ABSTRACT

THIBAULT, MELISSA RIHM. The Effect of Entrepreneurial Orientation on Teacher Satisfaction and Retention. (Under the direction of Dr. James Swiss.)

Teacher turnover is a costly problem. Since teacher working conditions influence teacher's satisfaction and career intentions, managers may theoretically increase teacher satisfaction and retention by fostering a school environment supportive of the highly-trained professional. Entrepreneurial Orientation is an organizational construct correlated with positive organizational outcomes in primarily private sector studies. This dissertation examines its application to the public sector, in particular to public schools.

Because Entrepreneurial Orientation is a private sector construct, this exploratory study designs a related measure, Public School Entrepreneurial Orientation, a contextually appropriate measure of the school's relative support for teacher's expert, creative and enterprising work. The effect of Public School Entrepreneurial Orientation on teacher satisfaction and retention is examined using data from the 2014 North Carolina Teacher Working Conditions Survey to measure teacher's perceptions of the activities indicative of on important outcomes.

Controlling for other influential factors, teacher satisfaction, career intentions and retention are improved in those organizations with certain professionally promising characteristics indicated by a higher level of Public School Entrepreneurial Orientation. The study confirmed the positive influence of both role-based Professionally Promising working conditions and Public School Entrepreneurial Orientation on teacher's satisfaction and career intentions. Additionally, while Professionally Promising workplace did not prove influential in actual school-level teacher retention, Public School Entrepreneurial Orientation had a

small but significant effect on the school's retention of teachers. This suggests conditions where teachers act with agency are important for school management. Implications for school environments and building-level managers are discussed.

The Effect of Entrepreneurial Orientation on Teacher Satisfaction and Retention

by
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DEDICATION

This dissertation is dedicated to my husband Skip Thibault and all the creative, expert, enterprising public educators like him who persevere in the face of disrespect and adversity to perform the complex work of a teacher with great aplomb. You are an inspiration, and I am grateful for you and all you do.

BIOGRAPHY

Melissa Rihm Thibault is the Vice Chancellor for Distance Education and Extended Programs at the North Carolina School of Science and Mathematics, leading efforts in online learning, delivery of instruction using interactive video conferencing, teacher professional development, and student enrichment programs, including the state-wide Summer Ventures in Science and Mathematics pre-college program. In her role at NCSSM, Melissa leverages the contributions of faculty and staff, develops partnerships with other education service providers, and works to realize the School's potential in leading North Carolina in the development and delivery of STEM curriculum and instruction. In addition to leading distance education for NCSSM, Melissa is the chair the advisory board for the North Carolina Virtual Public School and has led efforts to create collaborations across K-12, community college, and university partners that would yield online content to be freely shared with any student in the state and beyond.

Melissa has an undergraduate degree in Economics from Colby College, a Masters in Library Science from the University of South Florida and is a doctoral candidate in Public Administration at North Carolina State University. She is married to Skip, the mother of Gloria, Daniel and Sarah, and the grandmother of Kenneth Henry.

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"A professional is a certified expert who is afforded prestige and autonomy in return for performing at a high level, which includes making complex and disinterested judgments under conditions of uncertainty. Professionals deserve to live comfortably, but they do not enter the ranks of a profession in order obtain wealth or power; they do it out of a calling to serve."

~ Howard Gardner

CHAPTER 1. RESEARCH PROBLEM

Based upon the above definition by Howard Gardner, classroom teachers are professionals, but the current school work environment in United States public education in general does not support the professionalism inherent in teaching. In addition to the movement of teachers seeking professional advancement, many exit the classroom and teaching altogether. Teacher morale is rapidly declining; in a recent MetLife survey, teacher job satisfaction dropped 20 points, from 59 percent very satisfied in 2009 to 39 percent – the lowest in over 25 years – just three years later (Heitin 2013). Exit from teaching goes well beyond expected attrition for retirement and other customary reasons; teaching has become a "revolving door" through which teachers flow in and out, leaving schools with the costly, time-consuming and potentially avoidable tasks of recruiting, training and acclimating teachers annually. (Moore 2012; Synar & Maiden 2012). Many observers have argued that specific workplace reforms and malleable environmental factors will aid teacher retention. This study will examine whether, and to what extent, these factors do in fact increase retention.

