an individual teacher, but the collective relationship between a principal with their teaching staff as a whole (Author, 1992). Therefore, all teachers are influenced by administrator-teacher relations across the school regardless of the personal relationship an individual teacher has with other teachers or the administration. As put by Vancouver, Millsap, and Peters (1994), "Like children involved in a dispute with their parents, everyone is affected, even siblings not directly involved" (p. 667). Therefore, we propose that when a novice teacher perceives administrator-teacher relations within her school as negative she is less likely to indicate intent to remain teaching within that school, all else equal.

Methods of Data Collection and Analysis

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This study draws on survey data to examine relationships among novices' perceptions of relations between administrators and teachers and their intent to remain teaching within their schools. Data collection occurred in six Michigan districts and five Indiana districts in 2007-08 (see Table 1). In selecting the purposeful district sample, our goal was to recruit medium-to-large districts in both states that a) served varying student populations with regard to race/ethnicity and socio-economic status and b) had at least 10 full-time core content teachers (mathematics, science, social studies, English/language arts, and elementary general education) in grades 1-8 in their first three years of the profession. Data collection in these two states was done out of convenience and limitations in resources rather than due to any specific characteristics of the states.

[insert Table 1 about here]

Novice Teacher Sample

To measure novice teachers' perception of administrator-teacher relations and their intent to remain teaching in their schools, in 2007-08 we administered surveys to novice teachers in the 11 Michigan and Indiana districts who taught the core content area in grades 1-8 and who were in their first three years of teaching in public schools as certified teachers. The surveys administered were in both electronic and paper form.

Overall, 184 early career teachers completed both the fall and spring surveys. Approximately 83% of the teachers were female, and 90% were white. Over 70% were teaching at the elementary school level, and 27% were in their first year of teaching, 44% in their second year of teaching, and 29% in their third year of teaching. There was a fall response rate of 63% and a spring retention rate of those teachers of 76%. Based on information from the districts, there is no clear indication that non-respondents were significantly different from responders in

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terms of grade level taught or years of experience. With regard to baseline measures of the survey items used in analysis (i.e., fall 2007), there were no statistically significant differences between those who only completed the fall survey and those who completed both the fall and spring surveys.

Colleague Sample

In order to evaluate novice teachers' perceptions of administrator-teacher relations relative to those of their close colleagues, in the Fall 2007 survey novice teachers were asked to list their formal mentor and up to eight colleagues they felt were sources of support. Surveys were sent to these colleagues to measure their perceptions of administrator-teacher relations within the schools. Due to resource constraints, surveys were not distributed to all teachers within the schools. A total of 351 veteran colleagues completed a survey in the winter of 2008 (December/January), with a response rate of 60%.

Because the teacher colleague sample only includes those teachers who were nominated by the novice teachers as being sources of support or their formally assigned mentor, the sample of teacher colleagues is not necessarily representative of the overall population of teachers within these schools. However, they do likely represent the most influential teacher colleagues for this sample of novice teachers, which is important when considering how novices' attitudes and behaviors are influenced through socialization mechanisms. The teacher colleagues in the sample averaged 16 years of experience (standard deviation of 9.87 with a minimum of 4 years and a maximum of 40 years); approximately 39% were middle school teachers, 83% were female, and 92% were white.

Analytic Approach

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Logistic regression was used to identify the relationship between novice teachers' perceptions of administrator-teacher relations within their schools and their intent to remain teaching within their schools the next year and over the next five years. Assuming a Bernoulli distribution, the following model represents the logistic regression analysis performed on the data:

$$\ln\left\{\frac{P[Intent = 1]}{1 - P[Intent = 1]}\right\} = \theta_0 + \theta_1 \text{Prior intent} + \theta_2 \text{Relations} + \theta_3 \text{Teacher Attributes} + \theta_4 \text{School Attributes} + \theta_5 \text{District size} + e \quad (1).$$

The model predicts the probability that a novice teacher indicated on the spring 2008 survey intent to leave teaching at their school, as a function of a prior measure (i.e., fall 2007) of their intent to remain teaching at their school (Prior intent), their perceptions of administrator-teacher relations within their school (Relations), teacher attributes, school attributes, and district size. Controlling for the prior measure of intent to remain teaching can account for many differences among teachers that are manifest at the time the prior measure is obtained (Allison, 1990). In other words, the prior measure of intent to remain teaching can be considered a cause of later intent due to its relatively persistent nature as a construct, thus justifying using a prior measure as a control rather than using a change score as the dependent variable (Allison, 1990). Research has shown that estimates from non-randomized studies which control for prior measures of the outcome variable closely approximate estimates from randomized experiments (Cook, Shadish, & Wong, 2008; Shadish, Clark, & Steiner, 2008). Additionally, these findings are more supportive of observational studies than results from labor economics (Glazerman, Levy, & Myers, 2003; Bloom, Michalopoulos, Hill, & Lei, 2005).

