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JOHN ANDREW LEPINE SR.
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THE EFFECTS OF RELATIONAL CONDITIONS AND ORGANIZATIONAL COMMITMENT ON TEACHER TURNOVER INTENTION

A DISSERTATION APPROVED FOR THE DEPARTMENT OF EDUCATIONAL LEADERSHIP AND POLICY STUDIES

BY

_____
Dr. Patrick Forsyth, Co-Chair

_____
Dr. Timothy Ford, Co-Chair

_____
Dr. Curt Adams

_____
Dr. Beverly Edwards

_____
Dr. Meg Myers Morgan

To the students who, at the end of my first year of teaching, asked me if I was coming back next year.

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Abstract

This study examines organizational commitment's potential role as a psychological mediator between the relational conditions in schools and individual teachers' intentions to leave their positions. Although there is a wealth of evidence testifying to the importance of working conditions in teachers' turnover decisions, there has been little discussion of the explicitly relational nature of the most salient working conditions identified in the literature—conditions like collegiality, collaboration, mentoring, student discipline issues, and perceived administrative support. Furthermore, there is often a lack of theoretical explanation for why certain conditions result in turnover; the psychological mechanisms at play within teachers are not well understood. Self-determination theory provides a lens through which working conditions can be analyzed—as either supportive of or frustrating teachers' innate psychological need for relatedness. Support is found for the idea that positive relational conditions within schools reduce turnover intention, mediated through their effects on teachers' feelings of organizational commitment.

Chapter 1: Introduction

In 2013, a low-performing junior/senior high school re-organized as a two-site campus: a main 8th-12th grade building, and a 7th grade center down the street. The first group of 8th graders after the re-organization had six teachers for their regular education core subjects: two English, two math, one science, and one history. Of these six teachers, four were new to the building and had never worked together before. After the 2013-14 school year, four of the six left the school.

As 9th graders, that same cohort of students had two English teachers, two math teachers, one science teacher, and one history teacher. Of the six, four were new to the building and had never worked together before. By the end of the 2014-15 school year, two of them had left the school.

When those students entered 10th grade, three of their six core subject teachers were new to the building and had never worked together before. By the end of the 2015-16 school year, all six had left the school.

In their 11th grade year, three of their six core subject teachers were new to the building and had never worked together before. By the end of the 2016-17 school year, two of them had already announced their intentions to leave.

Teacher Turnover in the United States

Does K-12 education in the United States suffer from a teacher shortage? The Bureau of Labor Statistics (Oslund, 2016) found that public

education in 2014 posted "few openings relative to its average 10 million employees" (p. 8), indicating lower demand for teachers than might be expected, likely as a consequence of budget cuts at the state and local level in the wake of the 2008 recession. Cowan, Goldhaber, Hayes, and Theobald (2016) note that the number of total education graduates in the U.S. has kept pace with increases in public school enrollment since the 1980s. And though it is often repeated that "as many as 50% of new teachers leave within the first 5 years of entry into the occupation" (Smith & Ingersoll, 2004, p.682), more recent data revise that figure considerably, with National Center for Education Statistics (NCES) estimates suggesting that 83% of beginning teachers in 2007-08 were still teaching in 2011-2012 (Gray & Taie, 2015). Lower turnover among these early-career teachers may be due to the recession's effects on job prospects for would-be career switchers.

This rosy depiction of the teacher labor market is not without dispute. Sutcher, Darling-Hammond, and Carver-Thomas (2016) contend that early-career teachers turn over at higher rates than the latest NCES report suggests because those data were not adjusted for nonresponse bias (p. 10). They find that the U.S. is undergoing a nationwide shortage not because of a decline in teacher production, but as a consequence of its 8% attrition rate—double that of Singapore, Finland, or Ontario, Canada. If current trends continue, by 2025 annual teacher demand will exceed 2015 levels by 20%, even while teacher supply is shrinking: the number of teacher

preparation enrollments has plummeted 35% in the past five years. Goldring, Taie, and Riddles (2014) add that in the 2011-12 school year, in addition to the 8% of teachers who left the profession, another 8% moved to new schools, further intensifying the picture of instability, especially given that turnover is disproportionately clustered in locations with lower wages, poorer working conditions, and higher concentrations of special education and English Language Learner (ELL) students (Sutcher et al., 2016).

Teacher Turnover in Oklahoma

Oklahoma is one state where teacher turnover and shortage is a statewide epidemic, rather than the acute concern of a few afflicted schools or districts. At 11%, the teacher attrition rate in Oklahoma handily exceeds the national average, driving shortages even in relatively high-performing suburban districts like Norman Public Schools (Nix, 2015). Oklahoma began the 2015-16 school year with over 1,000 teacher vacancies statewide; in response, the State Department of Education issued nearly 1,000 emergency certificates, 25 times as many as had been issued just four years prior (Eger, 2015).

A variety of factors have been blamed for this "teacher crisis" in Oklahoma. Oklahoma ranks 49th of the 50 states and D.C. in teacher salary, lower than each state it borders and 16% below the average teacher salary in its political and cultural cousin, Texas (NEA Research, 2015). Adjusted for inflation, the state budget has cut general per pupil expenditures by

24.2% since the Great Recession, making Oklahoma the runaway leader in cuts to education since 2008 (Leachman, Albares, Masterson, & Wallace, 2016). A 2014 Oklahoma State Department of Education survey found grave concerns among parents, teachers, principals, and superintendents with over-testing of students, teacher pay, and general funding (Eger, 2014).

It may appear, then, that financial issues such as teacher compensation and school funding lie at the heart of Oklahoma's teacher crisis, and perhaps the nationwide shortage as well. Hendricks (2015b) argues that statewide salary increases of 12% in Oklahoma would bring the state's teacher attrition rate in line with that of Texas. He also asserts that a more convex salary schedule, where year-to-year raises are relatively higher early in the career, would help districts attract and retain more effective teachers (Hendricks 2015a). However, there is reason to believe that the financial drivers of turnover are only one element of the state's (and, by extension, the nation's) turnover woes.

Non-Salary Factors Affecting Turnover

One of the Oklahoma's larger districts asks exiting teachers to complete an adaptation of the NCES Former Teacher Questionnaire. Former teachers indicate to what extent various factors (from personal life factors to salary and benefits to student-, classroom-, and school-level factors, etc.) played in to their decisions to leave teaching. In the most recent year for which data are available, the response rate to the exit survey

was 30%. Of those respondents (133 teachers), more than half were in their first three years of teaching, a rate of early-career attrition far in excess of the national average. The single most important driver of teacher turnover for respondents was salary, with over 50% agreeing that it was at least somewhat important to their decision to leave and more than 25% deeming it "extremely important." Relocations and other personal life factors figured almost as heavily into teacher turnover, but many aspects of working conditions proved salient as well. Nearly 40% reported that relational conditions contributed to their decision to leave, citing either problems with school administration, student discipline issues, or both. Almost as many respondents indicated problems with student assessment and school accountability, intrusions on teaching time, lack of influence over school policies, and physical working conditions (facilities, supplies, and safety).

The importance of working conditions to these exiting teachers is mirrored in national trends. Salary is important, especially for attracting teachers to the profession in the first place, but "once teachers are in the classroom, they are more likely to report that they would leave teaching because of poor working conditions than because of low pay" (Johnson, 2006, p. 3). Of particular note are the relational conditions of teachers' work experiences. The relational conditions in a school encompass the quality of interpersonal connections among administrators, teachers, and students, and they constitute the largest non-salary factors driving turnover in the

exit survey described above. National studies sustain the importance of relational conditions, with one meta-analysis concluding that the "working conditions that teachers prize most—and those that best predict their satisfaction and retention—are social in nature" (Simon & Johnson, 2015, p. 1). School leadership, faculty collegiality, and student behavior are cited in numerous studies as antecedents of teacher turnover (Ingersoll, 2001; Simon & Johnson, 2015; Podolsky, Kini, Bishop, & Darling-Hammond, 2016). In short, the problem of teacher attrition in Oklahoma and the United States has a more complex battery of antecedents than salary alone, and demands a more comprehensive response than a bump in pay.

Research Problem

An important caveat to any policy response addressing turnover is that not all turnover can—or should—be prevented. So-called "healthy turnover" occurs when teachers who are a poor match for their assignment, school, or the profession in general find their way (voluntarily or, at times, involuntarily) to a new position or a new career. Similarly, there are personal life factors that precipitate turnover that are likely to be unresponsive to raises or improvements in working conditions. Policymakers and school leaders have few tools with which to address the turnover of a teacher whose family is moving out of state, or who becomes a full-time caretaker to a loved one, or who retires at 65. Put simply, "Some

turnover and departure of teachers from their jobs is normal, inevitable, and beneficial" (Ingersoll & May, 2016, p. 4).

Because of these kinds of turnover, it may be inappropriate to assess a school's organizational health and instructional capacity simply by measuring its turnover rate. A school could have excellent working conditions and adequate salaries and yet still experience high turnover due to personal life factors and "healthy" severances. For this reason, mediating conditions of turnover such as organizational commitment and faculty turnover intention can often give a more in-depth perspective on a school or school system than the turnover rate alone. Measures like commitment and turnover intention are highly predictive of actual turnover behavior (Jaros, 1997; Porter, Crampon, & Smith, 1976), but just as importantly, they also provide a lens into the climate of the school (or school system) in which teachers are working (Macdonald, 1999), and are thus of great informational significance to school leaders and policymakers.

As psychological states that precede unhealthy and preventable turnover, commitment and turnover intention are arguably more important to school leaders and policymakers than the turnover rate itself. The turnover rate is a historical fact, and by itself it offers no window into the decision-making process of the teachers who left. It is a lagging indicator of organizational health, and by the time it goes up, it is too late to do anything about the teachers whose leaving has caused the increase.

Contrariwise, organizational commitment and turnover intention are leading indicators of the behavior in question, and as such can be used to address problems in the school before they lead to attrition. A school may see its turnover rate tick up or down for any number of reasons, from teachers' personal lives to macroeconomic conditions. A school with low turnover should be careful not to pat itself on the back too quickly if its organizational commitment among teachers is low. Likewise, a school that sees its turnover rate spike is not necessarily on the wrong track if it is maintaining high organizational commitment.

The levers available to policymakers to respond to teacher attrition and teacher shortages are broad and systemic: compensation and benefits, school accountability policy, academic standards and student assessment. Schools leaders, on the other hand, have relatively little control over these factors, but can wield enormous influence on the intimate, day-to-day aspects of what it feels like to work in their schools. In between these macro- and micro-factors, there are a variety of working conditions that are shaped by some combination of the policies set at the state and district level and of their implementation (or devolved jurisdiction) on a site level by leaders in the building. Wide-ranging policy responses may be able to reduce the turnover rate in states like Oklahoma, where shortages are epidemic, but are unlikely to solve turnover problems in the schools and districts where attrition problems are most acute. Initiatives to improve retention in

individual school sites may be able to stop the bleeding on a case-by-case basis, but are often limited in their long-term effects in cases where an underlying policy problem persists. At all levels, data that are informationally significant can lead to improved interventions to boost teacher retention.

Equally important, however, is a clearer understanding of the mechanisms by which antecedents such as administrative support or student discipline issues affect teacher turnover. Despite abundant organizational literature demonstrating a link between organizational commitment and turnover (Mowday, Steers, & Porter, 1979; Angle & Perry, 1981; Randall, 1990; Somers, 1995; Jaros, 1997; Meyer, Stanley, Herscovitch, & Topolnytsky, 2002; Riketta, 2005; Morrow, 2011), commitment receives comparatively little study in research on teacher turnover. At the same time, there is substantial research on a wide variety of antecedents to teacher turnover, with many studies finding a particular importance of social factors like administrative support and faculty collegiality (Ingersoll, 2001; Simon & Johnson, 2015; Podolsky et al., 2016). However, there is comparatively little inquiry into psychological states that may serve as intermediaries between these antecedent factors and the resultant teacher behavior. Policy and leadership responses to problematically high turnover will be more nuanced and more effective if informed by clear evidence on the connections between relational conditions

in schools, teacher levels of organizational commitment, and turnover. Thus, the research question posed by this study is: Does organizational commitment mediate the effect of relational conditions in schools on teacher turnover intention?

Chapter 2: Review of Literature

Every industry, sector, and firm must grapple with the phenomena of employee attrition and turnover, which present themselves—both positively and negatively—at many different levels and for a variety of reasons. Some occupations may be typified by low attrition and low turnover; employees tend to have long careers and tend to remain in the same organization. Some occupations may tend to have high rates of both attrition from the industry and turnover among organizations—NFL players qualify as an example, with an average career length of just three seasons, often spent on two or more different teams (Arthur, 2016). Some occupations have low attrition at the industry level (i.e., people generally stay in the same occupation), but high turnover from firm to firm. Such is the case in the technology industry, with workers remaining at their firms for relatively brief tenures in the midst of aggressive recruitment by competitors for talented engineers, designers, and programmers (Rhatigan, 2016). A full understanding of attrition and turnover, then, requires examining it at multiple levels, both the industry and the organization (Ingersoll, 2001).

The U.S. Department of Education distinguishes between "leavers," "movers," and "stayers"—those who leave the teaching profession, those who migrate to a different school, and those who remain at the same school (Goldring et al., 2014). Many studies of teacher turnover draw the same distinction (Shen, 1997; Macdonald, 1999; Ingersoll, 2001; Kukla-Acevedo, 2009; Burke, Aubusson, Schuck, Buchanan, & Prescott, 2015). This is done to distinguish between factors driving attrition from the industry and factors driving turnover from specific schools (DeAngelis & Presley, 2011). Of course, from "the viewpoint of those managing at the school-level, teacher migration and attrition have the same effect" (Ingersoll, 2001, p. 515).

In some cases, attrition from the profession may have mostly positive effects, as workers mismatched with their jobs by personality or skill set leave their positions by self-selection or termination (Fullan, 1991; Ingle, 2009). Likewise, worker mobility within the profession may serve to "sort" workers into organizations where they have a better fit with leadership, their colleagues, or the clientele. Furthermore, some industries and organizations may experience attrition or "wastage" (Macdonald, 1999) primarily as a function of aging and retirement, with mostly neutral effects. Assuming that the workforce does not disproportionately consist of retirement-age workers and that there is an adequate pool of new workers to replace retirees, such turnover is unlikely to pose a grave threat to the industry or organization in question. In brief, "a low level of employee

turnover is normal and efficacious in a well-managed organization," (Ingersoll, 2001, p. 504), while stability can lead to complacency and a lack of innovation in schools needing improvement (Macdonald, 1999, p. 841).

However, since at least the 1980s, many studies of teacher attrition have approached the phenomenon as troublingly high and a detriment to school effectiveness (Borman & Dowling, 2008; Macdonald, 1999; Grissmer & Kirby, 1987). Lortie (1975) goes so far as to argue that because of the profession's reliance on young single women, "teaching was *institutionalized* as high turnover work during the nineteenth century and the modern occupation bears the marks of earlier circumstance" (p. 15, emphasis original). He compares the design of teaching to an "egg-crate," with relatively low task interdependence between teachers, because the short average length of service for each teacher made closely knit divisions of labor impractical. Despite these structural efforts to mitigate the effects of turnover, employee substitutability in teaching is nonetheless low, because schools are "characterized by an uncertain and nonroutine technology and by dependence on commitment and cohesion among members" (Ingersoll, 2001, p. 505). For example, to the extent that school effectiveness depends on high levels of collective trust (Forsyth et al., 2011) or communal organization (Hausman & Goldring, 2009), high teacher turnover presents a vexing problem to school leaders and policymakers alike. In essence, K-12 education suffers from an unfortunate confluence of twin phenomena: a

particularly high need for teacher stability, and a historically problematic rate of teacher turnover.

The Demographics of Turnover

Student Demographics

In general, the consequences of turnover are deleterious for students, but are mostly experienced in certain schools. Ingersoll (2001) notes that even in times of rapid enrollment growth, the majority of U.S. schools do not suffer from recruitment problems (p. 514). Largely, the ones that do are high poverty schools, where turnover rates have risen steadily since the 1980s (Simon & Johnson, 2015). As a result, students "attending high-poverty schools are taught by more novice, uncertified, and less experienced teachers" (McKinney, Berry, Dickerson, & Campbell-Whately, 2007, p. 2). Although teacher quality may be difficult to measure, teacher productivity increases over the course of the career, and experienced teachers are, on average, more productive than novices (Clotfelter et al., 2006; Ladd & Sorensen, 2015). Thus, the relative inexperience of teachers in high-poverty schools is cause for concern.