Retention and Financial Costs of Turnover

Issues related to recruitment, development and retention of the classroom teachers figure prominently in public education. Whether the focus of attention is the budget and efficiencies, or outcomes and effectiveness, factors impacting teacher retention represent some of the most important levers available to managers and policy makers in education.

Salaries and benefits are the largest educational expenditure. Generally speaking on a national level, 80-85 percent of the school's entire budget is used to pay salaries and benefits,

and at 61 percent of the total, cost for the instructional staff are the largest percentage by function (AASA 2012). Factors that impact this cost are of interest to the local school administration as they work to better serve their students with available resources, but there are other stakeholders involved as well. In North Carolina the overall percentage of instructional staff is similar at 62 percent, but compared with the national average, the percentage of state funding used to cover staff costs is higher; the Department of Public Instruction reports all but 9.6 percent of state expenditures were salaries and benefits (NCDPI 2013). State level policy makers are particularly pivotal in the North Carolina public school funding arena since state funds are 65.9 percent of the funding for North Carolina public schools, an amount that exceeds the national average of 45.5 percent (NCDPI 2013). Considering the primacy, then, of staff-related instructional costs, it is not surprising that potential efficiencies or cost savings in this area would be of interest to both management and policy makers.

Since staff-related instructional costs are so great a percentage of expenditures, the retention of teachers is important. Teacher turnover can be costly, and in as much as teachers can be retained, it is a cost that can be controlled. Although there is variability in the costs depending upon cost model, location of the school and teacher assignment, recent estimated costs per leaver exceed $15,000 (Synar & Maiden 2012). These costs may be the ones that are easy to measure but they are understated because this estimate accounts for the actual direct costs required to fund recruitment and acquisition. What is not accounted for are the costs associated with developing the replacement teacher to a point where they can provide comparable value to the organization, the productivity-related costs incurred during vacancy,

and the learning-curve for teachers newly inducted to the organization (Levy et al. 2012; Watlington et al. 2010).

Of teachers who left their classroom as reported in the national 2008-9 Teacher Follow-up Survey, 49% of teachers who left were “movers” to a different school, and 51% were “leavers” who left teaching (Keigher 2010). It does not matter if the movement is mobility among teaching positions, also known as “churn,” or actual exit of the profession; either way, the school must bear the cost for replacement. The issue of retention is more challenging in some areas of staffing, such as secondary science, because marketability of the teacher in non-teaching positions is influenced by external labor market factors (Goldhaber et al. 2011; Levy et al. 2012).

Trends in teacher turnover indicate no abatement in exit from the profession, particularly for early career teachers, 50 percent of whom leave the profession within the first five years on the job (Synar & Maiden, 2012). The MetLife Survey of the American Teacher: Teachers, Parents and the Economy (2012) found a large increase in the number of teachers reporting that they are likely to leave teaching for another occupation, from 17 percent surveyed in 2009 to 29 percent surveyed just three years later. With even conservative projected overall annual turnover rates exceeding 10 percent, the potential financial impact of teacher turnover upon the school or school system is high; retention of teachers is a potentially significant cost-saving measure (Levy et al. 2012; Synar & Maiden, 2012; Watlington et al. 2010).

Turnover costs include not just the explicit costs associated with separation, recruitment, hiring and new teacher support and acclimation, but more difficult to quantify

and less tangible costs related to the disruption caused by each school departure (Levy et al. 2012). Though it is generally not accounted for, the cost to the school includes time, materials and resources expended in the replacement of teachers by colleagues, administrators and central office personnel as well as the loss of investment in personnel since exiting teachers take the value of the investment of professional development with them (Levy et al. 2012). Therefore overall expenditures and turnover trends indicate that teacher retention produces cost savings for schools (Levy et al. 2012; Synar & Maiden 2012; Watlington et al. 2010).

Effectiveness of instructional staff is important because costs associated with these staff are large relative to other types of expenditures. Direct turnover costs relevant to effectiveness include new teacher support and training, both of which contribute to performance productivity (Synar & Maiden 2012). Though highly variable and difficult to measure, these performance costs are significant, averaging 40.92 percent of the total cost of turnover (Synar & Maiden 2012).