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Steiner, Cook, Shadish, and Clark (2010) further emphasize that controls should include measures of motivations for choosing treatment assignments; in this study teachers likely self-select into particular school contexts where they believe there will be positive administrator-teacher relations. Previous research has shown that elements of the local context such as school characteristics and student characteristics, economic factors, other work conditions, and the alignment of teacher characteristics with student/school characteristics influence teachers' selection of workplace (Hanushek, Kain, & Rivkin, 2004; Lankford, Loeb, & Wyckoff, 2002). Therefore, in addition to the focal independent variable in the model, we controlled for teacher, school, and district attributes which may be associated with both our independent and outcome variables.

Regarding teacher attributes, we controlled for novices' reported teacher self-efficacy, perceptions of available resources, and reported levels of stress (all three taken from the fall survey), as well as gender, school level taught (elementary or middle school), first-year status, and whether or not the teacher was new to the school. With regard to school attributes, we controlled for the percentage of students in the school who were eligible for free or reduced lunch, as well as the percentage of students who were white. Finally, we controlled for district size, measured by the total number of students in the district (in the thousands).

There was concern that novices' perceptions of administrator-teacher relations in their school were not necessarily representative of the overall climate within their school, but rather just a manifestation of their overall level of satisfaction with their job. Therefore, another series of logistic regression models were estimated where the measure of novices' perceptions of administrator-teacher relations was deviated from the mean measure of colleagues' perceptions of the climate for which information was available from within their school. We also controlled

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for the school-level group mean in the model in order to estimate the teacher-level relationship between perceptions of administrator-teacher relations and intent to remain teaching, net of any group-membership effects (Enders & Tofighi, 2007; Raudenbush & Bryk, 2002). As previously stated, this school-level group mean does not necessarily represent the average perception of the climate within individual schools, but it does measure the average perceptions of those who are likely to be the most influential in influencing the attitudes and behaviors of this sample of novice teachers. Specifically, the group means were calculated by using data from all the early career and other teacher colleagues (i.e., mentors and colleagues named as sources of support) in the sample for each school. We also controlled for the response rate for each school and the total number of responses in each school.

$$\ln\{P[Intent = 1] / 1 - P[Intent = 1]\} = \theta_0 + \theta_1 \text{Prior intent} + \theta_2 \text{Deviated relations} + \theta_3 \text{Relations mean} + \theta_4 \text{Total responses} + \theta_5 \text{Response rate} + \theta'_6 \text{Teacher Attributes} + \theta'_7 \text{School Attributes} + \theta_8 \text{District size} + e \quad (2).$$

We used forward variable selection for both model (1) and model (2) to compare overall model fit (based upon Akaike Information Criterion) to arrive at a final model for analysis (with a significance level of 0.99 for variable entry into the model). Out of concern for brevity, only results from the best fitting models are reported in the Findings section.

There were missing values for the outcome and independent variables. Out of the 184 novice teachers who completed both the fall and spring survey, 169 novices had non-missing values for intent to remain teaching in their school the following year and 164 had non-missing values for intent to remain teaching within their school over the next five years. The number of

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observations used in the analyses was further reduced due to missing data in the independent variables ($n = 137$ for predicting intent to remain teaching the following year). There were no statistically significant ($p < 0.05$) differences in the outcome variable between the observations not included in the analyses and those included in the analyses. Cases included in the analysis were on average more likely to have been teaching in the same school that they had been the previous year, and reported slightly higher levels of work-related stress. For the remainder of the independent variables (including the predictor of interest, perceived administrator-teacher relations) there were no statistically significant differences ($p < 0.05$) between this subsample and the larger sample.

Quantifying the Robustness of the Inference

Because teachers select themselves into their schools, any causal inferences made about effects of perceptions of administrator-teacher relations or other factors on novice teachers' intent to remain teaching in their schools is problematic. For example, it may simply be that more committed teachers are able to secure useful assistance, but that there is no effect of perceptions of the climate on teachers' intent to remain teaching. As noted, the first response to this is to control for a beginning teacher's prior level of intent to remain (Allison, 1990). That is, the models estimate the effect of perceptions of administrator-teacher relations and other factors on *change* in intent to remain teaching in their schools. Further, controls for important covariates (e.g., students' racial/ethnic or socio-economic backgrounds) are also included in the models that can influence the outcome variable.