Ronfeldt, Loeb, and Wyckoff (2013) outline two primary mechanisms by which turnover harms students. The "compositional" explanation of turnover's effects on student achievement focuses on the decrease in quality from the turnover teacher to the replacement teacher. Low-income and low-performing schools with high turnover face difficulty in attracting new

teachers and often end up with less prepared and less experienced teachers (Darling-Hammond & Sykes, 2003), with obvious outcomes for the students placed in those teachers' classrooms. However, even students whose teachers are not new to the school and are relatively more experienced may suffer from attending a high-turnover school due to the "disruption" mechanism: "To the degree that turnover disrupts the formation and maintenance of staff cohesion and community, it may also affect student achievement" (Ronfeldt et al. 2013, p. 7). Guin (2004) concurs, adding that high turnover vitiates the planning and execution of curriculum. Certain students, then, are subject to a double penalty with respect to turnover: low-income and low-performing schools are more likely to be high turnover, and the effects of turnover on student achievement have been shown to be even greater in schools with more low-performing and black students (Ronfeldt et al., 2013). In short, the schools that would most benefit from a stable teaching corps are usually the least likely to enjoy one. Furthermore, those schools or districts that are routinely high-turnover are forced to continuously divert scarce resources—both time and money—to the recruitment and initiation of new teachers (Johnson, 2006).

The tendency for teachers at low-income, low-performing, and high-minority schools to transfer to higher-income and higher-achieving schools has led some to suppose that teachers prefer students who, as a group, are whiter and wealthier. Guin (2004) suggests that, "when given the

opportunity, teachers will leave low achieving schools to teach in schools with higher achieving students or a higher socio-economic status" (p. 4). Hanushek et al. (2004) note that urban teachers making intra-district transfers "*appear to seek out* schools with fewer academically and economically disadvantaged students" (p. 340, emphasis added), and that student race and achievement were more predictive of teacher moves than salary differentials. At the same time, their study does not pretend to disentangle the effects of student race and achievement from school working conditions, acknowledging that such demographics may be "at least partially a proxy for more general working conditions" (p. 351). Scafidi et al. (2007) find the same pattern, observing that white teachers are more likely to leave "black schools" than black teachers are to leave "white schools." That said, they likewise admit that "it is very possible that teachers find teaching in black schools to be less enjoyable for reasons unrelated to simple racial bias" (p. 159), such as white teachers preferring to teach near their homes and tending to live closer to white schools than black schools.

Many researchers dispute the theory that teacher mobility exhibits racial bias or a general preference for whiter and wealthier students, seeing "in this pattern of movement a far more complex set of incentives and disincentives created by working conditions" (Johnson, 2006, p. 16). Johnson et al. (2012) propose that "teachers who leave high-poverty, high-minority schools reject the dysfunctional contexts in which they work, rather than

the students they teach" (p. 4), an explanation corroborated by various studies finding the predictive power of student race and achievement on teacher mobility to be greatly diminished or eliminated by controlling for the effects of working conditions (Loeb, Darling-Hammond, & Luczak, 2005; Boyd et al., 2011; Ladd, 2011). Thus, although student demographics appear to be predictive of teacher turnover, there is good reason to suggest that the relationship is not causal, but rather that organizational factors correlated with student demographics are driving the turnover rate in high-poverty, high-minority schools. Doubtless there are biases, both implicit and explicit, that affect some teachers' decisions about where to work, but the problem of teacher turnover cannot be neatly summed up in a simplistic narrative of prejudiced teachers seeking out the wealthiest and whitest schools.

Teacher Demographics

Who remains in teaching? Teaching is well known for its "U-shaped" turnover curve, with high levels of attrition among early-career teachers and retirement-age teachers, and much lower attrition among the group of teachers between these two extremes (Smith & Ingersoll, 2004). Retirement accounts for one-third of teacher attrition (Sutcher et al., 2016). The nature and conditions of the work itself drives much of the pre-retirement attrition: "Forty-two percent of all departures report as reasons job dissatisfaction or the desire to pursue a better job, another career, or to improve career opportunities in or out of education" (Ingersoll, 2001, p. 522).

Some studies suggest a negative relationship between teacher quality and attrition, indicative of "healthy turnover" (Ingle, 2009; Goldhaber et al., 2010), but Guarino, Santibañez, and Daley (2006) find weaker retention rates for high-ability teachers, as well as for white teachers and female teachers:

> Individuals new to the labor market may be exploring options and less likely to accept working conditions than more seasoned professionals. Individuals with higher ability have more options throughout their careers, and women raising children might choose or be constrained to exit the labor market. (p. 188)

Borman and Dowling's (2008) meta-analysis of 34 turnover studies largely concurs with these demographic findings, suggesting that men are about three fourths as likely to leave the profession as women, and white teachers are 1.36 times as likely to leave as minority teachers. Being married and having a new child also significantly increased the odds of attrition (p. 385). Older teachers were less likely to leave than younger teachers up to about age 50, at which point the reverse became true. Furthermore, teachers holding graduate degrees or math and science undergraduate degrees had greater odds of attrition, and teachers with traditional certification were less likely to leave.

The claim that white teachers turn over at higher rates than minority teachers is contested by Ingersoll and May (2016), who find that since the mid-1990s minority teachers have turned over at higher rates than non-minority teachers. This is despite higher entry rates to the profession by minority teachers than white teachers for more than two decades. In recent

years, minority teachers have exhibited higher rates of both migration from school to school and exit from the profession (Ingersoll & May, 2016, p. 4). Such trends may result from minority teachers' propensity to be employed by schools serving disadvantaged students, where working conditions are generally less desirable. Thus, successful efforts to increase minority teacher hiring have been undermined by the poor working conditions of the schools where minority teachers tend to work. Ingersoll and May (2016) argue, "In plain terms, it makes no sense to put substantial effort into recruiting candidates to teach in schools serving disadvantaged students if those schools are not also desirable workplaces" (p. 6).

The contradiction between Ingersoll and May (2016) and other studies about whether white teachers or teachers of color turn over at higher rates may be resolved by considering the age of the data. The 34 studies in Borman and Dowling's (2008) meta-analysis had an average year of publication of 1996, with 22 of the studies being published in the 1980s or 1990s. The data analyzed in these studies would, naturally, be even older than the studies themselves. Guarino et al. (2006) concur with Ingersoll and May (2016) about the rising number of minority entrants to the profession, but base their contention that white teachers turn over at higher rates on data from the late 1980s and early 1990s. Ingersoll and May (2016), on the other hand, use longitudinal data that suggest roughly comparable teacher turnover between whites and others races until 1994-5, with the largest and

most consistent gaps occurring in the 2000s and 2010s. It appears, then, that the proportion of minority teacher entrants has been increasing, but not enough to keep up with growing minority student enrollments (Guarino et al., 2006; Ingersoll & May, 2016), while the turn of the century has brought about an unambiguous increase in the rate of minority teacher turnover relative to their white counterparts.

Organizational Factors

The individual traits of teachers—everything from race and sex to talent and mindset—do not exist in a vacuum. While some traits are fixed and static, many others are "malleable and dynamic within a rich professional context that encourages learning and growth" (Johnson, 2006, p. 2). Although generally teaching follows the "egg-crate" model (Lortie, 1975), where the teacher's workday is spent primarily in isolation from other adults, the policies, structures, and climate of the school are inextricable from the experiences that occur in the classroom, with inevitable consequences on teacher affect and effectiveness. As Ingersoll (2001) puts it, "schools are not simply victims of large-scale, inexorable demographic trends, and there is a significant role for the management of schools in both the genesis and solution of school staffing problems" (p. 525). Accordingly, a raft of studies testifies to the role of organizational and working conditions in teachers' decision to migrate from the school or leave the profession (Macdonald, 1999; Darling-Hammond, 2003; Loeb et al.,

2005; Borman & Dowling, 2008; Kukla-Acevedo, 2009; Ladd, 2011; Simon & Johnson, 2015; Podosky et al., 2016). The scope of these various conditions ranges from administrative behaviors with school-wide effects, to teacher-level norms and experiences, to class- and student-centered circumstances. Given the atheoretical nature of much of the evidence on these conditions, findings will be presented by organizational level, from administration to teacher to class/student.

Administration-Level Factors

Perceptions of administrative support, especially for new teachers, mitigate teacher turnover behaviors (Ingersoll, 2001; Guarino et al. 2006; Borman & Dowling, 2008, Kukla-Acevedo, 2009; Ladd, 2011). Administrative support, of course, is a broad concept that can be operationalized in a variety of ways. Borman and Dowling (2008) and Ingersoll (2001) rely on an index from the 1991-92 Teacher Follow-up Survey (TFS) to the National Center for Education Statistic's regular School and Staffing Survey (SASS) asking all teachers to rate their agreement (1 = *strongly disagree*, 4 = *strongly agree*) with the statement "this school is effective in assisting new teachers" when it comes to student discipline, instructional methods, curriculum, and adjusting to the school environment. Ingersoll (2001) reports that a 1-unit difference in perceived support on the 4-point scale is associated with a 23% difference in turnover rate. In contrast, Kukla-Acevedo (2009), using 2000-01 TFS data, operationalizes

"administrative support" with five Likert-type items assessing "the degree to which the principal communicated expectations, provided public recognition, and enforced school rules for student conduct" (p. 445), finding that the for every standard deviation increase in perceived administrative support, the odds of a teacher leaving his or her position were decreased by 16.9%.

Ladd (2011) uses North Carolina data with an even broader measure of "leadership," part of which includes "general support" for teachers, especially in their efforts to maintain discipline (p. 241), concluding that "a one standard deviation difference in the school leadership measure is associated with about a 5 percentage point difference in the other direction in the probability that a teacher intends to leave the [elementary or middle] school" (p. 245). In addition to perceived support, Ladd's measure of leadership includes an additional administration-level factor that other studies have found to predict turnover: the extent to which principals trust teachers and involve them in decision making and problem solving.

A national study in the late 1980s and early 1990s found that first-year teachers with positive perceptions of school leadership, school culture, and teacher autonomy and discretion were more likely to be committed to their career path, to intend to stay in teaching, and to feel that exerting their best effort was worthwhile (Weiss, 1999). Ingersoll (2001) reports a statistically significant, if moderate, association between the turnover rate

and faculty influence over curriculum, pedagogy, discipline, and similar school policies. Shen (1997) concurs, noting that "stayers," in comparison to "leavers" and "movers," tend to perceive that they have more influence over school policies and teaching decision (p. 87). Likewise, Burke et al. (2015) note that leavers report a significant preference for having a professional voice (e.g., at staff meetings).

In short, the administrations that retain their teachers seem to provide a "Goldilocks" level of structure: neither too much, nor too little. Teachers are less likely to leave when they feel supported and assisted by the administration, especially with regard to expectations and student discipline. At the same time, teachers do not want to sacrifice professional autonomy or the opportunity to give input for that structured and supportive environment. This balancing act of providing structure without imposing too much constraint requires a principal to be familiar with his or her teachers' individual needs.

Teacher-Level Factors

A number of factors affecting teacher turnover may result from school-wide policies and norms, but are primarily lived out in the day-to-day personal experiences of teachers. The degree to which teachers enjoy autonomy over their work is one example, although the evidence on its relationship with turnover is mixed. Ingersoll (2001) finds low teacher autonomy to be predictive of turnover, theorizing that this may help explain

the comparatively lower rates of turnover in large public schools. Even though large public schools are sometimes typified by an impersonal "shopping mall" organizational climate (Bryk, Lee, & Smith, 1990), on average large schools and public schools enjoy lower turnover rates than small schools and private schools (Kelly, 2004; Borman & Dowling, 2008). This may owe to the autonomy afforded to teachers in large schools, where they are likely to experience "more academic freedom" and career "options, other than conformity to existing policies or exit from the job" (Ingersoll, 2001, p. 527). However, more recent data from the 2000-01 TFS failed to find a statistically significant effect of classroom autonomy on teacher turnover, possibly because the rise of nationwide accountability policies emphasizing high-stakes testing represents a greater constraint to teacher autonomy than many local or site-specific policies (Kukla-Acevedo, 2009, p. 450-451). In an era of federal accountability mandates, teachers may recognize that leaving their school is unlikely to increase their experience of classroom autonomy.

Other teacher-level conditions demonstrate a clear relationship with turnover. Borman and Dowling (2008) find that attrition rates were lower in schools with more opportunities for collaboration in school-based teacher networks. In North Carolina elementary and high schools, insufficient time for planning and collaboration predicted higher departure rates for teachers (Ladd, 2011). A study in Chicago found that schools had stronger retention

when there was a strong sense of trust among teachers and positive efforts to include new teachers in the school's professional community (Allensworth, Ponisciak, & Mazzeo, 2009). In New York City, both attrition and transfer were lower among teachers who reported positive staff relations: "cooperative effort" among teachers, "shared beliefs and values" about the mission of the school, coordination of content across classes, good advice from peers, and the encouragement of innovation (Boyd et al., 2011).

Simon and Johnson (2015) note that since the 1990s teachers have rated "cooperative/competent colleagues/mentors" as the number one factor that helps them teach. Likewise, Burke et al. (2015) found that both "leavers" and "stayers" in the New Zealand public school system expressed desires for collaboration and resource sharing, but nearly half of early career teachers "reported isolation with respect to working with more experienced teachers" (Burke et al., 2015), and almost a third of early career teachers "report a lack of sharing in their current teaching environments," with "45% [of 'leavers'] reporting no genuine sharing of teacher resources" (Burke et al., 2015, p. 249).

In short, having a culture of collaboration matters for teacher retention. In contrast with veteran-oriented cultures—where levels of privacy and independence are high—and novice-oriented cultures—where the faculty is characterized by "youth, idealism, and inexperience" (p. 605)—Johnson and Birkeland (2003) find much greater faculty stability in

"integrated professional cultures" where teachers of all experience levels are engaged in collegial and collaborative work. Only 55% of a sample of novice teachers in Massachusetts reported staying in schools with veteran-oriented cultures past their first year of teaching, compared to 83% of those in schools with integrated professional cultures. Unfortunately, a national study of the prevalence of integrated professional cultures found that new teachers by and large are "working as solo practitioners, expected to be prematurely expert and able to work without the support of a school-based professional network" (Kardos & Johnson, 2007, p. 2100).

The salience of collaboration for early career teachers is further borne out by the effects of mentoring and induction programs on novice teacher turnover. Mentoring and induction programs are typically grouped together in the literature because the vast majority of induction programs include (or consist entirely of) some form of mentoring for new teachers (Shockley, Washington, & Felsher, 2013). In a meta-analysis by Borman and Dowling (2008), higher rates of beginning teacher participation in a school mentoring program was associated with reduced likelihood of attrition. Similarly, in states such as California and Connecticut and districts such as Rochester, Cincinnati, Columbus, and Toledo, studies show that "well-designed mentoring programs raise retention rates for new teachers by improving their attitudes, feelings of efficacy, and instructional skills" (Darling-Hammond, 2003, p. 6). Of course, mentoring and induction programs vary

widely in scope, duration, and intensity (Shockley et al., 2013). "Induction" could include anything from an explanation of health insurance and pension plans to a comprehensive orientation to curriculum resources and student discipline approaches. Mentors may or may not teach a comparable subject or grade level as their mentees; they may or may not have any training as mentors; they may or may not receive compensation or release time for their services; they may or may not get along with their mentees on an interpersonal level.

Using data from the 2000-01 TFS, Smith and Ingersoll (2004) explored the effects of seven different induction components. From 1990 to 2000, the proportion of beginning teachers participating in some sort of induction program ballooned from less than half to nearly 80%. "Basic induction" included mentoring (from the same field or another field) and supportive communication with an instructional leader (such as a principal or department chair). "Collaboration" included the above, along with regularly scheduled collaboration with same-subject teachers (such as during a common plan time) and a seminar for beginning teachers. The most comprehensive induction program (enjoyed by fewer than 1% of beginning teachers in the study) included participating in an external network of teachers, a reduced number of preparations, and being assigned a teacher's aide. They found that having a mentor in the same field "reduced the risk of leaving at the end of the first year by about 30%" (p. 702), while

regularly scheduled collaboration "reduced the risk of leaving, as opposed to staying, by about 43%" (p. 703). Altogether, about 40% of teachers who received no induction or just "basic induction" left the profession or moved schools at the end of their first year, compared to 27% of teachers who received "basic induction" plus "collaboration," and 18% of teacher who received all seven induction programs.