Retention and the School Effectiveness Costs of Turnover

Ultimately, retention is not just a fiscal consideration. Teachers are the most important measured aspect of schools in determining student achievement (Hanushek 2011). When looking beyond efficiency to effectiveness, teacher quality is the key schooling factor influencing student outcomes (Clotfelter et al. 2006; Goldhaber et al. 2010; Hanushek 2011; TNTP 2012). Average gains in learning across classrooms varies, with some teachers consistently producing as much as 1.5 years gain in achievement while others manage only a .5 gain (Hanushek 2011). Studies show that an experienced, committed teacher can

substantially enhance a student's learning and that learning is impeded when students have a series of ineffective teachers or when program continuity is disrupted. Accordingly, the value of experienced teacher retention goes well beyond the tangible costs of teacher replacement (Darling-Hammond 2000; Clotfelter et al. 2006; Goldhaber et al. 2010; Harris & Sass 2011; Hanushek 2011; Synar & Maiden 2012, Watlington et al. 2010). While more experience contributes to improved teacher performance, the biggest gains are in the first years with diminishing returns for years beyond 5-7, and research on the impact of experience on less effective teachers is mixed (TNTP 2012). Still, the vast majority of teachers with 5 or more years of experience are increasingly effective and will improve student achievement. The converse is also true because "… when assigned a first-year teacher, the average student gains .06 to .08 standard deviations of achievement less than observably similar students assigned to experienced teachers" (Staiger & Rockoff, 2010). The more effective the teacher, the more they improve student achievement and, potentially, impact student's lifetime earnings… one model estimates that a teacher at the 84th percentile, one standard deviation above the mean, annually produces marginal gains of more than $400,000 in added earnings (present value of student's future earnings) for her class of twenty (Hanushek 2011).

Since teacher effectiveness characteristics, including experience, are positive and significantly correlated with student outcomes and the retention of experienced teachers is a cost savings for schools that would otherwise need to recruit and support beginning teachers, teacher retention matters (Darling-Hammond, 2000; Goldhaber et al. 2011; Harris & Sass 2011; Levy et al. 2012; Synar & Maiden, 2012). The importance of teacher retention to both practitioner and policy maker is evident, yet trends in staffing in the current educational

setting indicate current efforts to retain teachers, including efforts to improve working conditions, teacher pay and incentives, are falling short. Failure to create the conditions for professionalism, such as autonomy instead of close oversight, is among the most widely cited obstacles to retention (Allen 2005; Johnson 2003, 2005, 2006; Moore 2012; Pearson & Moomaw 2006; Tschannen-Moran 2009). This dissertation explores the importance of professionalism in retention efforts, and considers the workplace conditions that contribute positively to a functionally professional teaching environment.

Theoretical Models

There are many theory-based reasons to believe that factors which increase teacher professionalism will also increase retention. Mintzberg defined a "professional bureaucracy" framework, positing an organizational structure with a preponderance of skilled, trained professionals working with relative autonomy and with both formal and informal power that rests within the professional operating core (Mintzberg, 1980). Because the work of the professional bureaucracy is complex and cannot be formalized, and the outputs cannot be standardized, professionals have agency to work relatively freely. Despite the applicability of this construct to school settings, public school teachers are not working in the decentralized environment of a professional bureaucracy's operating core.