Aside from these controls, there will be debate about any causal inferences made. To respond, we draw on recent literature to quantify how much our assumptions of inference must be violated to invalidate our inferences (Author 2000; Author 2008; Kelcey, 2009). In particular,

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we quantified the robustness of the inferences with respect to concerns about omitted confounding variables (see Appendix A for details).

Construction of Variables

The outcome variable is based on novice teachers' response to the following statement: "I would prefer to continue teaching in this school next year" (1 = *strongly disagree* to 4 = *strongly agree*). For purposes of analysis, the measures were dichotomized (1 = *agree*, 0 = *disagree*), therefore measuring whether or not novice teachers intended to remain teaching within their school for the next school year.

To gauge the novices' perceptions of administrator-teacher relations within their schools, novices were asked in the spring 2008 survey to rate the relations between the administration and teachers (1 = *poor*, 2 = *fair*, 3 = *good*, or 4 = *excellent*). For the first set of analyses (i.e., model 1), the measure was dichotomized (1 = *poor*, 0 = *not poor*). For the second set of analyses (i.e., model 2), the measure was first dichotomized and then the novice teachers' responses were deviated from their school-level group mean (i.e., all teachers for whom data was available at each school).

We included the school-level group mean in the model as a control variable. The average number of teachers per school used to calculate the average was 4.28, including early career teachers and their mentors and colleagues. This helped control for the overall perceptions of the climate within each school in the sample, and parse out teacher-level effects. For example, a teacher may have a productive relationship with her building principal and colleagues, but if the overall relations between teachers and the principal are poor it may work to reduce the commitment of that teacher to remain in that school. To account for differences in sample size

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and response rate by school, we also included a measure of total number of responses and the response rate per school in the models.

The measure of novices' level of job-related stress is a composite variable measured in the fall 2007 survey, constructed by taking the mean response to nine items (1 = *strongly disagree* to 4 = *strongly agree*). There was a correlation α of 0.92 among the nine items (see Table B1 in Appendix B). The measure of novices' self-efficacy is also a composite variable, constructed by taking the mean response to five items (1 = *strongly disagree* to 4 = *strongly agree*). There was a correlation α of 0.77 among the five items (see Table B2 in Appendix B). To gauge novices' access to resources, they were asked to indicate in the fall 2007 survey their level of agreement (1 = *strongly disagree* to 4 = *strongly agree*) with the following statement: "I am teaching with adequate resources and materials to do my job properly."

In the fall 2007 survey, the novice teachers were also asked to indicate whether or not they were teaching in the same school as the previous year (1 = *taught in the same school*; 0 = *taught at a different school/did not teach*), the school level they taught (1 = *middle school*; 0 = *elementary school*), and whether or not they were in their first year of teaching (1 = *first year*; 0 = *second/third year*). The measures of school attributes (i.e., percentage of students who were white and percentage who were eligible for free/reduced price lunch) and district size were taken from the Common Core of Data 2007-08 dataset collected by the National Center for Education Statistics. Information presented in Table 3 provides further description of the variables.

[insert Table 3 about here]

Findings

The findings section is organized to address: a) correlations amongst the variables examined in the regression analyses, b) the influence novices' perceptions of administrator-

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teacher relations has on their intent to remain teaching within their given schools, c) contextual effects associated with novices' perceptions of administrator-teacher relations, and d) quantifying the robustness of the models with regards to omitted confounding variables. This section is followed by a discussion section which explores the implications of the findings for practice and research.

Correlations Amongst the Variables

In the first stage of analysis we examined the correlations between the variables included in the regression analyses. All of the correlations were in the expected direction, and as expected, the fall measure of intent to remain teaching was highly correlated with the spring measure of intent to remain teaching ($r = 0.69$, $p < 0.001$). The focal independent variable, novices' perceptions of administrator-teacher relations, had a moderate negative correlation with intent to remain teaching the next year ($r = -0.37$, $p < 0.001$), indicating that novices who perceive poor administrator-teacher relations in their school were less likely to report intent to remain teaching within that school. When this measure was deviated from the school-level group mean, there was a weaker but still moderate negative correlation with the dependent variables ($r = -0.26$). The school-level group mean measure of perceived administrator-teacher relations also had a moderate negative correlation with the dependent variable ($r = -0.29$).