Even if induction programs are a remedy to turnover, they generally require a greater commitment, both financially and in terms of personnel, than less programmatic solutions such as "increasing teacher autonomy" or "supportive communication from administrators." As such, it is appropriate to ask whether they are a cost-effective response to high turnover. There is considerable evidence that turnover can be a major expense for districts (Darling-Hammond, 2003; McKinney et al., 2007; Ingle, 2009). Estimates of the national price tag for replacing "movers" and "leavers" range from $4.9 billion (Watlington, Shockley, Guglielmino, & Felsher, 2010) to as high as $8.5 billion a year, with individual costs of up to $20,000 per leaver in some large urban districts (Podolsky et al., 2016). Since problematic rates of turnover are concentrated in certain schools and districts (Ingersoll, 2001), the financial burden of replacing teachers who leave can be a top-priority policy concern in some locales. Adding a resource-intensive induction program to the district's hiring process could serve only to increase the cost

of turnover in a district where most new teachers cannot be expected to remain more than a few years.

A well-designed induction program, however, can pay for itself. A case study of induction programs and turnover costs in two Florida school districts contrasted St. Lucie County School District—with a free and reduced price lunch rate of 52.5% and a relatively higher cost of turnover—and Broward County—where the free and reduced lunch rate was 44%, and the cost of turnover was relatively low (Watlington et al., 2010). St. Lucie's annual turnover rate for 2004-05 was less than half that of Broward County, 7.25% to 16.4%. Despite the increased poverty rate in St. Lucie suggesting an increased risk of turnover, the "significant investment and commitment by the school district to support and retain teachers" (p. 31) through the New Educator Support System explains the considerably higher retention rate. In short, "the cost of not investing in teacher induction programs may meet or exceed the cost of teacher turnover in those districts" (Shockley et al., 2013, p. 6).

However, there appears to be great variability in the effectiveness of induction programs, with little scholarly research identifying the most salient components. Although induction programs have become increasingly common in recent years, with the majority of them relying primarily on some form of mentoring, there is a "lack of empirical support for the efficacy of popular and expanding self-reported programs" (Shockley et al., 2013, p.

11). What studies do exist measure such a wide range of components that is not possible to draw meta-analytic conclusions about the essential aspects of effective induction:

> The creation of social support network groups, coursework, mentoring, leadership assignments that include policy-making efforts, team teaching and leadership opportunities, feedback mechanisms, conferences, seminars, site visits, observation and shadowing, research, and other activities have all been reported in the literature. Too many confounding factors and a lack of rigorous methodology make predicting the success of any set of induction activities precarious. (p. 12)

In short, while mentoring and induction have been found to reduce turnover, the exact mechanism for this effect remains unclear. Without uniform definitions of what construes "mentoring" or "induction," too many programs of differing quality end up grouped together for research purposes. This lack of clarity explains phenomena like four out of five of Florida teachers going through an induction program rated "effective" or "very effective" by its participants, yet 81.7% of former Florida teachers reporting inadequate preparation for teaching through mentoring and induction programs (p. 5).

The evidence is mixed on other teacher-level factors such as the quality of professional development, facilities, and resources available to teachers. Loeb et al. (2005) report that the strongest predictor of turnover is

> a factor representing teacher ratings of their school conditions including on one hand tangible supports for teaching in the form of teachers' working conditions, physical facilities, and availability of textbooks and technology and on the other hand the kinds of conditions that impact on the substantive aspects of teaching including the quality of professional development, the involvement of

> parents, and the quality and appropriateness of tests teachers are required to administer. (p. 65)

Of course, aggregating such a diverse set of working conditions into a single "kitchen sink" factor is likely to yield statistical significance while losing precision and explanatory power. Accordingly, Ladd (2011) finds that school leadership and factors relating to planning time are statistically significant predictors of turnover, but not other working conditions such as facilities, resources, and professional development. Likewise, Borman and Dowling (2008) report that "expenditures for teacher support and expenditures for teaching materials exhibited no statistically reliable relation to attrition outcomes" (p. 390), while resources such as teacher aides and classroom assistants were actually associated with much higher odds of attrition.

Student-Level Factors

It should come as no surprise that several factors relating to teachers' daily experiences with students are related to turnover decision. Teachers by far spend more time in their work interacting with students than with colleagues, administrators, or parents. Lortie (1975) theorizes that the "psychic rewards" that attract and retain many teachers stem almost exclusively from teachers' dealings with students: "teaching is satisfying and encouraging when positive things happen in the classroom" (p. 104). Because teachers and students must co-produce the outcomes of the educational process, any barrier to the productive interaction of student and teachers will frustrate teachers' work goals. Two student-level factors are

well-established in the literature as drivers of teacher turnover: student discipline issues and class sizes.

Kelly (2004) operationalizes a behavioral climate scale with four Likert items: "student behavior interferes with teaching," "student disrespect for teachers is a problem at this school," "student apathy is a problem at this school," and "student poverty is a problem at this school" (p. 204). He finds that the behavioral climate is more predictive of teacher attrition than student race, poverty, or social disadvantage. Likewise, of the various conditions that might increase turnover, Ingersoll (2001) finds student discipline problems to be among the top four most important: "A 1-unit difference in reported student discipline problems between two schools (on a 4-unit scale) is associated with a 47% difference in the odds of a teacher departing" (p. 519). Eight different discipline problems were measured, including "disruptive behavior, absenteeism, physical conflicts among students, robbery, vandalism, weapon possession, physical abuse of teachers, [and] verbal abuse of teachers" (p. 510). Kukla-Acevedo (2009) includes a few more items in her overall measure of "behavioral climate," ranging from lesser offenses such as tardiness to major infractions such as possession of weapons. Although administrative support was most closely related to overall teacher turnover in her study, teacher perceptions of behavioral climate were far more predictive of turnover among first-year teachers (p. 449). The salience of student behavior is not limited to teacher

perceptions, either. According to Allensworth et al. (2009), students' perceptions of their peers' behavior strongly predict teacher turnover.

Class size has been well established as a source of dissatisfaction for teachers, especially new teachers, and as a causal factor in student achievement, especially poor and minority students (Johnson, 2006). Rees (1991) finds a statistically significant relationship between average class size and the probability that a teacher will quit. Mont and Rees (1996) find that both above-average and below-average class sizes increase turnover—the former through increased incidence of teacher quits, and the latter through greater likelihood of teacher layoffs. The effect is much greater for above-average class sizes (p. 162). Eller et al. (2000), using data from Texas, concur, finding that a five-student increase in average class size is associated with a 2.3% increase in turnover (p. 7). Loeb et al. (2005) find no statistically significant effect on teacher turnover when class sizes are kept small (teachers reporting that their largest class had no more than 25 students), but teachers who reported their largest class exceeded 33 students were more likely to describe their school as having a serious turnover problem and difficulty filling vacancies.

Significance of Relational Conditions

Both disciplinary problems and large classes present a relational challenge to teachers. Student misbehavior impedes the formation of trust between teacher and student. Large classes reduce the amount of energy

and time available for a teacher to invest in relationships with students, both by increasing the number of students among whom the teacher's attention must be divided and by expanding the teacher workload (more assignments to grade, more parents to communicate with, more essays to correct, etc.). Although the remedies to student disciplinary problems and oversized classes are not the same, they drive teacher attrition through a common mechanism: the student-teacher relationship.

The importance of student-teacher relationships for teacher retention is mirrored at other levels of the school. As this review has demonstrated, the factors at all levels that are associated with turnover all possess a relational quality. At the teacher level, mentoring, collegiality, and collaboration capture aspects of teachers' relationships with each other, and are three of the most reliable predictors of teacher retention (Darling-Hammond, 2003; Smith & Ingersoll, 2004), as opposed to the mixed evidence on non-relational working conditions like professional development and resources (Borman & Dowling, 2008; Ladd, 2011). Similar effects are found in the principal-teacher relationship, which—when operationalized as "administrative support"—includes relational questions such as whether teachers feel assisted by their principals, whether they feel recognized by their principals, and the quality of their communications with principals (Ingersoll, 2001; Kukla-Acevedo, 2009).

Indeed, the relational conditions of the school may be more relevant to the turnover rate even than structural or demographic factors. One case study of high- and low-turnover elementary schools called for policymakers to "begin paying attention to teacher turnover rates at the school level," noting that turnover was not merely a function of the school's poverty rate, or academic performance: "Turnover is probably a symptom of a deeper problem—a school's negative reputation among teachers, a contentious relationship between school staff and the community, or some other factor that leads teachers to avoid the school" (Guin, 2004, p. 20). Indeed, as DeAngelis and Presley (2011) point out, while low-income and high-minority schools are more prone to high rates of turnover, the differences among various school types (and individual teacher characteristics) tend to be moderate: "variation in school-level attrition is substantially greater *within* school type than across school type" (p. 611, emphasis original). This phenomenon is corroborated by Elfers, Plecki, and Knapp (2006), but remains largely unexplored in the literature. However, if factors like school leadership truly have a substantial effect on teacher turnover (especially among novices), considerable variation in attrition *within* school category should be expected. Not all low-income schools have ineffective principals or professionally isolating cultures. Not all high-minority schools have large class sizes or exceptional student discipline problems. Further exploration of

turnover as a function of the organization, and in particular its relational conditions, is warranted.

Organizational Commitment

Commitment and Teacher Turnover

While there is considerable empirical research concerning antecedents of teacher turnover, much of it remains atheoretical. Various studies might demonstrate a relationship between administrative support or student behavior and turnover, yet an explanation for the mechanism through which these factors affect teachers' decisions to stay or leave is often lacking. Shockley et al. (2013) make this point specifically concerning research surrounding teacher induction's effects on turnover. After conducting a meta-analysis of research on induction programs, they conclude, "Since the components of induction programs vary so widely, honing in on the effective elements is not possible…. As a result, the researchers cannot conclude from the analysis that there are any specific conditions that enhance the effectiveness of teacher inductions" (p. 12-14). In other words, despite the existence of evidence that induction programs reduce turnover, it is not clear why they do. What advantages do they offer to novice teachers? Do they enhance their skillsets, increase their feelings of competence, prevent workplace isolation, or provide some other form of support? There is, unfortunately, little in the scholarly record to answer these questions.

However, the literature on turnover has elucidated two relevant findings: turnover is above all a function of organizational conditions (Ingersoll, 2001; Elfers et al., 2006; DeAngelis & Presley, 2011), and the organizational factors that promote retention are by and large relational in nature—administrative support, collaboration, collegiality, mentoring, student behavior, and class size. In light of this, explanations of turnover should be grounded in explanations of how the relational conditions of an organization are mediated through teachers' psychological states. These psychological states then become the basis for teachers' intentions, which ultimately lead to the behavior in question: turnover.

There are many possible psychological mediators of organizational conditions and turnover decisions. For instance, organizational conditions could affect a teacher's job satisfaction, which then informs a decision to stay or leave. Similarly, teachers' feelings of efficacy could mediate the effects of organizational conditions on turnover. In all likelihood, there is not one single mediator through which factors like class sizes and administrative support influence turnover. However, organizational commitment stands out as a psychological state that often goes unexamined in relation to teachers' turnover decisions, even though its relationship with turnover is well-established in general organizational literature (Porter et al., 1976; Chen, 2001).

Commitment has the potential to fill that explanatory missing link between school conditions, like collegiality, and teacher decisions to stay or leave, and there is reason to believe that it would do so more effectively than other potential mediators. For instance, Porter, Steers, Mowday, and Boulian (1974) find that, for psychiatric technicians, organizational commitment more accurately discriminates between stayers and leavers than does job satisfaction. Organizational commitment is a more global concept than job satisfaction, "reflecting a general affective response to the organization as a whole" (Mowday et al., 1979, p. 226). Job satisfaction, contrariwise, "emphasizes the specific task environment" and can fluctuate based on day-to-day reactions to tangible workplace circumstances (pay, supervision, etc.). The same could be said about other possible mediators, such as feelings of efficacy. In contrast, commitment is a more stable measure: "such transitory events should not cause an employee to seriously reevaluate his or her attachment to the overall organization" (p. 226). The potentially crucial role of commitment as a psychological state mediating the social conditions of a school and teacher turnover decisions merits further investigation.

Early Research on Commitment

Commitment is an expansive concept that has been studied and defined in manifold ways. Over three decades ago, Morrow (1983) noted the existence of more than 25 measures related to work commitment, including

career commitment, job involvement, job attachment, Protestant work ethic endorsement, organizational commitment (including calculative and moral dimensions), union commitment, occupational involvement, career organization, job involvement, organizational involvement, and organizational identification (p. 487). The importance of organizational factors to teachers' turnover decisions suggests a focus on organizational commitment for this study (as opposed to commitment to the profession or commitment to the role, e.g.), but even that more limited concept has been described and measured in a variety of ways over the years. Mercurio (2015) argues, "Practitioners and new scholars exploring organizational commitment literature will find a stream of research that is fragmented, confounding, and contradictory" (p. 392).

Early in the study of organizational commitment, Stevens, Beyer, and Trice (1978) delineated two competing approaches to defining the concept: a psychological approach and an exchange (or transactional) approach. The psychological approach is concerned with attitudes, affective attachment, and internalized norms of obligation. Kanter (1968) was an early proponent of this conceptualization, arguing that an individual's feelings of involvement or cohesion with an organization would build his or her commitment to the organization. The exchange approach originates with Becker (1960) and his notion of "side-bets," arguing that commitment is formed "when a person, by making a side-bet, links extraneous interests

with a consistent line of activity" (p. 32). An example of a side-bet would be participating in a company pension plan. Meyer and Allen (1991) describe this same phenomenon as "continuance commitment." However, even with two discernible broad trends in the organizational commitment research, Mowday et al. (1979) observed "a general lack of agreement concerning how to best conceptualize and measure the concept" (p. 225), with most measures "created on an a priori *[sic]* basis and for which little or no validity or reliability data are presented" (p. 227).

The Organizational Commitment Questionnaire

The conceptualization of organizational commitment used in this study comes from Porter et al. (1976). As they define it, organizational commitment "refers to the nature of an individual's relationship to an organization, such that a highly committed member will demonstrate (*a*) a strong desire to remain a part of the organization, (*b*) a willingness to exert high levels of effort on behalf of the organization, and (*c*) a definite belief in and acceptance of the values and goals of the organization" (p. 91). This conceptualization of organizational commitment is accompanied by one of the earliest and most enduring attempts to reliably and validly define and measure the construct: the Organizational Commitment Questionnaire (OCQ). The OCQ was developed by Porter et al. (1974) as a 15-item Likert-type survey. The items of the OCQ ask respondents to rate their agreement or disagreement with statements like "I am willing to put in a great deal of

effort beyond what is normally expected to help this organization be successful," and "I find that my values and the values of this organization are very similar." In some cases, the OCQ is administered with just the nine positively-worded items. Mowday et al. (1979) analyze results from nine separate administrations of the OCQ across several years to over 2,500 employees in the public sector, higher education, banking, retail, laboratory science, automobile manufacturing, as well as hospital and (non-teaching) university employees. Cronbach's alpha was consistently high, with a range of .82 to .93 and a median of .90. All 15 items had a positive correlation with the overall OCQ, with a median correlation of .64; negatively-worded items had weaker correlations. Factor analysis resulted in single-factor solutions, and test-retest reliability for studies with multiple data points compared favorably to other attitude measures, with $r = .72$ over a 2-month period and $r = .63$ over three months. Furthermore, organizational commitment was found to have acceptable levels of discriminant validity with respect to job involvement, career satisfaction, and job satisfaction, as well as predictive validity with respect to voluntary turnover, absenteeism, tenure in the organization, and even employee performance. For example, Porter et al. (1976) demonstrated that volunteer "leavers" of a major retail organization "had begun to show a definite decline in commitment prior to termination," with early leavers tending "to show an early decline and later leavers a later decline" (p. 87).

The OCQ has undergone adaptation and re-interpretation since its development in the 1970s. Based on a factor analysis of the 15-item OCQ, Angle and Perry (1981) divide the OCQ into two subscales: one measuring "value commitment" and one measuring "commitment to stay." The former subscale "includes items connoting pride in association with the organization (i.e., identification), willingness to perform for the organization, concern for the fate of the organization, and congruence of personal values with those of the organization" (p. 4-5). The "commitment to stay" subscale, on the other hand, consists entirely of negatively worded items. The items are said to "not connote an affective bond to the organization" and to be more indicative of "calculative commitment" (p. 5). Angle and Perry (1981) dismiss concerns about the "commitment to stay" subscale being composed of negatively worded items by appealing both to the factor loadings (with eigenvalues greater than 1) and to apparent "conceptual differences" between the two clusters. However, their claim that the "commitment to stay" subscale is made up of items measuring calculative commitment, rather than employee affect, is dubious at best. Agreement with statements like "I feel very little loyalty to this organization" or "Deciding to work for this organization was a definite mistake on my part" could be predicated on an affective state or an emotionally uninvolved calculation, not necessarily one or the other. With the overall scale boasting a Cronbach's alpha of .90, and the subscales

offering alphas of .89 (value commitment) and .72 (commitment to stay), Occam's razor would reject Angle and Perry's division of the OCQ in the absence of a more compelling justification for each item's inclusion on one or the other.