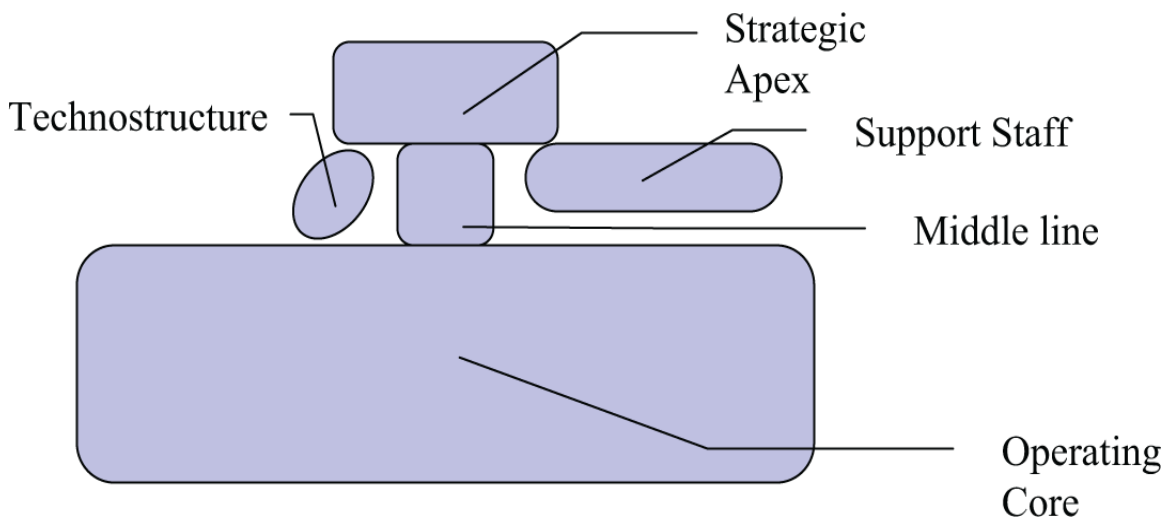

Figure 1. Mintzberg's Professional Bureaucracy Organizational Structure

On the surface, the organizational structure of a school does resemble that of a professional bureaucracy: a large, seemingly autonomous group of professional educators clustered in the operating core of the organization, a highly elaborated support staff to carry out routine tasks and ensure the more costly professionals are free to operate at their highest functional level, minimal and peripheral technical systems, and relatively few professionals elevated to the middle line and strategic apex sharing administration of the school with the operating core. Functionally, Mintzberg's model of professional bureaucracy posits that professionals in the operating core seek to increase professionalism while limiting the influence of functionally separate managers and administrators, promoting horizontal and vertical decentralization and countering the corresponding pressure of the apex toward centralization.

While the operating core aspires to professionalism and decentralization, these conditions are not descriptive of school system reality in this era of standardization and

factory-model schools. As outputs and work processes are standardized and planning and control mechanisms are put in place to ensure distinct tasks accomplish the mission in a unified way, the latitude to function according to the professional training, the ability to act proactively or to innovate or take risks in the classroom, is effectively extinguished. This is evident at the school system as well as the school level. External factors such as state- and local-level policies and federal regulation (e.g. No Child Left Behind) influence what the school workplace looks like and how it functions. The school may look like a professional bureaucracy but it functions with the vertically-centralized structure of what Mintzberg calls a "machine bureaucracy," which with its emphasis on standardization of repetitive, routinized work processes and formalized procedures, is a model less appropriate, theoretically, for the work of education, which is neither simple nor stable (Hirschhorn 1998; Walsh 2006).

The theoretical premise of this study is that teacher retention is dependent upon the school context. If coordination is returned to the operating core, perhaps this will work towards restoring teaching to professional status and schools to their functional potential, and have a positive effect on retention. The study hypothesizes that teachers are less likely to leave a school if their professional status is supported by the organization's entrepreneurial orientation, a construct indicated by the three aspects of risk-taking, proactiveness and innovation.

The Role of Entrepreneurial Orientation in Teacher Retention

With roots in the strategy-making process literature, Entrepreneurial Orientation provides a behavioral construct to frame a potentially beneficial organization-level

entrepreneurial posture, one conducive to improved performance and support for professionalism as facilitated by managerial leadership (Miller 1983, Rauch et. al. 2009, Wiklund & Shepherd 2005). Strategy-making encompasses planning, decision making, analysis, and other aspects of an organization's systems, and Entrepreneurial Orientation represents the policies and practices at the heart of these organizational-level decisions and actions (Rauch et. al. 2009). The question remains, how is entrepreneurial orientation manifested in the public sector, and what are the relationships between organizational and environmental variables in this model for schools?

Professional Context for Teachers

To retain experienced teachers, schools must be structured so teachers can realize the opportunities to function with agency and grow professionally within the context of the classroom. Key elements are necessary in the school work environment for teachers to perform to their instructional potential and to develop and grow in the profession. This suggests that retention is correlated with the extent to which the teacher is treated as a functional professional, a situation made increasingly possible through entrepreneurial orientation.

Professionals are called to teaching, perhaps as a function of their personality type, public service motivation or other rewards inherent in the position. The identification and recruitment of talented people suited to the work of a teacher is not the focus of this work. The focus is on creating the conditions necessary for the success and long-term retention of the experienced teacher, the one who was drawn to the profession and has made it through that initial beginning teacher period, building upon the skills and dispositions of their

professional training, developing fluency and experience, and ready to take on new challenges. From a managerial standpoint, how do we retain these teachers and keep them engaged with students in classroom teaching positions? If those who have the options for growth into educational leadership administrative positions or into private sector jobs are those talented, ambitious, skilled, and credentialed secondary school teachers whose retention is most desirable, advantageous, and cost-effective, how can we keep these teachers teaching?