Of the control variables, the measure of work-related stress had a negative correlation with the outcome variables ($r = -0.38$), indicating that, as expected, teachers with higher levels of work-related stress were more likely to report intent to leave teaching. Additionally, the measure of novices' reported access to resources was positively correlated with the outcome variable ($r = 0.26$). The correlations between the other control variables and the outcome variables were

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smaller ($r < |0.25|$), and the correlations between these control variables and the measures of administrator-teacher relations were all in the expected direction.

[insert Table 4 about here]

Administrator-Teacher Climate and Intent to Remain Teaching

In the second stage of analysis, we estimated the logistic regression models. Table 4 reports the results from estimating the best fitting model derived from model (1). The results indicate that on average novice teachers who reported perceptions of poor administrator-teacher relations within their school were less likely to indicate a desire to remain teaching within that school the following year, *ceteris paribus*. The probability that a novice teacher reported a desire to remain teaching within her given school the following year decreased by approximately 5 percentage points when she perceived administrator-teacher relations within her school as poor, *ceteris paribus*. The coefficient for the measure of whether or not an individual was teaching in the same school as the previous year was positive, though statistically significant at a lower threshold ($p < 0.10$). The coefficient for the prior measure of intent to remain teaching was positive, and as expected statistically significant ($p < 0.01$).

[insert Table 4 about here]

Table 5 reports the results from estimating the best fitting model derived from model (2). The results indicate that when a novice teacher's colleagues on average perceived poor administrator-teacher relations, she was more likely to report less desire to remain teaching within her given school, *ceteris paribus*. The probability that a teacher reported a desire to remain teaching within her given school the next year decreased by approximately 6 percentage points when her colleagues perceived administrator-teacher relations within her school as poor, *ceteris paribus*. This serves as a broader reflection of the administrator-teacher relations within

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the schools, and contributes to the contextual effect of the organizational climate. As before, the coefficient for the measure of whether or not an individual was teaching in the same school as the previous year was positive, though only statistically significant at a lower threshold ($p < 0.10$), and the coefficient for the prior measure of intent to remain teaching was positive and statistically significant ($p < 0.01$).

[insert Table 5 about here]

Robustness of Inference

Overall, this group of analyses suggest that novices' perceptions of administrator-teacher relations influences their desire to remain teaching within their current schools. These relationships remained statistically significant even after controlling for prior measures of intent to remain teaching. Yet, even though prior measures of intent to remain teaching were included along with control variables, there may still be bias in the estimates due to unobserved confounding variables (Morgan & Harding, 2006; Rosenbaum, 2002; Shadish, Cook, & Campbell, 2002). Therefore, we conducted further analysis to inform the discourse by quantifying concerns regarding the impact of omitted confounding variables. In particular, derived from the work of Author (2000), we utilized Kelcey's (2009) approach to quantify how much impact an unobserved confound must have to invalidate our inference regarding the relationship between novices' perceptions of administrator-teacher relations and their intent to remain teaching in their school (see Appendix A for details).

Based on the results presented in Table 4, the impact of an unmeasured confound would have to be greater than 0.026 to invalidate the inference regarding the influence novices' perceptions of administrator-teacher relations have on their intent to remain teaching in their school the following year. Correspondingly, to invalidate the inference, a confounding variable

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would have to be correlated with novices' perceptions of the measure administrator-teacher relations and the measure of their intent to remain teaching at a magnitude of 0.16 or greater. The impact factor calculated for model (2) was larger in magnitude, 0.162, corresponding to a necessary correlation with the focal predictor and outcome variable at a magnitude of 0.40 to invalidate the inference.

Discussion

The main purpose of this study was to identify the relationship between novices' perceptions of administrator-teacher relations and their expressed desire to remain teaching in their current schools. Building upon previous research, the conceptual framework utilized in this study suggests that as an integral component of the organizational climate, administrator-teacher relations would influence novice teachers' intent to remain teaching within their current school because they reflect aspects of the organization which distinguish one school from another (i.e., the school's personality) (Gilmer, 1966; Hoy & Miskel, 2008; Litwin & Stringer, 1968; Poole, 1985; Taguiri, 1968). Particularly, examining novices' perceptions of the quality of relations between administrators and teachers, this study builds upon previous research which has focused on more tangible aspects of working conditions. Specifically, these findings suggest that the ways in which members of an organization relate to each other is important in influencing specific teacher outcomes (Granovetter, 1978; Macy, 1990).