A more defensible adaptation of the OCQ involves creating new scales based on the OCQ. Mayer and Schoorman (1992), advancing a two-dimensional model of organizational commitment similar to Angle and Perry (1981), create two new scales to measure "continuance commitment" and "value commitment." The former scale uses one OCQ item verbatim, one re-phrased item, and six new items, such as "It would be hard on my family if I decided to leave this organization at this time" (p. 683). The latter scale consists of six identical and three adapted items from the OCQ, such as "I am proud to tell other that I am part of this organization" (p. 683). They find that the scales differentially predict important outcomes, with value commitment having a stronger relationship with citizenship behavior, satisfaction, and performance, while continuance commitment has a stronger relationship with quitting (as measured over a two-year period). Both scales had significant relationships with self-reported intent to stay with the organization.

Some researchers have made other, more modest changes to the OCQ. As previously stated, the 15-items questionnaire is sometimes trimmed to nine items by removing the negatively-worded statements

(Mowday, Porter, & Steers, 1982). Furthermore, because commitment is often used to predict employee turnover intention, it is important to ensure that items are not redundant between commitment and turnover intention scales (Hansen et al., 2003). Five items on the OCQ are explicitly designed to capture the individual's "strong desire to remain a part of the organization" (Porter et al., 1976). Accordingly, various applications of the OCQ in turnover studies have deleted these items (Reichers, 1985), yielding either a 10-item survey with normal and reversed items (Chen, 2001), or a 6-item survey with positively-worded items only (Farh, Tsiu, Xin, & Cheng, 2007).

The Three-Component Conceptualization

Although the OCQ has been rigorously established as a valid and reliable measure of a precisely defined concept, there are competing understandings of commitment in the literature. Perhaps the most dominant theory of organizational commitment for more than two decades has been Meyer and Allen's (1991) three-component conceptualization, describing commitment as a psychological state consisting of "(a) a desire (affective commitment), (b) a need (continuance commitment), and (c) an obligation (normative commitment) to maintain employment in an organization" (p. 61). This tripartite model has sometimes been summed up in the three sentence stems, "I want…", "I need…", and "I ought…". Meyer and Allen argue that "this psychological state need not be restricted to value

and goal congruences as described by Mowday et al." (p. 62), but includes "affective attachment to the organization, perceived costs associated with leaving the organization, and obligation to remain with the organization" (p. 63-64). What Porter et al. (1974) *call organizational commitment*, Meyer and Allen call *affective commitment* (AC): "the employee's emotional attachment to, identification with, and involvement in the organization" (p. 67). What Marsh and Mannari (1977) describe as *lifetime commitment*, Meyer and Allen call *normative commitment* (NC): "a feeling of obligation to continue employment" (p. 67). What some term *calculative commitment* (Hrebiniak & Alutto, 1972; Angle & Perry, 1981; Hansen et al., 2003), Meyer and Allen call *continuance commitment* (CC): "an awareness of the costs associated with leaving the organization" (p. 67). Continuance commitment encompasses Becker's (1960) "side-bets" conceptualization. Arguing that these three should be considered components of commitment, rather than distinct types of commitment, they find strong internal consistency in three different scales to measure AC, CC, and NC. They also note that three scales load on separate orthogonal factors. A summary of the three components and their relationships to other conceptualizations can be found in Table 1.

Table 1. The Three-Component Conceptualization of Commitment.

Component	Definition in Meyer and Allen (1993)	Related Terms
Affective Commitment (AC): "I want…"	"the employee's emotional attachment to, identification with, and involvement in the organization" (p. 67)	"organizational commitment" (Porter et al., 1974; Porter et al., 1976; Mowday et al., 1979; Mowday, 1982), "value commitment" (Angle & Perry, 1981; Mayer & Schoorman, 1992)
Continuance Commitment (CC): "I need…"	"a feeling of obligation to continue employment" (p. 67)	"side-bets" theory of commitment (Becker, 1960), "calculative commitment" (Hrebiniak & Alutto, 1972; Angle & Perry, 1981; Hansen et al., 2003), "continuance commitment" (Mayer & Schoorman, 1992)
Normative Commitment (NC): "I ought…"	"an awareness of the costs associated with leaving the organization" (p. 67).	"lifetime commitment" (Marsh & Mannari, 1977),

Meyer and Allen's model has been perhaps the dominant framework for understanding organizational commitment with a host of applications in research since its formulation (Hussain & Asif, 2012; Stanley et al. 2013; Mercurio, 2015). However, this is not to say it has supplanted the OCQ in scholarly research, especially with respect to employee turnover. Jaros (1997) argues that even if the three-component understanding of organizational commitment is the superior model, it may yet be the case that individual aspects of commitment (AC, CC, or NC) are more strongly correlated with certain employee or organizational outcomes, with attendant practical and policy implications. Using data from two different samples, he finds that "each form of commitment was significantly and negatively related to turnover intentions," but in "both samples, affective commitment had a significantly stronger correlation with turnover

intentions than normative or continuance commitment" (p. 331). While Jaros uses Meyer and Allen's (1984) AC scale to measure affective commitment, he notes that the ACS "was originally designed…to reflect the same construct measured by Porter et al.'s (1974) Organizational Commitment Questionnaire" (p. 334). Thus, researchers who wish to study the effects of commitment on turnover or turnover intention may justifiably use the OCQ as their instrument because of the demonstrably greater relationship between turnover intention and affective commitment (which the OCQ measures) than any other component of organizational commitment. That said, Jaros's (1997) findings about the correlations between the three different commitment scales and turnover intentions are empirical. He does not offer a theoretical explanation for the stronger effect of AC (compared with NC and CC) on turnover.

The Core Essence of Organization Commitment

Mercurio (2015) offers a reconciliation of various competing understandings of organizational commitment with his meta-analytic answer to Meyer and Herscovitch's (2001) call for the definition of a "core essence" of the concept. Mercurio reviews 75 scholarly texts—including seminal research on organizational commitment, such as Becker (1960), Kanter (1968), Porter et al. (1976), Mowday et al. (1979), etc., as well as unidimensional and multidimensional conceptualizations of affective

commitment, and recent meta-analytic and empirical research on the antecedents and consequences of affective commitment. He concludes,

> (a) Affective commitment seem to serve as a historical and theoretical basis for organizational commitment theories, (b) affective commitment may more strongly influence work behaviors than other components or proposed forms of commitment, and (c) affective commitment may be reasonably considered a core essence of organizational commitment. (p. 403)

This conclusion is not to suggest that other components or understanding of commitment are irrelevant or extraneous compared to affective commitment, as measured by the OCQ or Meyer and Allen's (1991) ACS. However, the primacy of affective commitment has been established both theoretically and empirically. Mercurio (2015) notes, "the attitudinal, affective construct of commitment has remained central and constant through a wide diversity of theorizing and multidimensional conceptualization or organizational commitment," while quantitative studies have repeatedly shown affective commitment to be "more correlative to changes in work behaviors than other theorized components of commitment" (p. 404). It may even be that other notions of commitment, such as transactional commitment, are realized at least partly through the mechanism of affective commitment in a mutually reinforcing dynamic. Employees' willingness to increase their commitment to an organization via "side-bet" behaviors like investments of time and effort (Becker, 1960) may be mediated by their emotional attachment (or lack thereof) to the organization. The implications of the centrality of affective commitment

should inform not only practitioners, who seek to influence "turnover, absenteeism, and organizational citizenship behaviors" (Mercurio, 2015, p. 409) by promoting affective commitment, but also researchers, who must choose how to conceptualize, frame, and measure future studies of organizational commitment.

The formulation of organizational commitment originally promulgated by Porter et al. (1976) as the OCQ remains one of the most conceptually and statistically defensible ways to understand and measure organizational commitment. Given the centrality of affective commitment to both organizational commitment generally and to the OCQ measure specifically, this study will rely on an adaptation of the OCQ for the purposes of describing and capturing organization commitment among teachers.

Antecedents and Consequences of Organizational Commitment

The research on antecedents and consequences of organizational commitment is extensive, ranging across disciplines, countries, and decades. Individual character traits and demographic variables both have established relationships with affective commitment. Morrow (2011), for instance, finds that a "proactive personality" and knowledgeability about the job in question both predict higher levels of affective commitment. However, "the most strongly correlated antecedent of affective commitment continues to be work experience variables" (Mercurio, 2015, p. 402).

Interpersonal relationships with leaders and co-workers and various forms of mentoring are among the work variables associated with greater levels of affective commitment (Morrow, 2011). Human resource practices designed with organizational commitment theory in mind are also able to positively shape affective commitment (Mercurio, 2015; Kehoe & Wright, 2013; Morrow, 2011; Whitener, 2001). Perceived organizational support, including "employees' perceptions of, access to, and involvement with organizational practices" (Mercurio, 2015, p. 403), have been shown to influence affective commitment (Allen & Shanock, 2013; Whitener, 2001), while Nyhan (1999) has found that both systemic and especially interpersonal trust correlate with affective commitment. There are also negative correlations between affective commitment and work experience variables like harassment, downsizing, and being acquired by another organization (Morrow, 2011).

Employee retention has been theorized and studied as perhaps the most important consequence of affective commitment since at least Mowday et al. (1982), who stated that "highly committed employees are by definition desirous of remaining with the organization and working toward organizational goals and should hence be less likely to leave" (p. 38). Mercurio's (2015) meta-analysis of affective commitment describes longitudinal studies from a wide variety of fields that have discovered "significantly high, negative correlations between affective commitment and turnover" (p. 401), including Mowday et al. (1979), Angle and Perry (1981),

Randall (1990), Somers (1995), Meyer et al. (2002), Riketta (2005), and Morrow (2011). Similarly, organizational commitment and particularly affective commitment are associated with lower rates of turnover intention in a variety of occupational settings, while turnover intention has been established as a reliable precursor of turnover behavior (Jaros, 1997; Hussain & Asif, 2012). There is also considerable evidence connecting affective commitment to rates of absenteeism (Mowday et al., 1982; Randall, 1990; Somers, 1995) and organizational citizenship behavior (Meyer et al., 2002; Liu, 2009). More recent research has even shown affective commitment to have a moderating effect on workplace stress (Meyer et al., 2002; Schmidt, 2007).

Teacher Commitment

Lortie (1975) argues that because access to a teaching career is not particularly difficult, "people with low commitment can enter, and many begin teaching without plans to persist" (p. 88). Whether working conditions in schools can improve teachers' commitment and, thereby, their intention to persist in their careers generally and school sites particularly is a ruefully understudied question. There is some research within the field of education linking organizational commitment to turnover (Macdonald, 1999). but its relationship with teacher turnover specifically has received little study compared to factors like salary, disciplinary issues, and school leadership. Neither the School and Staffing Survey (SASS) nor the Teacher

Follow-up Survey (TFS) conducted regularly by the National Center for Education Statistics includes a scale to measure commitment—organizational, affective, or otherwise. The SASS and the TFS, however, are among the most studied datasets in teacher turnover research, meaning that much of the literature on antecedents of teacher turnover is agnostic to the effects of commitment (Ingersoll, 2001; Smith & Ingersoll, 2004; Guarino et al., 2006; Borman & Dowling, 2008; Kukla-Acevedo, 2009; Gray & Taie, 2015; Podoslky et al, 2016; Sutcher et al., 2016).

The importance of teacher commitment to school effectiveness is widely acknowledged (Kushman, 1992; Firestone & Pennell, 1993; Ingersoll, 2001). Because schools are loosely coupled organizations where it is difficult to monitor and control teachers' work, school leaders must rely on the voluntary commitment of individual teachers to exert effort in alignment with schools. In other words, it is not possible to design a system of extrinsic motivators that will ensure high rates of teacher effort and effectiveness. Teachers need to possess intrinsic motivation, and teachers with high levels of commitment are more likely to be internally motivated (Firestone & Pennell, 1993).

What can schools do to enhance teacher commitment? A raft of studies support the notion that leadership matters. Firestone and Pennell (1993) argue that the weak effects of administrative feedback on teacher commitment are due to the infrequent, superficial, and punitive nature of

most feedback. Nonetheless, they suggest that additional formative feedback to teachers would increase their commitment, but "feedback without autonomy is unlikely to affect commitment" (p. 503). Kushman (1992) reports that school learning climate and teacher involvement in decision-making predict organizational commitment (as measured by the OCQ), suggesting that leaders of disadvantaged schools (where commitment tends to be lower) should focus on "maintaining an orderly climate with a strong academic push and empowering teachers with leadership and decision-making responsibilities" (p. 36). Relatedly, research from Tanzania presents transformational leadership behavior—including inspiring one's teachers, providing intellectual stimulation, and showing individualized consideration—as a statistically significant predictor of teacher commitment as measured by the OCQ (Nguni, Sleegers, & Denessen, 2006). Similar findings from Flemmish secondary schools indicate that "teachers who believe that their school is led by a cooperative leadership team, which is characterized by group cohesion, clear and unambiguous roles of the leadership team members, and shared goal orientedness, are more committed towards their school" (Hulpia & Devos, 2010, p. 46). An additional finding from the same study "revealed that the maximum amount of support teachers received from the leadership team had an important influence on their organizational commitment" as measured by the OCQ (p. 46).

Perceptions of school leadership are just one antecedent of teacher commitment. Another important dimension in the research is the quality of faculty relationships and cooperative work. Firestone and Pennell (1993) argue that encouraging collaboration among faculty members and increasing collegial learning opportunities would both enhance commitment among teachers, with the caveat that norms of privacy may make it "necessary to engage teachers in finding socially acceptable ways to increase collaboration" (p. 519). Meanwhile, Somech and Bogler (2002), using a sample of 983 secondary teachers in Israel, find a positive relationship between organizational commitment (as measured by the OCQ) and participation in the managerial domain of the school (including creating school goals, staffing decisions, and setting the budget). They argue that involving teachers in this way "enhances opportunities to develop an organizational system approach, which expands teachers' perspectives from the immediate outcomes of their own classroom to the organization as a whole" (p. 570), thereby increasing both their interactions with peers and their commitment to the organization. Dee et al. (2006), based on a sample of urban elementary school teachers in the American southwest, found team teaching and curriculum teamwork to have the strongest effects on teacher commitment (again, as measured by the OCQ). Activities less central to teachers' job roles, however, also had significant effects, including participation in site-based governance teams and community-relations

teamwork. Hausman and Goldring (2001) find teacher community to be central to teacher commitment, with collegiality and teacher opportunity to learn both significantly predicting levels of commitment in 20 magnet and non-magnet U.S. elementary schools.

Turnover Intention

Turnover intention, as a measure, does not have a long and well-established pedigree in the literature. Whereas organizational commitment has four decades of research defending both its conceptualization and the validity and reliability of its operationalization (Porter et al., 1976; Mowday et al., 1979; Meyer & Allen, 1991; Mercurio, 2015), turnover intention is often operationalized with apparently idiosyncratic and *ad hoc* measures, even in studies where turnover intention is the outcome variable. For example, George (2015) uses factor analysis to develop a "retention scale" of eight "retention factors" from the literature, with employee intention to remain as the independent variable (p. 112). The only description of this all-important variable, however, is "Additional items relating to intention to remain in the current organisation *[sic]* and whether or not they were currently looking for a job were added" (p. 109). No mention is made of the origin of this "intention to remain" variable; no evidence is presented as to its validity or reliability; the item itself is not provided in an appendix; whether respondents answered via Likert scale or dichotomous rating is not mentioned.

Similarly, Ghosh et al. (2013) use factor analysis to identify factors predicting employees' intention to stay in an Indian transmission and distribution firm. Intention to stay is captured using a single survey item: "As you think of the future, would you leave the organization for the foreseeable future? [] Yes [] No" (p. 311). No description of the origin of this item, its theoretical basis, its validity, or its reliability is presented. Tett and Meyer (1993) are critical of the use of single-item measures of turnover intention, arguing that this reduces reliability, attenuates correlations, and "render[s] comparisons among the relations, with or without corrections, problematic" (p. 263). They note that for job satisfaction and turnover intention, "multi-item global scales account for twice as much variance (i.e., 28%) as do single-item scales (14%)" (p. 273).

Even among studies that provide more clarity on their turnover intention measure, the number of items and their wording can still vary widely. Hansen et al. (2003) use just two items on a 7-point Likert scale: "Intention to stay was assessed with two items, in which one indicated the intention to leave the current relationship [with the firm] in the foreseeable future (reversed), and the other measured the intention to maintain the relationship. These items were adapted from Kumar, Hibbard, and Stern" (p. 360). Stanley et al. (2013) likewise use just two items adapted from Jaros (1997): "I often think about quitting this organization" and "I intend to search for a position with another employer within the next year" (p. 181).

Although these scales have much to recommend them above single-item measures, Tett and Meyer (1993) argue that two-item scales, "though less problematic, are still likely to underestimate corresponding relations" (p. 280).

Some studies use three- or four-item scales to increase their validity and reliability. This practice tends to muddy the conceptual waters, because the additional items that are included often do not measure turnover intentions *per se,* but rather withdrawal cognitions. Meyer, Allen, and Smith (1993), Jaros (1997), and Hussain and Asif (2012) all operationalize turnover intention with three items, at least one of which ask respondents how frequently they thought about leaving their positions (or the field entirely). Farh et al. (1998) and Chen (2001) both use a four-item scale with items like "I often think of quitting my present job" (p. 476). Strictly speaking, thinking of quitting is not necessarily a turnover intention, which can only truly be measured by an item like, "I plan to leave my job within [interval of time]." Withdrawal cognitions are conceptually broader than and chronologically antecedent to strict turnover intention and serve as an additional mediator between work attitudes (such as job satisfaction or organizational commitment) and "pure" turnover intention. Nonetheless, it is common to combine these variables into a single index (Tett & Meyer, 1993), and the three- and four-item scales described above all report good reliability (over .80). Additional caution should be taken, however, when

attempting to use the withdrawal cognitions-turnover intention composite as a proxy or forecaster of turnover behavior. Withdrawal cognitions are not as strongly correlated with turnover behavior as strict turnover intention (Tett & Meyer, 1993).

Summary of Literature

There is considerable evidence concerning the empirical antecedents and consequences of teacher turnover, which tends to disproportionately threaten low-income and low-performing schools. Turnover is especially common among early-career teachers, but is negatively correlated with higher salaries and better working conditions (Ingersoll, 2001). When controlling for the effects of working conditions on turnover, the predictive power of student traits like race and achievement is significantly diminished, or even eliminated (Loeb et al., 2005; Boyd et al., 2011; Ladd, 2011; Johnson et al., 2012). Many of the empirically verified antecedents of teacher turnover are relational in nature, including collegiality (Hausman & Goldring, 2001; Johnson & Birkeland, 2003), collaboration (Borman & Dowling, 2008; Ladd, 2011), mentoring (Darling-Hammond, 2003; Smith & Ingersoll, 2004), administrative support (Guarino et al., 2006; Kukla-Acevedo, 2009), student discipline issues (Kelly, 2004; Allensworth et al., 2009), and class sizes (Eller et al., 2000; Loeb et al., 2005). Much of the research identifying these antecedents is atheoretical, however, and little

attention has been paid to the psychological states that mediate the effects of working conditions on teacher turnover.

The psychological state of organizational commitment, which has received comparatively little study in education research, is strongly related to both turnover intentions and turnover behavior (Mowday et al., 1979; Angle & Perry, 1981; Randall, 1990; Somers, 1995; Jaros, 1997; Meyer et al., 2002; Riketta, 2005; Morrow, 2011). Evidence from within the field of education and without suggests that the quality of collegial interactions in an organization and perceptions of leadership—including mentoring, support, trust, and feedback—are all predictive of levels of commitment among employees (Firestone & Pennell, 1993; Weiss, 1999; Mercurio, 2015).

Chapter 3: Theoretical Framework

Voluntary turnover is a behavior. Human behavior can occur as a result of conscious pre-meditation, as a decision made in the moment, or somewhere on the spectrum between the extremes of pure impulse and sober intention. Organizational research indicates that turnover behavior is strongly correlated with the intention to leave, suggesting that most turnover is not a spur-of-the-moment decision (Jaros, 1997; Hussain & Asif, 2012). Turnover intention is not a perfectly reliable proxy for turnover behavior and, as such, should not be used as a firm's sole method to forecast staffing needs (Cho & Lewis, 2012; Cohen et al., 2016). Nonetheless, turnover intention—as a psychological state—contains a kernel of truth that

can be missed by measuring merely turnover behavior. Voluntary turnover behavior may result from unforeseen and uncontrollable (from the perspective of the organization) exigencies, such as a sudden blow to the health of a family member or a change in marital status. Employees who might have otherwise had no intention or desire to leave their organization sometimes do, in fact, turn over. Such an occurrence can be considered "random error" that may drive turnover rates higher or lower without revealing any deeper insight to the health of the organization.

On the other hand, turnover intentions, even when they go unrealized, expose underlying threats to the organization that must be addressed. Although turnover intention is not a perfect predictor of personnel needs in the coming year, it provides organizational leaders with an important window into the attitudes and motivations of their employees with respect to the organization, regardless of whether macroeconomic conditions or personal circumstances are conducive to turnover. Moreover, there is "strong evidence that turnover intentions mediates *[sic]* the relationships between commitment and turnover behavior" (Jaros, 1997, p. 325). As Tett and Meyer (1993) have demonstrated in one meta-analysis, "behavioral intent was found to more completely mediate the effects of commitment on turnover decisions" (p. 284). In short, turnover intention does not exist in a vacuum from other psychological states, but rather should be interpreted in conjunction with them.

Self-Determination Theory

Any attempt to elucidate mediating factors between school conditions and teacher turnover should be conscious of the omission of theory from most extant research on teacher turnover. There is well-established theory concerning human motivation and functioning that will inform and improve efforts to understand the psychological states that precede turnover. One prominent understanding of motivation and human flourishing is self-determination theory (SDT; Deci & Ryan, 1985; Ryan & Deci, 2000). SDT begins with the assumption that humans have a tendency in favor of integration, including both integration with oneself and integration with others (Ryan & Deci, 2002, p. 5). The former kind of integration, termed "autonomy," denotes not merely the exercise of choice or independence, but the experience of self-regulation—the feeling that one's life is organized in accordance with one's own will, rather than constrained and controlled by external forces. Integration with others—termed "homonomy"—is the counter-balance to autonomy, suggesting that humans by nature seek relationship and involvement with others. This tendency toward integration is not automatic or irresistible, however; certain social-contextual factors can either thwart or support this tendency and the concomitant achievement of "eudaimonia," that is, "an ongoing sense of integrity and well-being" (Ryan & Deci, 2000, p. 75).

SDT is composed of four sub-theories that explore various aspects of the effects of social context on individuals' psychological states and their implications for both intrinsic motivation and psychological health. For example, research on cognitive evaluation theory (CET) has found that while positive feedback enhances intrinsic motivation, tangible rewards, both concrete and symbolic, diminish it. Similar decreases in intrinsic motivation have been found to be associated with threats such as deadlines, evaluations, and imposed goals. With both rewards and punishments, intrinsic motivation is diminished because the locus of causality is perceived to be external (Ryan & Deci, 2000, p. 70). Applications of CET to business, education, management, and other fields have focused on a shift away from "carrot-and-stick"-style motivation so as not to undermine intrinsic motivation (Pink, 2009). However, without these most obvious tools (threats, bribes, high-stakes evaluation), many leaders may despair of how they can alter the desires and behaviors of their organizations' members. In the field of education, principals may feel a further constraint in motivating their teachers (including motivating them to stay in their positions) by the statutory controls governing hiring, firing, and compensation in most public schools.

The relevance of one sub-theory of SDT, basic psychological needs theory (BPNT), to enhancing organizational commitment and reducing teacher turnover is conceptually promising. BPNT holds that intrinsic

motivation, and indeed overall well-being, is dependent on the satisfaction of innate psychological needs to experience competence, autonomy, and relatedness (Ryan & Deci, 2000). Competence describes the feeling that one's interactions with the social environment are effective and productive—that one has frequent opportunities to use and develop one's own capacities (Ryan & Deci, 2002, p. 7). Autonomy refers to the experience of an internal locus of causality as opposed to feeling controlled and constrained by one's environment (Ryan & Deci, 2000, p .70). Relatedness includes feelings of connection with and mutual care for others, as well as a sense of belonging in the community (Ryan & Deci, 2002, p. 7). Baard, Deci, and Ryan (1998) have found that employees' satisfaction of the needs for autonomy, competence, and relatedness in the workplace predicted higher levels of performance and well-being.

Firestone and Pennell (1993) suggest that support for these three basic psychological needs will also lead to greater commitment. With respect to autonomy, for example, they argue:

> Experiencing responsibility for success is highly motivating and conducive to continuing successful practices, where personal responsibility for failure motivates individuals to change what they do…[In] teaching, autonomy breeds commitment to successful instructional practice and, concomitantly, to the organization and its values because teachers can identify the ways in which their own work contributes to their students' learning and the mission of the school. (p. 498-499)

They caution, however, that where professional autonomy is confounded with classroom isolation, this relationship will not hold, because "autonomy

that is achieved primarily through isolation from others and their preferred methods and standards reduces one's obligations to pursue the interests and values of the organization" (p. 500). If the need for relatedness is sacrificed to satisfy the need for autonomy, greater organizational commitment is unlikely to obtain. As Ryan and Deci (2000) put it, "social contexts that engender conflicts between basic needs set up the conditions for alienation and psychopathology" (p. 75), not organizational commitment. On the other hand, schools that provide autonomy within prevailing norms of collaboration rather than privacy "can help teachers experience the rewards of teaching more often" and "provide a sense of community" (Firestone & Pennell, 1993, p. 505), thereby enhancing the meaningfulness of teaching.

Similarly, autonomy-support cannot be divorced from competence-support. Firestone and Pennell (1993) argue that feedback "is central to maintaining high internal motivation and commitment to both organization and activity," defining feedback as "the amount of direct, clear information received directly from one's work about one's performance and effectiveness" (p. 503). Tschannen-Moran and McMaster (2009) have demonstrated that professional development without follow-up coaching or feedback diminishes teacher self-efficacy and, thus, intrinsic motivation. Detailed feedback, on the other hand, can increase the functional significance of teacher evaluations, making them both more useful and more motivating (Adams, Forsyth, Ware, & Mwavita, 2016). Feedback increases motivation and

commitment because it supports the psychological need for competence (Deci & Ryan, 1985).

However, if teachers lack an internal locus of causality over the work being evaluated, they are unlikely to perceive the feedback as meaningful or valid (Ford, Van Sickle, Clark, Fazio-Brunson, & Schween, 2015). Firestone and Pennell succinctly state the principle thus: "feedback without autonomy is unlikely to affect commitment" (p. 503). Moreover, receiving feedback on work performance that one cannot control is likely, in fact, to vitiate commitment. Likewise, if teachers do not trust the evaluator or the evaluation process; if the process is infrequent, superficial, nitpicky, or threatening; if the evaluator lacks knowledge about the subject matter or about pedagogy; then increased feedback will certainly do little to enhance teachers' feelings of competence (Firestone & Pennell, 1993, p. 504). In short, the needs for competence, autonomy, and relatedness are interdependent, and jointly their satisfaction contributes to higher levels of organizational commitment.

Model and Hypotheses

To summarize, there is a wealth of literature from outside the field of education suggesting that organizational commitment precedes turnover intention (Mowday et al., 1979; Angle & Perry, 1981; Randall, 1990; Somers, 1995; Jaros, 1997; Meyer et al., 2002; Riketta, 2005; Morrow, 2011), but few studies among K-12 teachers on the link between commitment and

turnover. Self-determination theory shows promise for understanding the psychological state of organizational commitment, especially the basic psychological needs sub-theory with its emphasis on autonomy, competence, and relatedness (Ryan & Deci, 2000). The satisfaction of all three psychological needs promotes greater rates of motivation and commitment among workers generally and teachers specifically (Firestone & Pennell, 1993), but the particular importance of the need for relatedness is suggested by the salience of relational conditions in the extant literature concerning teacher turnover (Ingersoll, 2001; Smith & Ingersoll, 2004; Kelly, 2004; Borman & Dowling, 2008; Kukla-Acevedo, 2009; Ladd, 2011). This study, therefore, will test a model of the effects of school relational conditions (including relationships with administrators, teaching colleagues, and students) on teacher turnover intention as mediated by organizational commitment (see Figure 1). This model is composed of four hypotheses, enumerated below.

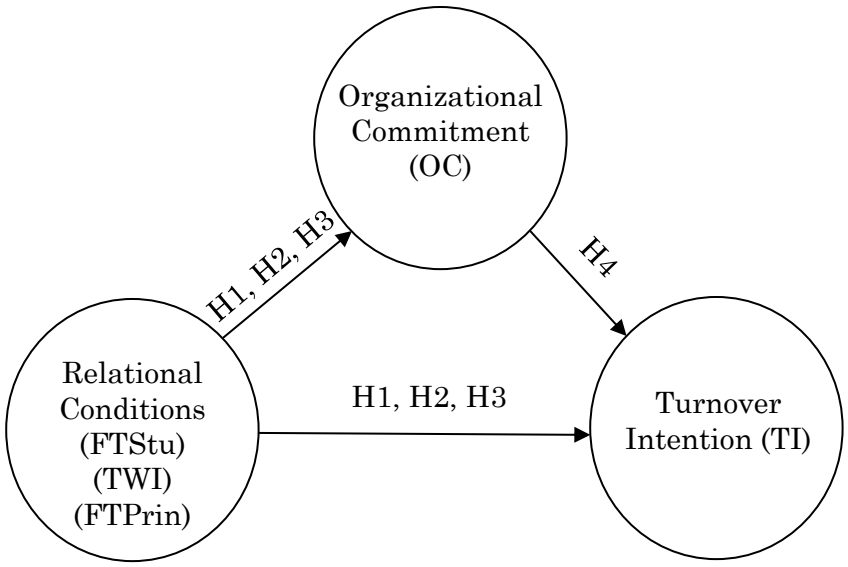

Figure 1. Mediation model.

As previously noted, autonomy, competence, and relatedness are basic psychological needs that are necessary for both general human flourishing and for effective functioning in the workplace (Deci & Ryan, 1985; Firestone & Pennell, 1993; Ryan & Deci, 2000). The psychological need for relatedness may be of particular relevance for teachers, given the empirically demonstrated effects of relational conditions (such as teacher collegiality and student discipline problems) on teacher turnover. Given that relationships with students, teachers, and principals all uniquely contribute to teachers' experience of their jobs, we would therefore expect the need for relatedness at all three levels to have relevance to teacher commitment, and thereby influence rates of turnover intention.

> Hypothesis 1 (H1): Principal-teacher relatedness has a negative effect on turnover intention, partially mediated through organizational commitment.
> Hypothesis 2 (H2): Teacher-teacher relatedness has a negative effect

on turnover intention, partially mediated through organizational commitment.

Hypothesis 3 (H3): Student-teacher relatedness has a negative effect on turnover intention, partially mediated through organizational commitment.

Relatedness is operationalized in this study with eight items measuring teacher workplace isolation (Marshall, Michaels, & Mulki, 2007) and 11 items from the Omnibus Trust Scale (Hoy & Tschannen-Moran, 2003). The teacher workplace isolation (TWI) measure was adapted from Marshall et al. (2007) and captures teacher feelings of connectedness with their co-workers and with the school more generally. Questions ask faculty about informal interactions with co-workers and their access to social support within the school. Counter-intuitively, a high TWI score is not indicative of high levels of isolation; positive responses indicate feelings of connectedness.

On the latter scale (Hoy & Tschannen-Moran, 2003), trust is a collective property defined as "a faculty's willingness to be vulnerable to another party based on the confidence that the latter party is benevolent, reliable, competent, honest, and open" (Forsyth et al., 2011, p. 35). This measure has a profound connection with the need for relatedness, which, at its heart, is about "Experiencing mutual reliance and respect…. It is about feeling connected, sharing a mutual goal, and being in a relationship for the long haul" (Baard, 2002). There are obvious connections between the two concepts: for example, one cannot experience mutual reliance with someone who is not reliable, nor mutual respect with someone who is perceived to be

dishonest or incompetent. Similarly, if someone is not open and honest, there is likely to be little feeling of connection with that person.

Furthermore, trust is foundational to other aspects of the relatedness need: the presence of trust facilitates aspects of relatedness like sharing mutual goals and being in a relationship for the long haul. Although the existence of trust and the satisfaction of the relatedness need are not identical, the presence of high levels of trust is indicative of healthy relationships, and there is precedent for using the former to assess the latter. Adams, Ware, Miskell, and Forsyth (2016) have used measures of collective student trust in teachers to reveal the presence or absence of a school climate of relational support, arguing that low trust "signals school-wide relational tension that can thwart internal motivation and authentic engagement" (p. 171). Similarly, Ford and Ware (2016) use measures of faculty trust in colleagues and faculty trust in the principal to assess teacher relatedness in schools. Given the inclusion of the teacher workplace isolation measure in this study, however, the faculty trust in colleagues measure will be dispensed with as redundant. Although teacher workplace isolation and faculty trust in colleagues are different phenomena, they would be operationalized to measure the same condition.