The findings are of particular interest in that the measure of perceptions of administrator-teacher relations emerged as a stronger and more significant predictor of intent to remain teaching in a particular school than teachers' own self-efficacy, their evaluation of adequate resources to perform their duties, or their reported levels of stress (which were excluded from the best fitting models due to their lack of statistical significance). Further, the influence of novices'

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perceptions of administrator-teacher relations on their intent to remain teaching remained even after controlling for a prior measure of intent to remain teaching. This highlights the importance of relationships between teachers and administrators in shaping the work environment, thus influencing individuals' desire to remain teaching in that environment.

Administrator-Teacher Relations and Novices' Commitment

The findings from this study indicate that administrator-teacher relations is not merely a concern regarding school effectiveness at the organizational level, but also directly impacts individual teachers' attitudes and behavior. This can be reflected in the level of agreement between administrators and teachers regarding school/district policies, evaluations of teachers' work, the willingness of teachers to work beyond contractual requirements, or even in ongoing quiet discussion amongst teachers regarding their treatment and school/district policies. Particularly, conflictual administrator-teacher relations can create a challenging and to some degree threatening workplace (Author, 1992).

Novice teachers may be particularly sensitive to school-wide administrator-teacher relations within their schools. For example, competition between teachers and administrators for the loyalty of novice teachers can create strain on these novices, especially in a school marked by poor administrator-teacher relations. On the one hand, novice teachers often have a sense of loyalty to their principal because they likely had a direct role in hiring them. Also, due to lack of job protections (i.e., tenure), novice teachers may be reluctant to openly oppose their administrators' decisions. Conversely, in a school marked by conflictual administrator-teacher relations, novices who are seen as too friendly with the administration may be socially and professionally isolated by their teacher colleagues. Although most conflict is not so extreme, given the position of and effects of conflict on novice teachers, their sensitivity to the

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organizational climate is not surprising (Author, 1992). Ultimately, novices may be caught in the middle, and as previously stated, Johnson and Birkeland (2003) found that those who left teaching often cited lack of support from both administrators and colleagues as primary reasons they left the school.

Implications for Future Research

While there has been extensive research on the relationships between teachers and administrators, more needs to be understood about how the relationships amongst teachers and between teachers and administrators within a school can influence the working conditions of that school, and the resources and support that are available to teachers, and how these factors then motivate collective action and career decisions. Although asking novices about their perceptions of administrator-teacher relations is valid for measuring their sense of an important aspect of the organizational climate, future work can investigate particular elements of administrator-teacher relations (e.g., the degree of respect and cooperation between teachers and the administration, the extent to which the administration gives teachers autonomy, teachers' participation in decision making, the degree of bureaucratic restrictions, and the presence of frequent and genuine praise) (Hoy & Miskel, 2008).

There is concern that novices' perceptions of administrator-teacher relations were measured at the same time point as the outcome variable, leading to questions about the direction of the relationship between this measure and the outcome variable. While ideally we would have gauged novices' perceptions of administrator-teacher relations at a prior time point, we argue that although administrator-teacher relations is temporal, as compared to organizational culture which is more enduring, novice teachers' perceptions of administrator-teacher relations are likely relatively stable over the course of a given school year unless significant changes to the school

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organization occur (e.g., the arrival of a new principal mid-way through the school year).

Furthermore, we controlled for the prior measure of intent to remain teaching in the models.

Additionally, with this data, we cannot claim that those who indicated lower levels of wanting to remain within their school eventually had higher attrition rates. Data collection over several years would allow for a direct analysis of teacher attrition and how it may be related to administrator-teacher relations. Although previous studies have examined the impact of administrator support and effectiveness on teacher attrition (e.g., Boyd et al., 2011), they have not fully examined novice teachers' perceptions of administrator-teacher relations and their career decisions, especially over multiple time points. In other words, previous research has not fully examined novices' perceptions of the broader social context within their schools or identified how it relates to key teacher outcomes (e.g., career decisions).

It was also not possible to fully control for teacher selection into their school in this study. Additionally, second- and third-year teachers may have already transferred from one school to another based on their preferences for work environment, which we were not able to fully capture. Again, though, by controlling for the prior measure of intent to remain teaching in the school and controlling for whether the teacher was new to the school that year, we were able to investigate the degree to which perceptions of administrator-relations were associated with change in intent to remain teaching in the school over the course of one school year.

Implications for Practitioners and Conclusions

Novice teachers continue to grow and develop throughout their first few years, and their environment and interactions with colleagues and administrators can have a significant influence on that development. According to Denison (1996), organizational climate is “temporal, subjective, and often subject to direct manipulation by people with power and influence” (p.