The final hypothesis relates to the connection between commitment and turnover. General organizational literature is replete with studies demonstrating the effects of organizational commitment on turnover

intention (Mowday et al., 1979; Angle & Perry, 1981; Randall, 1990; Somers, 1995; Jaros, 1997; Meyer et al., 2002; Riketta, 2005; Morrow, 2011). This relationship is under-studied in the K-12 education field, likely owing to the absence of an organizational commitment instrument in the national datasets commonly used to study teacher turnover (e.g., Ingersoll, 2001; Guarino et al., 2006; Borman & Dowling, 2008; Podolsky et al, 2016). However, there is little reason to suggest that organizational commitment would have a different effect on turnover intentions among K-12 teachers than it has in other fields. Thus,

> Hypothesis 4 (H4): Organizational commitment has a negative effect on turnover intention.

Chapter 4: Method

Re-statement of Purpose

The purpose of this study is to examine the relationship between relational conditions and teachers' intentions to leave their positions, as mediated by organizational commitment. There is a substantial body of evidence describing the influence of relational conditions (from student disciplinary problems to teacher collegiality to perceived administrative support) on teacher turnover, but an explanation of the psychological states that mediate the effects of social conditions on teacher intentions is lacking. Based on self-determination theory, this study posits that the well-established importance of relational factors on turnover decisions represents teachers' innate psychological need for relatedness, and that support for

said need in the workplace enhances teachers' affective commitment to the organization, which in turn results in lower rates of turnover intention.

Sample

Data were collected via electronic survey of over 2,500 teachers in a large urban district in a southwestern state. Just over 75% of students in the district qualify for free or reduced-price lunch, and just under 75% are non-white. A link to an electronic Qualtrics survey was emailed to teachers and open for a 2-week window during the spring semester of the 2016-17 school year. Teachers gave consent to participate in the study, a partnership between a local university and the school district to produce reports on school climate in the 73 sites of the district. The response rate to the teacher survey has been as high as 82% and as low as 48% over seven years of data collection. Teachers at all sites in the district were surveyed, with an overall response rate of 67% (N=1526). There are two forms of the teacher survey; all teachers in the district are randomly assigned either to Form A (68% response rate) or Form B (67% response rate). Items from both forms were used for this study. Parents, students, and principals were also surveyed for the overall research project, but for the purposes of this study, items on the teacher survey were used exclusively.

Measures and Instrumentation

Turnover Intention

As previously described, not all turnover intention scales are created equal. From single-item measures to three- or four-items scales including withdrawal cognitions, there is no "gold standard" instrument with broad support in the literature. For the purposes of this study, the measure of turnover intention was three items adapted from a test of the effects of normative commitment, continuance commitment, and affective commitment on turnover intention in the nursing profession (Meyer et al., 1993). Items asked participants how frequently they thought about getting out of nursing, how likely it was that they would explore other career opportunities, and how likely it was that they would leave the nursing profession within the next year (p. 542). These items were re-worded to capture intention to leave the one's current school, rather than the teaching profession (see Table 2). Results of an exploratory factor analysis found that the items loaded strongly on one factor that explained over 77% of the variance. Factor loadings ranged from .79 to .85.

Table 2. Turnover Intention.

Item	Likert Scale
How frequently do you think about leaving your school?	1 (never) to 6 (very often)
How likely is it that you would explore teaching opportunities at other schools?	1 (definitely not) to 6 (definitely)
How likely is it that you would leave your school in the next year?	1 (definitely not) to 6 (definitely)

Organizational Commitment

The measure of organizational commitment was a seven-item adaptation of the Organizational Commitment Questionnaire (Porter et al., 1974; Porter et al., 1976; Mowday et al., 1979). As one of the most well-known organizational commitment instruments, it has been altered and adapted extensively over the past four decades, even from its inception. Mowday et al. (1979) note, "the reliability and item analyses suggest that the short form of the OCQ (i.e., using only the nine positively worded items) may be an acceptable substitute for the longer scale in situations where questionnaire length is a consideration" (p. 244). In addition to removing negatively-worded items, other studies have trimmed items that are redundant with turnover intention to avoid confounding the correlation between the two constructs (Reichers, 1985; Chen, 2001; Farh et al., 2007). This study uses seven positively-worded items from the original OCQ, chosen for applicability to the school context (with occasional re-phrasing) and to avoid redundancy with the measure of turnover intention (See Table 3). An exploratory factor analysis found that the items loaded strongly on a single factor that explained over 70% of the variance. Factor loadings ranged from .61 to .91.

Table 3. Organizational Commitment.

Item	Likert Scale
I am proud to be part of the faculty of this school.	1 (strongly disagree) to 6 (strongly agree)
I often describe myself to others by saying that I work at this school.	1 (strongly disagree) to 6 (strongly agree)
I am glad I chose to teach at this school rather than another school.	1 (strongly disagree) to 6 (strongly agree)
I am willing to put in a great deal of effort beyond what is normally expected to help this school succeed.	1 (strongly disagree) to 6 (strongly agree)
I have warm feelings about this school as a place to work.	1 (strongly disagree) to 6 (strongly agree)
I find that my values and the values of this school are similar.	1 (strongly disagree) to 6 (strongly agree)
I feel strong loyalty to this school.	1 (strongly disagree) to 6 (strongly agree)

Relational Conditions

Relational conditions were measured using the Omnibus Trust Scale (Forsyth et al., 2011) and a teacher workplace isolation measure (Marshall et al., 2007). The teacher workplace isolation measure asks teachers about their informal interactions and access to social support within the school. The referent is the individual teacher, and the Likert-style items ranged from 1 (strongly disagree) to 6 (strongly agree). Results of an exploratory factor analysis found that the items loaded strongly on one factor that explained over 61% of the variance. Factor loadings ranged from .62 to .85.

The Omnibus Trust Scale is composed of three subscales: Faculty Trust in Principal, Faculty Trust in Colleagues, and Faculty Trust in Clients (which includes five items describing students and five describing parents). The three subscales typically have reliabilities ranging from .90 to .98, with factor analytic studies supporting the construct and discriminant

validity of the concept. An exploratory factor analysis using data from this study found that all items measuring Faculty Trust in Students loaded onto a single factor which explained over 61% of the variance. Factor loadings ranged from .68 to .83. Likewise, Faculty Trust in Principal items loaded onto a single factor explaining over 86% of the variance. Factor loadings ranged from .88 to .95.

All measure of faculty trust were Likert-style items ranging from 1 (strongly disagree) to 6 (strongly agree). All items were positively worded. Six Faculty Trust in Principal items were used to assess the degree of relatedness support in the principal-teacher relationship. Relatedness support in student-teacher relationships were measured with the Faculty Trust in Students subscale (five items). On each subscale, the respondent is the individual teacher, but the referent is the entire school. As such, example items include "Teachers at this school trust the principal," "The teachers in this school are open with each other," and "Students here tell the truth," rather than self-referential items like "I trust this principal" or "I am open with other teachers at this school." The exact wording of each item can be found in Table 4.

Table 4. Relatedness Support.
Likert scale of 1 (strongly disagree) to 6 (strongly agree).

Item	Measure
Teachers in this school trust the principal.	Faculty Trust in Principal
The teachers in this school have faith in the integrity of the principal.	Faculty Trust in Principal
The principal in this school typically acts in the best interests of teachers.	Faculty Trust in Principal
Teachers in this school can rely on the principal.	Faculty Trust in Principal
The principal in this school is competent in doing his or her job.	Faculty Trust in Principal
The principal tells teachers what is really going on.	Faculty Trust in Principal
I have people I can turn to at work.	Teacher Workplace Isolation
I have one or more co-workers available who I talk to about day-to-day problems at work.	Teacher Workplace Isolation
I have co-workers available whom I can depend on when I have a problem.	Teacher Workplace Isolation
I have people supporting me at work.	Teacher Workplace Isolation
I am well integrated with the department/school where I work.	Teacher Workplace Isolation
I am kept in the loop regarding school social events/functions.	Teacher Workplace Isolation
I am part of the school network.	Teacher Workplace Isolation
I am regularly part of school social events.	Teacher Workplace Isolation
Teachers in this school trust their students.	Faculty Trust in Students
Students in this school care about each other.	Faculty Trust in Students
Students in this school can be counted on to do their work.	Faculty Trust in Students
Teachers here believe students are competent learners.	Faculty Trust in Students
Students here tell the truth.	Faculty Trust in Students

Control Variables

At the teacher level, length of tenure in building (in years) was included as a control variables, given the well-established trend for higher attrition among early-career teachers (Ingersoll, 2001). At the school level, the percentage of students receiving free or reduced-price lunch was included as a control variable, given the tendency for higher rates of turnover in high-poverty schools (Johnson et al., 2012).

Analytical Approach

Hierarchical Linear Modeling

When data are structured hierarchically, as is common in the social sciences, special consideration must be made to the statistical technique used for analysis. Hierarchical Linear Modeling (HLM) is one solution to "the inadequacy of traditional statistical techniques for modeling hierarchy" (Raudenbush & Bryk, 2002, p. 5). In education, data are almost always "nested"—schools within districts, or teachers within schools, or students within classrooms, for example. Units within these "nests" or clusters can be expected to exhibit greater dependency. If this dependency is not accounted for, the estimates for standard errors are liable to be systematically biased, leading to an increase Type 1 errors by over-generous parameters for statistical significance (Raudenbush & Bryk, 2002, p. 21). Not only does HLM help avoid such misestimation pitfalls, but it also allows researchers to identify and measure structural relationships falling at different levels of the structure (Hox, 2010). For this study, given the hierarchical nature of the data (teachers nested in schools), HLM 7.0 was used to test the hypothesized mediation model.

After calculating the descriptive statistics for individual teacher and school data, hypotheses were tested in HLM 7.0 with restricted maximum likelihood estimation to avoid bias in the variance components (Raudenbush & Bryk, 2002). Confidence intervals can be artificially narrow with

maximum likelihood estimation in comparison with restricted maximum likelihood estimation, especially when the number of level-2 units is small, as in this study (N=73). Hypothesis testing followed a model-building process. First, a series of unconditional random effects ANOVAs were conducted to estimate the school-level variance in turnover intention, organizational commitment, and the predictor variables. To determine this, turnover intention was modeled as a function of school average turnover intention (β_0) and random variance (r_{ij}). At level 2, school average turnover intention was modeled as a function of the grand mean of the sample (γ_{00}) and random variance across schools (u_{0j}). The Intraclass Correlation Coefficients (ICC) were estimated based on the variance components from this model. The ICC describes the proportion of variance in the outcome attributed to teacher factors and school factors in order to determine whether differences in turnover intention can be attributed to school membership—in other words, does turnover intention primarily vary by teacher or by school? The same process was followed for organizational commitment and the hypothesized predictor variables.

Unconditional Random Effects ANOVA (Turnover Intention)

Level 1: $TI_{ij} = \beta_{0j} + r_{ij}$

Level 2: $\beta_{0j} = \gamma_{00} + u_{0j}$

Unconditional Random Effects ANOVA (Organizational Commitment)

Level 1: $OCQ_{ij} = \beta_{0j} + r_{ij}$

Level 2: $\beta_{0j} = \gamma_{00} + u_{0j}$

Unconditional Random Effects ANOVA (Faculty Trust in Principal)

Level 1: $FTPrin_{ij} = \beta_{0j} + r_{ij}$

Level 2: $\beta_{0j} = \gamma_{00} + u_{0j}$

Unconditional Random Effects ANOVA (Teacher Workplace Isolation)

Level 1: $TWI_{ij} = \beta_{0j} + r_{ij}$

Level 2: $\beta_{0j} = \gamma_{00} + u_{0j}$

Unconditional Random Effects ANOVA (Faculty Trust in STudents)

Level 1: $FTStu_{ij} = \beta_{0j} + r_{ij}$

Level 2: $\beta_{0j} = \gamma_{00} + u_{0j}$

After conducting these ANOVAs, two random intercepts means-as-outcomes models were tested, one with turnover intention as the outcome and one with organizational commitment as the outcome. The free/reduced lunch rate was included as school-level control variables, with length of tenure in the building as a teacher-level control variable. To facilitate interpretation of intercept values, all school-level variables, including the predictor variables (Omnibus Trust Scale and teacher workplace isolation), were grand-means centered. A stepwise approach was taken to adding the three predictors—faculty trust in principal, teacher workplace isolation, and faculty trust in students—to the model.

In the first model, at Level 1, turnover intention (TI_{ij}) was modeled as a function of school average turnover intention (β_{0j}), length of tenure at the school (*YEARSINS,* β_{1j}), teacher workplace isolation (*TWI,* β_{2j}), and random error (r_{ij}). At Level 2, variation in school average turnover intention (β_{0j}) was predicted to be a function of the grand mean (γ_{00}), the school FRL rate (γ_{01}), school-level faculty trust in principal (*FTPRINSCH,* γ_{02}), school-level faculty trust in students (*FTSTUSCH,* γ_{03}), and random error at the school level (μ_{0j}). In the second model, at Level 1, organizational commitment (OCQ_{ij}) was modeled as a function of school average organizational commitment (*OCQ,* β_{0j}), length of tenure at the school (*YEARSINS,* β_{1j}), teacher workplace isolation (*TWI,* β_{2j}), and random error (r_{ij}). At Level 2, school average organizational commitment (β_{0j}) was predicted to be a function of the grand mean (γ_{00}), the school FRL rate (γ_{01}), school-level faculty trust in principal (*FTPRINSCH,* γ_{02}), school-level faculty trust in students (*FTSTUSCH,* γ_{03}), and random error at the school level (μ_{0j}).

Random Intercepts Means-As-Outcomes Model for Turnover Intention (TI)

Level 1: $TI_{ij} = \beta_{0j} + \beta_{1j}*(YEARSINS_{ij}) + \beta_{2j}*(TWI_{ij}) + r_{ij}$

Level 2: $\beta_{0j} = \gamma_{00} + \gamma_{01}*(FRL_j) + \gamma_{02}*(FTPRINSCH_j) + \gamma_{03}*(FTSTUSCH_j) + u_{0j}$

$\beta_{1j} = \gamma_{10}$

$\beta_{2j} = \gamma_{20}$

Random Intercepts Means-As-Outcomes Model for Organizational Commitment (OCQ)

Level 1: $OCQ_{ij} = \beta_{0j} + \beta_{1j}*(YEARSINS_{ij}) + \beta_{2j}*(TWI_{ij}) + r_{ij}$

Level 2: $\beta_{0j} = \gamma_{00} + \gamma_{01}*(FRL_j) + \gamma_{02}*(FTPRINSCH_j) + \gamma_{03}*(FTSTUSCH_j) + u_{0j}$
$\beta_{1j} = \gamma_{10}$
$\beta_{2j} = \gamma_{20}$

After testing these model, a 2-1-1 mediation model was constructed with turnover intention as the outcome variable and organizational commitment as a teacher-level predictor variable. This process follows Baron and Kenny's (1986) three criteria for determining the existence of mediation. Mediation is said to exist when (1) the independent variable (FTPrin, TWI, or FTStu) has an estimated direct effect on the dependent variable (turnover intention), (2) the independent variable has a direct effect on the mediator variable (organizational commitment), and (3) the strength of the direct effect of the independent variable is reduced by the inclusion of the mediator in the regression model. The first two criteria were examined in the random intercepts means-as-outcomes models. For the third criterion, at Level 1, turnover intention was predicted to be a function of school average turnover intention (β_{0j}), years in the school (β_{1j}), teacher workplace isolation (β_{2j}), individual levels of organizational commitment (β_{3j}), and random error (r_{ij}). The between school variation in turnover intention was modeled as a function of the grand mean γ_{00} and the school conditions in the random intercepts means-as-outcomes model.

2-1-1 Mediation Model

Level 1: $TI_{ij} = \beta_{0j} + \beta_{1j}*(YEARSINS_j) + \beta_{2j}*(TWI_j) + \beta_{3j}*(OCQ_j) + r_{ij}$

Level 2: $\beta_{0j} = \gamma_{00} + \gamma_{01}*(FRL_j) + \gamma_{02}*(FTPRINSCO_j)$
$+ \gamma_{03}*(FTSTUSCO_j) + u_{0j}$
$\beta_{1j} = \gamma_{10}$
$\beta_{2j} = \gamma_{20}$
$\beta_{3j} = \gamma_{30}$

Missing Data

Of the 2,266 teachers surveyed, there were 1,526 usable responses. Not all the responses, however, were complete. Incomplete responses were typically of two kinds. Some respondents left the occasional item unanswered, whether accidentally or on purpose, creating situations where a seven-item scale, for example, might have just five or six responses for that case. Other respondents failed to finish the survey, leaving complete data for the constructs measured earlier in the survey and no data whatsoever for end-of-survey constructs. For the former problem, *item correlation substitution* was employed, replacing "a missing value by the observed response on that item which has the highest correlation with the missing item" (Huisman, 2000, p. 335). For the latter problem, pairwise deletion of incomplete cases (Peugh & Enders, 2004) was conducted based on the needs of the particular model, such that, for example, a model measuring the relationship between teacher workplace isolation (TWI) and organizational commitment (OCQ) would delete any case where the respondent answered questions about TWI but not about OCQ. Data were

assumed to missing at random, an assumption strengthened by the small number of incomplete cases.

Chapter 5: Results

Descriptive Statistics

As previously mentioned, two different forms were used to survey teachers. Items on one form concentrated on self-referential constructs, such as a teacher's own feelings of organizational commitment (OCQ) or workplace isolation (TWI). The other form included school-referential items, such as levels of faculty trust in students (FTStu) or in the principal (FTPrin). Results on both forms were aggregated at the school level, as well, but are only used in the analysis as school-level aggregates where theory suggests and analysis confirms. The average teacher in the district had over six years of experience at their current school. The average teacher reported favorable organizational commitment (mean = 4.89), and even the lowest-commitment school in the district had more teachers reporting feelings of commitment than not (school-level minimum = 3.42, maximum = 5.71, on a scale of 1 to 6). The range of school average rates of turnover intention, however, were considerably wider (minimum = 1.83, maximum = 4.92). Table 5 shows descriptive statistics for individual responses (level one), whereas Table 6 includes school-level descriptive statistics for additions items (such as collective trust) that are meant to be aggregated.

Table 5. Level-1 Descriptive Statistics.

Variable	N	Mean	Standard Deviation	Minimum	Maximum
Years in School	746	6.14	6.25	1.00	30.00
Turnover Intention from School (TISch)	765	3.11	1.43	1.00	6.00
Organizational Commitment (OCQ)	767	4.89	0.98	1.29	6.00
Teacher Workplace Isolation (TWI)	779	4.90	0.88	1.00	6.00

Table 6. Level-2 Descriptive Statistics.

Variable	N	Mean	Standard Deviation	Minimum	Maximum
Years in School	73	5.90	2.51	1.82	12.23
Turnover Intention from School (TISch)	73	3.16	0.70	1.83	4.92
Organizational Commitment (OCQ)	73	4.89	0.50	3.42	5.71
Teacher Workplace Isolation (TWI)	73	4.91	0.34	4.09	5.56
Faculty Trust in Students (FTStu)	73	4.03	0.53	3.04	5.47
Faculty Trust in Principal (FTPrin)	73	4.49	0.74	2.71	5.78
Proportion of Students Receiving Free or Reduced-Price Lunch (FRLpct)	73	0.71	0.20	0.16	0.95

Zero-Order Correlations

Tables 7 and 8 present the correlations between constructs at the individual level and the school level, respectively. Statistical significance of the correlations are also indicated.

Table 7. Level-1 Zero-Order Correlation Table.

	YearsInSch	TISch	OCQ	TWI
YearsInSch	1	-.180**	.131**	.083*
TISch	-.180**	1	-.620**	-.327**
OCQ	.131**	-.620**	1	.510**
TWI	.083*	-.327**	.510**	1

**. Correlation is significant at the 0.05 level (2-tailed).*
***. Correlation is significant at the 0.01 level (2-tailed).*

Table 8. Level-2 Zero-Order Correlation Table.

	YearsInSch	TIsch	OCQ	TWI	FTStu	FTPrin	FRLpct
YearsInSch	1	-.280*	.204	.142	.293*	.019	-.438**
TIsch	-.280*	1	-.725**	-.509**	-.389**	-.332**	.294*
OCQ	.204	-.725**	1	.592**	.582**	.462**	-.409**
TWI	.142	-.509**	.592**	1	.518**	.266*	-.264*
FTStu	.293*	-.389**	.582**	.518**	1	.360**	-.681**
FTPrin	.019	-.332**	.462**	.266*	.360**	1	.011
FRLpct	-.438**	.294*	-.409**	-.264*	-.681**	.011	1

**. Correlation is significant at the 0.05 level (2-tailed).*
***. Correlation is significant at the 0.01 level (2-tailed).*

Unconditional Random Effects ANOVA

To determine proportion of variance at the individual level and at the school level, Intraclass Correlation Coefficients (ICCs) were calculated for the outcome variable (TI) and the hypothesized mediator variable (OCQ). Approximately 90% of the variance in turnover intention was at the individual level, leaving about 10% to be explained by school-level factors ($p < .001$). For organizational commitment, about 83% of the variance was at the individual level, with the other 17% attributable to school-level factors ($p < .001$). These ICCs align with the prior theoretical description of

organization commitment and turnover intention as individual psychological phenomena that are responsive to organizational conditions.

ICCs were also calculated for the independent variables (FTPrin, TWI, FTStu) to evaluate the appropriate level for their placement in the model. Measures of collective trust in the principal and in students varied considerably between schools, with 20% and 25% respectively of the variance to be explained at the school level ($p < .001$). Given that the school is the referent for these constructs, their placement at level two in the model is unsurprising. Meanwhile, teacher workplace isolation, which captures individual perceptions of one's own relationships, was more suited for level one of the model, with only 4% of variance to be explained between schools ($p < .01$). ICC results are presented in Table 9.

Table 9. Intraclass Correlation Coefficients.

Variable	Variance Within Schools (ICC-1)	Variance Between Schools	Chi Square
Turnover Intention from School (TISch)	0.90	0.10	159.02***
Organizational Commitment (OCQ)	0.83	0.17	222.91***
Faculty Trust in Principal (FTPrin)	.80	.20	249.22***
Teacher Workplace Isolation (TWI)	.96	.04	103.75**
Faculty Trust in Students (FTStu)	.75	.25	292.88***

Random Intercepts Means-As-Outcomes Models

Overview of Hypotheses

The hypothesized mediation model (Figure 2) posited that relational conditions would have a direct effect on organizational commitment and on turnover intention, with the effect on the latter being mediated by organizational commitment.

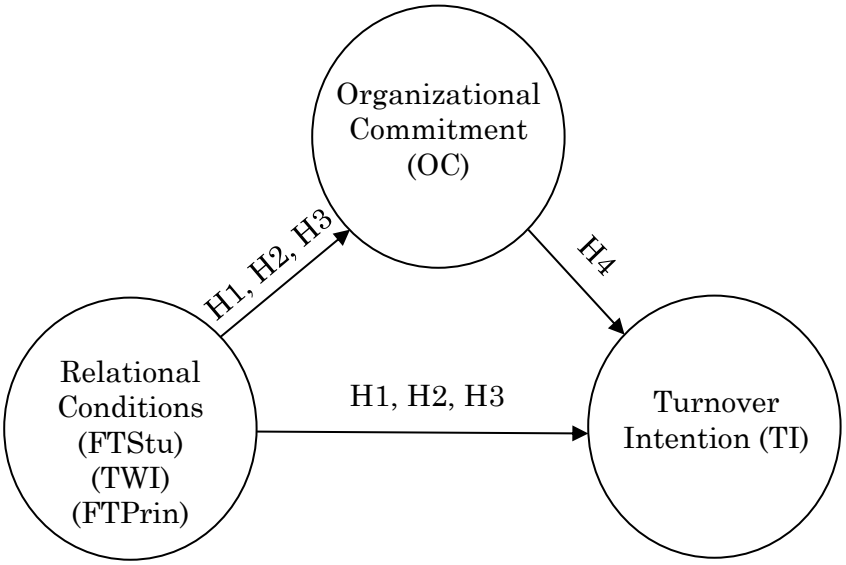

Figure 2. Mediation model.

Hypothesis 1 (H1): Principal-teacher relatedness has a negative effect on turnover intention, partially mediated through organizational commitment.
Hypothesis 2 (H2): Teacher-teacher relatedness has a negative effect on turnover intention, partially mediated through organizational commitment.
Hypothesis 3 (H3): Student-teacher relatedness has a negative effect on turnover intention, partially mediated through organizational commitment.
Hypothesis 4 (H4): Organizational commitment has a negative effect on turnover intention.

The first three hypotheses were all two-part propositions, including both a direct effect of the relational conditions on the outcome (turnover intention), and the mediation of that effect by organizational commitment. First, several tests were conducted to establish the direct effect of relational conditions on turnover intention, followed by tests to establish a direct effect of relational conditions on the hypothesized mediator.

Direct Effects on Turnover Intention

Turnover intention was hypothesized to be related to school relational conditions. Measures for principal-teacher (FTPrin), teacher-teacher (TWI), and student-teacher (FTStu) relationships were added stepwise into a random intercepts means-as-outcomes model with controls for the teacher tenure in the building and the average free and reduced lunch rate (FRL) of the school. For ease of comparison, all variables were standardized around a mean of zero with a standard deviation of one.

The model with only faculty trust in principal explained approximately 48% of the between-school variance (and less than 2% of the within-school variance). Faculty trust in the principal had a significant, negative effect on school-average turnover intention ($\gamma_{02} = -0.17$, $p < .001$). The model with teacher workplace isolation explained about 10% of the individual variance in turnover intention (while the control for school-level FRL rate helped account for 39% of the between-school variance in turnover intention), with a significant, negative relationship between teacher

workplace isolation and individual turnover intention (γ_{20} = -0.29, p < .001). Because the TWI measure is composed of favorably worded items, a higher TWI score indicates more connectedness, not more isolation. The model focusing on teacher-student relationships explained 35% of the variance between schools in average turnover intention (and just under 2% of within-school variance), with a significant, negative relationship between faculty trust in students and school-average turnover intention (γ_{03} = -0.18, p = .009). When all three variables were included in the model, the model fit out-performed all three stepwise models, explaining 55% of the variance between schools in turnover intention and 10% of the variance within schools. While the FTPrin and TWI measure maintained their significant, negative relationships with turnover intention in the combined model (respectively, γ_{02} = -0.12, p = .016; γ_{20} = -0.29, p < .001), the FTStu measure no longer remained statistically significant (γ_{03} = -0.02, p = .831). Results of all four models (plus the null model) are summarized in Table 10.

Table 10. HLM Results for Turnover Intention.

	Turnover Intention				
Fixed Effects	**Null Model**	**Principal-Teacher Model**	**Teacher-Teacher Model**	**Student-Teacher Model**	**Combined Model**
Years in School (slope)	—	-.15 (.04)***	-.13 (.03)***	-.15 (.04)***	-.13 (.04)***
Free and Reduced Lunch Rate	—	.11 (.04)**	.08 (.04)*	-.02 (.06)	.08 (.06)
Faculty Trust in Principal	—	-.16 (.05)***	—	—	-.13 (.05)*
Teacher Workplace Isolation (slope)	—	—	-.29 (.03)***	—	-.28 (.03)***
Faculty Trust in Students	—	—	—	-.18 (.07)**	-.02 (.07)
Deviance (-2 Log likelihood)	2151	2070	2006	2075	2004
Between-School Variance Explained	—	48%	39%	35%	55%

N.B. Coefficients are presented for each variable, where relevant, followed by robust standard errors in parentheses. * $p < .05$, ** $p < .01$, *** $p < .001$. N = 73 schools. Variables were standardized to a mean of zero and a standard deviation of one.

Direct Effects on Organizational Commitment

The first three hypotheses not only posited a direct effect of relational conditions on turnover intention, but the mediation of that effect by organizational commitment. To establish mediation, it first must be demonstrated that there is a relationship between the independent variable(s) and the hypothesized mediator. Another stepwise process was followed to establish relationships between relational conditions and organizational commitment (OCQ). All models controlled for length of teacher tenure in the building at level one and school FRL rate at level two.

In the principal-teacher relationships model, FTPrin had a significant, positive effect on school-average OCQ ($\gamma_{02} = 0.24$, $p < .001$). The

model accounted for 59% of the variance between schools (and less than 1% of the variance within schools). The teacher-teacher relationships model performed even better, accounting for 26% of variance within schools and 47% of the variance between schools. TWI was positively associated with individual levels of OCQ ($\gamma_{20} = 0.48$, $p < .001$), meaning that teachers who felt more connected to their co-workers were more likely to experience organizational commitment. The student-teacher relationship model found a significant, positive relationship between FTStu and OCQ ($\gamma_{03} = 0.31$, $p < .001$); altogether, the model explained 52% of the variance in organizational commitment between schools (and just 1% of the variance within schools). As with turnover intention, the best model fit was for a combined model with all three independent variables (FTPrin, TWI, and FTStu). The combined model explained 69% of the variance between schools and 25% of the variance within. As before, FTPrin and TWI remained statistically significant predictors of the outcome variable (respectively, $\gamma_{02} = 0.17$, $p = .004$; $\gamma_{20} = 0.48$, $p < .001$), but the relationship between FTStu and OCQ became statistically insignificant ($\gamma_{03} = 0.07$, $p = .376$). Results of all four models (plus the null model) are summarized in Table 11.

Table 11. HLM Results for Organizational Commitment.

	Organizational Commitment				
Fixed Effects	**Null Model**	**Principal-Teacher Model**	**Teacher-Teacher Model**	**Student-Teacher Model**	**Combined Model**
Years in School (slope)	—	.09 (.03)**	.16 (.03)*	.10 (.03)**	.06 (.03)*
Free and Reduced Lunch Rate	—	-.20 (.04)***	-.16 (.04)***	.01 (.06)	-.11 (.07)
Faculty Trust in Principal	—	.24 (.06)***	—	—	.17 (.06)**
Teacher Workplace Isolation (slope)	—	—	.48 (.04)***	—	.46 (.04)***
Faculty Trust in Students	—	—	—	.31 (.07)***	.07 (.08)
Deviance (-2 Log likelihood)	2151	2034	2006	2037	1824
Between-School Variance Explained	—	59%	47%	52%	69%

N.B. Coefficients are presented for each variable, where relevant, followed by robust standard errors in parentheses. * $p < .05$, ** $p < .01$, *** $p < .001$. N = 73 schools. Variables were standardized to a mean of zero and a standard deviation of one.

2-1-1 Mediation Model

After establishing the existence of a direct relationship between the independent variable and the outcome variable, and between the independent variable and the mediator variable, the final step to demonstrate mediation is to show that the strength of the direct effect of the independent variable on the outcome is diminished by the inclusion of the mediator in the model (Baron & Kenny, 1986). Establishing mediation is the final step necessary to confirm or reject the first three hypotheses (that the direct effect of relational conditions on turnover intention is mediated by organizational commitment). The final mediation model will also provide evidence for or against the fourth hypothesis (that organizational

commitment has a negative relationship with turnover intention). So far, all three independent variables have been shown to have direct effects on both organizational commitment and turnover intention, with two of the three (FTPrin, TWI) maintaining that relationship in the combined model.

Full results of the last four models tested (along with comparisons to the earlier, unmediated models) appear in Table 12. In all four models—the principal-teacher model, the teacher-teacher model, the student-teacher model, and the combined model—the addition of OCQ to level one of the model resulted in full mediation of the effects of the independent variable(s) on the outcome, turnover intention. No effect on turnover intention was detected for any of the relational conditions measured, and the control variable measuring the FRL rate of the school was likewise inconsequential. In all four models, OCQ had a significant, negative, and large effect on turnover intention (γ_{30} = -.60, $p < .001$). The numbers of years already spent in that particular school also had a significant, negative effect, albeit a smaller one (γ_{10} = -.10, $p < .001$). The fit of all four models was near equal, with each one explaining 88-90% of the between-school variance and 33% of the within-school variance. The first, second, and third hypotheses were thus partially confirmed and partially in error; the fourth hypothesis was confirmed.

Table 12. HLM Results for Mediation Models.

Turnover Intention									
Fixed Effects	**Null Model**	**Principal-Teacher Model**	**Principal-Teacher Mediation Model**	**Teacher-Teacher Model**	**Teacher-Teacher Mediation Model**	**Student-Teacher Model**	**Student-Teacher Mediation Model**	**Combined Model**	**Combined Mediation Model**
Years in School (slope)	—	-.15 (.04)***	-.10 (.03)***	-.13 (.03)***	-.10 (.03)***	-.15 (.04)***	-.10 (.03)***	-.13 (.04)***	-.10 (.03)***
Free and Reduced Lunch	—	.11 (.04)**	-.01 (.03)	.08 (.04)*	-.02 (.02)	-.02 (.06)	.01 (.06)	.08 (.06)	.00 (.04)
Faculty Trust in Principal	—	-.16 (.05)***	-.02 (.03)	—	—	—	—	-.13 (.05)*	-.02 (.04)
Teacher Workplace Isolation	—	—	—	-.29 (.03)***	-.01 (.03)	—	—	-.28 (.03)***	-.01 (.03)
Faculty Trust in Students	—	—	—	—	—	-.18 (.07)**	.01 (.04)	-.02 (.07)	.03 (.05)
Organizational Commitm	—	—	-.60 (.03)***	—	-.60 (.03)***	—	-.61(.03)***	—	-.60 (.03)***
Deviance (-2 Log likelihood)	2121	2070	1763	2006	1763	2075	1763	2004	1771
Between-School Variance	—	48%	89%	39%	90%	35%	88%	55%	88%

N.B. Coefficients are presented for each variable, where relevant, followed by robust standard errors in parentheses. * $p < .05$, ** $p < .01$, *** $p < .001$. N = 73 schools. Variables were standardized to a mean of zero and a standard deviation of one.