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644). As school leaders, administrators are charged with creating an organizational climate that promotes individual commitment and organizational effectiveness (e.g., providing adequate resources and professional development, giving meaningful feedback and encouragement, and including teachers in decision making). Avoiding a conflictual organizational climate marked by rigid top-down decision making promotes both organizational and individual effectiveness, and likely reduces worker turnover (Hoy & Miskel, 2008).

Although administrators largely shape the organizational climate (Denison, 1996; Lewin, 1951), teacher leaders can also influence this climate. These leaders often emerge informally as they are seen as competent by their colleagues, have the personality to relate to a diverse group of teachers, and identify with the collective (Author, 2009; Spillane, 2006). Administrators should actively seek cooperation with these informal leaders, and give them more responsibility in promoting organizational effectiveness. This is in line with calls for diversified career and pay structures for teachers who are willing and capable of taking on increased roles within their schools (Bascia, 1997; Johnson & Papay, 2009; Koppich, 2005). This may also help build stronger relationships between teachers and administrators across the school.

It makes intuitive sense that teachers would prefer to teach in a school with positive administrator-teacher relations, and the findings from this study highlight the fact that it is not just direct individual relationships that a novice teacher has with her administrators and her teacher colleagues that affect their attitudes and behaviors, but the school-level *personality* of the organization which also influences key teacher outcomes. Although administrators often reach out to novice teachers to provide support and resources, and formal and informal socialization occurs through interactions with colleagues, administrators and teacher-leaders need to attend to the overall climate within their schools as it relates to the ways in which teachers and

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administrators interact with each other. By promoting a positive organizational climate through improving administrator-teacher relations, administrators can work to improve individual and organizational effectiveness within their schools.

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Tables

Table 1
2007-08 Enrollment and Demographic Information for Participating Districts

Student Enrollment Category	District	Free/Reduced Lunch (approximate)	Non-white (approximate)
23,000-20,000	District A (MI)	60-65%	75-80%
	District B (IN)	60-65%	55-60%
	District C (MI)	10-15%	10-15%
15,000-19,999	District D (MI)	50-55%	10-15%
	District E (IN)	40-45%	55-60%
10,000-14,999	District F (IN)	60-65%	45-50%
	District G (IN)	55-60%	55-60%
	District H (IN)	45-50%	80-85%
	District I (MI)	25-30%	15-20%
7,000-9,999	District J (MI)	40-45%	45-50%
	District K (MI)	35-40%	45-50%

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Table 2

Descriptive information about variables

Variable	Description	<i>M</i>	<i>SD</i>
Intent	Spring 2008 - I would prefer to continue teaching in this school next year (1 = <i>agree</i> ; 0 = <i>disagree</i>)	0.86	0.347
Prior intent	Fall 2007 - I would prefer to continue teaching in this school next year (1 = <i>agree</i> ; 0 = <i>disagree</i>)	0.86	0.347
Relations	Perceived administrator-teacher relations (1 = <i>poor</i> ; 0 = <i>good</i>)	0.09	0.294
Deviated relations	Perceived administrator-teacher relations deviated from school mean	-0.003	0.184
Mean relations	School-level group mean for administrator-teacher relations as poor	0.10	0.216
Efficacy ^a	Reported teacher self-efficacy	3.15	0.407
Resources ^b	Reported adequate resources to perform job	3.06	0.838
Stress ^c	Novice teacher indication of stress	2.10	0.598
Same school	Teaches in the same school as the previous year (1 = <i>same school</i> ; 0 = <i>new to the school</i>)	0.37	0.486
Middle school	Teaches middle school (1 = <i>middle school</i> ; 0 = <i>elementary school</i>)	0.26	0.438
First year	First-year teacher (1 = <i>first year</i> ; 0 = <i>second/third year</i>)	0.26	0.438
Female	Female (1 = <i>female</i> ; 0 = <i>male</i>)	0.82	0.382
Total response	Total number of responders by school	8.00	4.903
Response rate	Response rate by school	0.61	0.174
Percent white	Percent of students in school who are white	0.48	0.270
Percent lunch	Percent students eligible for free/reduced lunch	0.55	0.208
District size	Total district k-12 student population / 1,000	15.20	5.505

^aComposite measure calculated by taking mean response to five items [responses were 1 (strongly disagree), 2 (disagree), 3 (agree), 4 (strongly agree)].

^bSingle item, responses were 1 (strongly disagree), 2 (disagree), 3 (agree), 4 (strongly agree).

^cComposite measure calculated by taking mean response to nine items [responses were 1 (strongly disagree), 2 (disagree), 3 (agree), 4 (strongly agree)].

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Table 3
Correlations Among Focal Variables

	1	2	3	4	5	6	7	8	9
1. Intent	-								
2. Prior intent	0.69***	-							
3. Relations	-0.37***	-0.30***	-						
4. Deviated relations	-0.26**	-0.23**	0.68***	-					
5. Mean relations	-0.29***	-0.21*	0.78***	0.07	-				
6. Efficacy	0.10	0.14	-0.09	-0.001	-0.13	-			
7. Resources	0.26**	0.28***	-0.17*	-0.20*	-0.06	0.25**	-		
8. Stress	-0.38***	-0.50***	0.26**	0.09	0.28***	-0.16	-0.28***	-	
9. Same school	0.18*	0.09	-0.09	-0.05	-0.09	0.15	0.11	-0.07	-

*p < 0.05. **p < 0.01. ***p < 0.001.

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Table 4
Estimated Effects On Novices' Intent To Remain Teaching The Following Year

Predictor	θ	SE θ	Walds's χ^2	df	p	e θ (odds ratio)	Wald Confidence Limits	
							lower	upper
Constant	-1.141	0.674	2.867	1	0.090	NA		
Prior intent	4.170	0.792	27.690	1	<.0001	64.687	13.688	305.690
Relations	-1.969	0.884	4.962	1	0.026	0.140	0.025	0.789
Same school	1.807	0.987	3.353	1	0.067	6.090	0.881	42.115

Test	χ^2	df	p
Overall model evaluation			
Likelihood ratio test	55.805	3	<.0001
Score test	71.621	3	<.0001
Wald test	29.909	3	<.0001
Goodness-of-fit test			
Hosmer & Lemeshow	2.960	2	0.228

Note. $R^2 = 0.3346$. Max rescaled $R^2 = 0.6051$. Kendall's Tau-a = 0.189. Goodman-Kruskal Gamma = 0.887. Somer's $D_{xy} = 0.787$. c-statistic = 0.893. NA = not applicable.

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Table 5
Estimated Contextual Effects On Novices' Intent To Remain Teaching The Following Year

Predictor	θ	SE θ	Walds's χ^2	df	p	e θ (odds ratio)	Wald Confidence Limits	
							lower	upper
Constant	-1.191	0.669	3.171	1	0.075	NA		
Prior intent	4.283	0.790	29.384	1	<.0001	72.427	15.396	340.713
Relations Mean	-2.415	1.163	4.314	1	0.038	0.089	0.009	0.873
Same school	1.876	0.989	3.603	1	0.058	6.529	0.941	45.315

Test	χ^2	df	p
Overall model evaluation			
Likelihood ratio test	55.091	3	<.0001
Score test	70.471	3	<.0001
Wald test	30.818	3	<.0001
Goodness-of-fit test			
Hosmer & Lemeshow	4.696	4	0.3199

Note. Note. $R^2 = 0.3311$. Max rescaled $R^2 = 0.5988$. Kendall's Tau-a = 0.184. Goodman-Kruskal Gamma = 0.833. Somer's $D_{xy} = 0.764$. c-statistic = 0.882. NA = not applicable.

Appendix A

We quantified the robustness of our inferences with respect to concerns about omitted confounding variables using Kelcey’s (2009) adaptation of Author’s (2000) impact threshold for a confounding variable. Author (2000) begins by defining the *impact* of a confounding variable on an estimated regression coefficient as $r_{v,y} \times r_{v,x}$, where $r_{v,y}$ is the correlation between a covariate, v , and the outcome, y ; and $r_{v,x}$ is the correlation between v and x , a predictor of interest (e.g., x is an indicator of fit). Critically, the product $r_{v,y} \times r_{v,x}$ captures both the relationship between the confounding variable and the outcome and between the confounding variable and the predictor of interest.

Moreover, it is through the *impact* that multiple regression adjusts for covariates as in the following expression for a correlation between x and y , partialling for v :

$$r_{x,y|v} = (r_{x,y} - r_{v,y} r_{v,x}) / ((1 - r_{v,y}^2)(1 - r_{v,x}^2))^{1/2}. \quad (3)$$

Equation 9 shows that any reduction in the partial correlation must be attributed to $r_{v,y} \times r_{v,x}$ because the correlations in the denominator will serve only to increase $r_{x,y|v}$ relative to $r_{x,y}$.