Assumptions of Hierarchical Linear Modeling

Hierarchical linear modeling, like ordinary least-squares regression, rests upon several assumptions about the data. Errors must be normally distributed and homogenous, and the errors of one independent variable should be independent of the errors of other independent variables. Residual analysis reveals whether these assumptions have been met or violated. For the first test, histograms of both the level-one and level-two residuals revealed that errors were normally distributed. The error between observed and predicted values was not skewed positively or negatively.

However, level-one and level-two tests for homogeneity of error revealed a small amount of heterogeneity at level one. Raudenbush and Bryk (2002) suggest several reasons for heterogeneity at level one, including the omission of a relevant predictor variable, or simple coding errors in the data. However, the most likely culprit in this case is "Nonnormal data with heavy tails (i.e., more extreme observation than normally expected)" (p. 263). In this case, there were 767 respondents to the items measuring the mediator variable (OCQ). Of those respondents, 156 answered "strongly agree" to all seven items on the scale, negatively skewing the distribution of those data. One solution to the problem of "heavy-tailed" data is to transform the problematic variable; in this instance, such an approach would not address the problem. Because the heaviness of the right tail is driven exclusively by a single value (6.00 on a scale of 1 to 6), no

transformation will be successful, because all values in the interval are the same. In this instance, using robust standard errors can mitigate the problem. Hox (2010) observes that "inference based on the robust standard errors [is] less dependent on the assumption of normality, at the cost of sacrificing some statistical power" (p. 261). Given the small violation of the assumption of normality, using robust standard errors will help protect against the occurrence of any type 1 errors, while the heteroskedasticity will not affect the coefficients themselves.

Finally, a series of tests was conducted to ensure statistical independence of the errors. Each independent variable was plotted against the residuals. Any non-random pattern might suggest a violation of the assumption of independence, but all plots with these data resulted in an amorphous or "cloud-like" pattern, suggesting independence of the errors. Given that such violations are most common with time-series data, this result is unsurprising.

Chapter 6: Discussion

Re-Statement of Purpose

The purpose of this study was to examine organizational commitment's potential role as a psychological mediator between the relational conditions in schools and individual teachers' intentions to leave their positions. Although there is a wealth of evidence testifying to the importance of working conditions in teachers' turnover decisions (Ingersoll,

2001; Borman & Dowling, 2008; Simon & Johnson, 2015), there has been little discussion of the relational nature of the most salient working conditions identified in the literature—conditions like collegiality, collaboration, mentoring, student discipline issues, and perceived administrative support. Furthermore, the literature tends toward agnosticism with respect to the psychological conditions engendered by these working conditions, looking only at the link between environment and ultimate behavior (Macdonald, 1999; Loeb et al., 2005; Borman & Dowling, 2008; Goldring et al., 2014). Self-determination theory provides a lens through which these relational conditions can be analyzed—as either supportive of or frustrating teachers' innate psychological need for relatedness. While self-determination theory emphasizes the effects of needs-support on intrinsic motivation, there is good reason to believe that such support also enhances teachers' affective commitment to the organization (Mowday et al., 1979, p. 276), which itself is associated with much lower rates of both turnover intention and turnover (Porter et al., 1974; Porter et al., 1976; Jaros, 1997; Stanley et al., 2013).

Findings

This study proposed four hypotheses:

Hypothesis 1 (H1): Principal-teacher relatedness has a negative effect on turnover intention, partially mediated through organizational commitment.
Hypothesis 2 (H2): Teacher-teacher relatedness has a negative effect on turnover intention, partially mediated through organizational commitment.

Hypothesis 3 (H3): Student-teacher relatedness has a negative effect on turnover intention, partially mediated through organizational commitment.
Hypothesis 4 (H4): Organizational commitment has a negative effect on turnover intention.

The final hypothesis was the easiest to confirm. In the final model, organizational commitment had a significant, large, and negative association with turnover intention (see Table 10 above). This finding is not groundbreaking; four decades of organizational studies have consistently found associations between commitment and turnover intention, even after removing certain items from the commitment scale to avoid redundancy with the turnover intention scale (Jaros, 1997; Chen, 2001; Hansen et al., 2003; Stanley et al., 2013). Nonetheless, given the infrequency with which organizational commitment is applied as a measure in analyses of teacher turnover, this finding remains an important first step for this study.

The results of the first, second, and third hypotheses are more ambiguous than the first. Perhaps the most obvious inaccuracy is the initial claim of partial mediation; in fact, the inclusion of organizational commitment in every model tested reduced the effects of the independent variable(s) almost to zero, which indicates that organizational commitment fully mediates the effects of relational conditions on turnover intention.

As hypothesized, the relational conditions specified in the hypotheses—principal-teacher relatedness, teacher-teacher relatedness, and student-teacher relatedness—all demonstrated negative relationships with the outcome variable, turnover intention, in the unmediated models.

However, only principal-teacher relatedness and teacher-teacher relatedness (as measured by faculty trust in the principal and teacher workplace isolation) retained statistical significance in the final model. Student-teacher relatedness (as measured by faculty trust in students) was only significant when it was the sole independent variable in the model (other than controls for length of teacher tenure and the school FRL rate).

This latter result suggests that teachers' relatedness needs are greater with respect to their adult co-workers (including both colleagues and supervisors) than with respect to their students. At first blush, this may seem a surprising finding, given that teachers spend considerably more time each day with pupils than with peers or principal. Furthermore, the evidence in the literature that student disciplinary issues and class sizes are predictive of higher turnover (Eller et al., 2000; Ingersoll, 2001; Kelly, 2004) had suggested the importance of student-teacher relationships to the decision to stay or leave.

On the other hand, there were limitations to the third hypothesis that, from the beginning, weakened it in comparison with the other three. The student-centric variables that predict teacher turnover in the literature are more distal to the psychological need of relatedness than those at the teacher- or administration-level. The experience of collegiality, mentoring, or support directly satisfies the psychological need for relatedness. In contrast, a variable like large class sizes has a more roundabout connection

to the relatedness need. Although having large class sizes may dilute the quality of teacher-student relationships by increasing the quantity of students (thereby inhibiting relatedness and driving turnover), it may also drive turnover by increasing workload or by frustrating teachers' attempts to manage the classroom (thereby thwarting the need for competence). Likewise, high levels of problematic student behavior may keep teachers from experiencing healthy and positive relationships with their students and thus contribute to turnover, but the mechanism could be that student disciplinary problems drive teacher perceptions that the school administration is not supportive or consistent in addressing misbehavior, damaging the principal-teacher relationship and, ultimately, increasing turnover.

It may also be the case that teachers do not expect their need for relatedness to be satisfied by their students. Except in schools with very high teacher or principal turnover, the relationships between teachers and the principal and among the faculty will be longer-lasting than relationships with students. Student-teacher interactions are intense but short-term, with students moving to different classes after one year (or sometimes two), and then on to other schools. One's relationships with co-workers, however, may last for years or even decades, and endure without the same limits of propriety that must perforce restrict the cross-generational relationships of students and teachers. Furthermore, the students are in many ways akin to

clients or patients; though they are individuals, they still represent the work to be done. It may be that the relatedness satisfaction that can be generated from a client or patient dims in comparison with the relationships of colleagues.

Another finding of this study serves to confirm the argument that teacher mobility is not primarily a function of teacher preferences for more affluent students (Loeb et al., 2005; Boyd et al., 2011; Ladd, 2011; Simon & Johnson, 2015). When the relational conditions were included in the model, the free and reduced lunch rate of the school became an insignificant predictor of turnover intention. Meanwhile, even in the final mediation model, the length of teacher tenure in the building never ceased to negatively predict turnover intention. Given that the average teacher in the district was not near retirement (with about 13 years of teaching experience), this finding lends further support to the familiar "U-shaped" curve of teacher attrition, with low attrition rates prevailing for mid-career teachers (Ingersoll, 2001).

Limitations

Before discussing any implications for further research and practice, it is important to acknowledge the limitations of this study, beginning with the predominant limitation of scope. These data are drawn entirely from a single urban district in a southwestern state; both the district and the state have suffered in recent years from high turnover and teacher shortages.

Whether the findings are generalizable to other contexts—rural schools, private schools, low-turnover suburban districts—is a question for further study.

Although the scope of this study restricts the generalizability of the conclusions, it does afford one advantage: a single salary schedule. Inadequate and uncompetitive compensation is well established as a driving factor in teacher turnover behavior (Ingersoll, 2001; Gray et al., 2015; Podolsky et al., 2016; Sutcher et al., 2016). However, districts and states differ on a wide range of compensatory policies: starting salary, the "slope" of the salary schedule, the number of "steps" on the salary schedule, bonuses, merit pay, extracurricular stipends, insurance and other benefits, retirement contributions, incentives for graduate education and professional development, and even unusual benefits such as free or subsidized housing. Making comparisons between districts or between states of the effects of compensation on turnover can introduce a level of complexity vexing even to experienced econometricians (Hendricks, 2014). Conducting this study in a single district allows the model to treat salary as a constant, since the same salary schedule and compensation policies apply to all teachers in the district. Salary is doubtless still affecting the turnover intentions of teachers in this district, but there is no reason to suppose that it is systematically biased in its effects on certain schools within the district, except to the

extent that those schools disproportionately employ early-, mid-, or late-career teachers.

Another limitation of this study is that it captures a single year of data regarding teacher perceptions and intentions. Future surveys will generate time-series data to allow exploration of a host of questions relevant to the topic. What percentage of teachers who intend to leave do, in fact, leave? Does organizational commitment tend to increase as a teacher's tenure in the building lengthens? Are there schools moving from higher average turnover intention to lower average turnover intention (or vice-versa) over time, and what characterizes such schools?

The absence of multiple years of data emphasizes another limitation of this study. The ability to claim causation in the relationships demonstrated is strained by the cross-sectional nature of this research. The study performed was not a randomized controlled trial, nor even a true quasi-experiment. However, when genuine experimentation is not possible, examining correlations from survey data can still be valuable. Conducting a thorough review of literature, laying a strong theoretical foundation for the hypothesized relationship(s), and designing a statistically defensible model are three safeguards employed in this study against the danger of inappropriate exploitation of correlational data. Furthermore, in many cases, common sense suggests the likely direction of causality (it is more plausible that teachers frustrated by an untrustworthy principal eventually

start making their plans to leave, rather than that teachers who have decided to leave begin to see their principal as dishonest or unreliable). Nonetheless, further replication of these results is merited to further ease concerns that too much is being made of simple correlation.

A final limitation of this study is the inability to include statistical controls for the support of the psychological needs for competence and autonomy. Other studies have used teacher survey measures of enabling school structure (ESS) and professional development opportunities (PDO) to capture autonomy support and competence support, respectively (Adams et al., 2016; Ford & Ware, 2016). This study focused on relatedness support because of the apparent importance of relationships in the extant teacher turnover literature. The inability to control for the role played by the other psychological needs is a weakness of this study. However, a high degree of correlation between ESS, PDO, and FTPrin (faculty trust in the principal) made it impossible to justify including all three in the same model due to concerns of collinearity. ESS and PDO were used as controls in stepwise models focused on the teacher-teacher and teacher-student relationship; both TWI and FTSTu remained statistically significant predictors of turnover intention even when including those controls. However, because of the collinearity with FTPrin, the controls were ultimately excluded from the four models described above. This limitation, while regrettable, is unsurprising. The interrelatedness of the three psychological needs posited

by self-determination theory makes it difficult to measure precisely the effects of certain behaviors or conditions on just one need.

Conclusion

Despite the limitations described above, this study provides a window into the psychological processes occurring in teachers making plans to stay at or leave their schools. As mentioned earlier, most schools do not suffer from high turnover or chronic shortages (Ingersoll, 2001). Throughout the United States, teacher turnover does not bedevil every district or every building. Turnover is more likely to afflict schools serving low-income students and racial minorities, but even within those kinds of schools, there is considerable variation in the turnover rate, and for some, turnover is not a besetting issue (DeAngelis & Presley, 2011). The schools examined in this study, however, are the ideal setting for a study of problematic turnover. This study was situated in a state with low teacher salaries (NEA Research, 2015) and endemic teacher shortages (Eger, 2015), in a district where hundreds of teachers (between 15% and 20%) left last year, serving mostly non-white students qualifying for free and reduced-price lunch, surrounded by more affluent suburban districts offering higher achievement and fewer disciplinary problems. In a district that checks every box for turnover warning signs, perhaps the better question is not, "Why do teachers leave?", but rather, "What is going on in the minds of the teachers who choose to stay?"

The answer offered to this latter question should give hope to leaders of the schools suffering from acute teacher turnover. Demographics are not destiny. Low salaries and disadvantaged students need not guarantee high turnover. A healthy organizational climate can withstand the predations that difficult circumstances might otherwise make. In fact, the school in the district with the lowest average turnover intention served a student body that was less than 30% white, with 80% of students receiving free or reduced-price lunch. Average teacher tenure in the building was just over three years. High-quality relationships in the school lay a foundation on which a stable teaching corps can be built, setting a school up for long-term success as the adults in the building become more experienced with curriculum and instruction, more familiar with each other, and more trusting of their leadership.

What, then, is the school leader to do? Recognizing that turnover intention is not an innate trait and that organizational commitment safeguards against turnover, he or she must begin the long and challenging work of building relationships and building trust with and among the faculty. This may sound like some warm-and-fuzzy prescription of kumbaya around the campfire or wilderness ropes course retreats, but in practice it is much closer to the practical work of instructional leadership.

How do principals make themselves trustworthy to their faculty? They eschew "control systems more appropriate for manufacturing"

(Forsyth & Adams, 2014, p. 95), such as counting "look-fors" on a teacher evaluation, and instead create predictability by demonstrating goodwill and reliability amidst the risky and uncertain work of teaching and learning. They daily, consistently exhibit benevolence, honesty, openness, reliability, and competence (Forsyth et al., 2011). In the terminology of game theory, they treat trust-building as a long-term process, with repeated iterations of the "game" allowing for a gradual accumulation of the evidence that both parties are willing to cooperate with each other (Miller, 2004). Using the teacher evaluation process as a means of building capacity rather than as an extrinsic incentive for performance is one concrete way that principals can put this approach to trust-building into action (Firestone, 2014).

Formal control mechanisms likewise offer little in the way of building teacher-teacher trust. Rather, providing more opportunities for teachers to share both their thoughts and the work of the school shows promise for enhancing the faculty trust in colleagues. Ford (2014) finds that shared instructional experience over time—including having a "common core curriculum, common language, and shared learning goals" (p. 249)—is associated with increasing teacher-teacher trust. Meanwhile, Bryk and Schneider (2002) have found a significant trust-building effect in factors like collective responsibility and critical discourse among faculty. These trust-building efforts all work against the prevailing school condition that Lortie (1975) described as the "egg-crate" organization of schools, where each

classroom sits next to, but never comes into contact with, the others in the building. Whether by promoting critical discourse or shared learning goals, principals who work to break teachers out of their natural isolation from each other help give teachers an awareness of what other teachers are doing and a greater sense of their obligation and mutual dependence on each other. Where there is no sense of interdependence, not even mutual awareness, there can be no collective trust and only shallow relationships.

It has become cliché to observe that there are no silver bullets in education. Trite though it may be, this saying is doubly true for the problem of teacher turnover. There is no single miracle solution—salaries, trust, or working conditions—for schools that suffer from it, and solving the turnover problem will not cure everything else that ails a school. At its heart, though, education is not a matter of textbooks, of salary schedules, of school board policies, or of vision statements. Education is a human endeavor, a dense web of connected and interdependent individuals working together—as students, parents, faculty, and staff—to exchange ignorance for knowledge, to replace instinct with character, to transform children into adults. It is an uncertain process, defying standardization and mechanization, always contingent, never perfected. Of the hundreds or thousands of relationships that shape each child's education, some will be deep and some shallow, some brief and some permanent, some warm and some clinically cold. But the more trusting, the more stable, the longer-lasting, and the warmer that

each of those relationships can be, the greater the chances that our educational processes and outcomes will contribute to human flourishing.

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