To obtain the impact of an omitted confounding variable necessary to invalidate an inference, define $r^\#$ as a quantitative threshold for making inferences from a correlation; i.e., $r^\#$ can be defined by a correlation of a specific magnitude (e.g., an effect size). Here, $r^\#$ is defined by statistical significance. We are aware that statistical significance is not sufficient for causal inference (Wilkinson et al., 1999). But statistical significance is often the first threshold in a two-step procedure for making causal inferences, “where first the likelihood of an effect (small p value) is established before discussing how impressive it is” (Wainer & Robinson, 2003, p. 25). In other words, most social scientists are uncomfortable making causal inferences if their estimated effect (or something more extreme) could have occurred more than a small percentage

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(e.g., 5 percent) of the time by the chance of sampling when in fact the null hypothesis is true.

Given the definition of $r^\#$, Author (2000) shows that the inference would be invalidated if:

$$impact > (r_{x \bullet y} - r^\#)/(1 - |r^\#|). \quad (8)$$

Thus, the quantity $(r_{x \bullet y} - r^\#)/(1 - |r^\#|)$ defines the impact threshold for a confounding variable; if there is a confounding variable with *impact* greater than $(r_{x \bullet y} - r^\#)/(1 - |r^\#|)$, then the relationship between the predictor and outcome, given the confound ($r_{x \bullet y|v}$), would fall below the threshold ($r^\#$) for making a causal inference. Thus, the impact threshold helps us quantify the robustness of our inferences to possible misspecification of our models. The expressions can be easily adapted to focus on one component correlation when researchers have specific prior beliefs about the strength of the other correlation. The expressions can also be modified to account for the presence of other covariates in the model. See Author (2000).

Because we used logistic regression models estimated by maximum likelihood, a modified strategy developed by Kelcey (2009) was used to quantify the robustness of our indicators. Therefore, to estimate the impact an omitted confounding variable would have to have to invalidate our inference, we solved for k (the impact factor) in the following equation:

$$z_{critical} = \frac{(r - k)\sigma}{\sqrt{\frac{1 - 2rk - r - 2rk}{n - q - 1}}}, \quad (4)$$

where the critical value was set to 1.96 (i.e., the 0.05 statistical significance level), r is the weighted correlation between the log odds of intent to remain teaching and novices' perceptions of LM relations (using the Hessian weight), σ is the Pearson dispersion factor, n is the sample size, and q is the number of variables in the model (excluding the intercept). Furthermore, by taking the square root of the impact factor we calculated the magnitude to which a confounding

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variable would need to be correlated with the outcome variable and the predictor variable of interest to invalidate our inference. See Table A1 for further details.

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Table A1

Robustness indices for logistic regression models

	description	Model (1)	Model (2)
z_{critical}	level of significance	1.96	1.96
n	sample size	137	137
q	number of covariates	3	3
σ	Pearson dispersion factor	0.9822	0.5717
r	weighted correlation	-0.157	-0.117
k	impact factor	0.026	0.162
$r(y,cv); r(x,cv)$	impact correlation	0.16	0.40

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Appendix B

Table B1
Survey Items Used to Construct Stress Composite Variable

	<i>M</i>	<i>SD</i>
I feel emotionally drained	2.51	0.78
I feel used up at end of day	2.67	0.79
I feel fatigued when I have to get up in morning to face day	2.21	0.73
I am burned out from work	1.89	0.77
I am frustrated by own work	2.13	0.80
I am working too hard at my job	2.16	0.75
I am fed up with work	1.73	0.75
I am callous toward people since took job	1.76	0.72
I feel the job is hardening me emotionally	1.79	0.74

Note. Based on a 4-point scale (1 = *strongly disagree*, 2 = *disagree*, 3 = *agree*, 4 = *strongly agree*). Correlation α of 0.92

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Table B2

Survey Items Used to Construct Efficacy Composite Variable

	<i>M</i>	<i>SD</i>
I know how to teach students from different racial/ethnic backgrounds	3.36	0.52
I know how to teach students from diverse linguistic backgrounds	2.99	0.66
I know how to teach students from diverse socio-economic backgrounds	3.36	0.54
I know how to teach students with special needs	2.96	0.55
I know how to teach students with diverse abilities	3.08	0.54

Note. Based on a 4-point scale (1 = *strongly disagree*, 2 = *disagree*, 3 = *agree*, 4 = *strongly agree*). Correlation α of 0.77