Research Statement

In an effort to improve outcomes for all students, a key may be increased emphasis on the strategic management of school's human capital, which is defined as "the acquisition, development, performance management and retention of top talent in the nation's schools," is key (Berry, Smylie, & Fuller 2008). Based upon theoretical aspects of management, organizational behavior and work motivation, this dissertation asks, what factors contribute to an environment where teachers are retained, where professional growth does not require exit? Specifically, are teachers who teach in a school that measures higher in Entrepreneurial Orientation as it manifests in the public school context more satisfied? Are these more Entrepreneurially Oriented public schools better able to retain teachers? What professional conditions influence this retention rate?

To answer these research questions the following hypotheses are proposed:

H^1: Schools that have higher levels of Entrepreneurial Orientation – defined as a combination of risk taking, proactiveness and innovation – will have higher levels of teacher retention.

H^2: As the level of two key professional elements – teacher involvement in decisions and data-informed decision-making – increases, the level of teacher retention will increase.

$H^{3:}$ Schools that have higher levels of Entrepreneurial Orientation – a combination of risk taking, proactiveness and innovation – will have higher levels of teacher satisfaction.

$H^{4:}$ School systems that have higher levels of Entrepreneurial Orientation – a combination of risk taking, proactiveness and innovation – will have higher levels of teacher retention.

Theoretical Importance

Herzberg theorizes that the effective utilization of personnel is more dependent upon the enrichment of work than efficiencies in the workplace (Herzberg, 2003). Herzberg's theories of motivation are supported by the increased expressions of satisfaction when work gives teachers a "sense of self-esteem" and "feeling of success" (Bogler 2001). Research shows perceptions of professional characteristics of teaching, including occupational self-efficacy and autonomy at work, contribute to teacher's job satisfaction (Bogler 2001; Caprara et al. 2006; Pearson & Moomaw 2006). In a study of factors related to teacher's commitment, the variable that showed the strongest relationship to commitment was the ability to develop and use skills related to work, suggesting teachers require an environment of professional practice to remain committed to the work (Louis 1998). The conditions required for enrichment of work, including authority, data-informed decision-making, and challenging tasks that enable growth toward expert are aligned with the workplace that measures high in Entrepreneurial Orientation. These professional workplace conditions that "… bring the job up to the level of challenge commensurate with the skill that was hired…" have a longer-term effect on employee's attitudes and, presumably, their satisfaction in their role, making

them less inclined to exit (Herzberg, 2003). So theoretically, good working conditions may act as both hygiene factors and satisfiers, discouraging exit while also contributing to motivation.

Another theoretical basis for consideration is Becker's human capital theory which, in the context of teaching, evolved into Grissmer and Kirby's teacher attrition theory (Synar & Maiden, 2012). Human capital theory posits that individual's systematic assessments of monetary and non-monetary benefits drives decisions to pursue, enter, stay or leave an occupation; if someone chooses exit, then something has shifted drastically in either real or perceived returns (Synar & Maiden, 2012). The option to exit is weighed by the individual against wage increases associated with years of experience, added years invested in a retirement system, and other accumulated human capital benefits. The extent to which human capital is job-specific also factors into the assessment; marketability is a function of the transferrable value of human capital within education (relevant to another school setting) or beyond education (Goldhaber et al. 2011). The decision to leave a job or career, then, is essentially an assessment of costs and benefits, plus transaction costs associated with job switching (Goldhaber et al. 2011; Synar & Maiden, 2012). When human capital theory is employed, the trend toward decreased turnover among teachers who have remained in the classroom past those initial years is logical. Considering accumulation of human capital and the relative stability of monetary benefits, the shift required to cause a more experienced teacher to exit must be sizable reductions in non-monetary benefits, including working conditions and other non-pecuniary factors.

Policy Importance

Retaining teachers, especially the best teachers, is important because experienced teachers produce better student outcomes and recruitment, training and development of replacement teachers is expensive (Darling-Hammond, 2000; Darling-Hammond & Youngs 2002; Clotfelter, Ladd & Vigdor 2006, 2007; Goldhaber et al. 2010; Hanushek 2011; Harris & Sass 2011; Synar & Maiden, 2012). Developing and maintaining conditions for successful teaching and learning is listed as one of seven critical components identified as necessary in the Transforming the Teaching Profession vision statement: "High-functioning systems can amplify the accomplishments of their educators, but a dysfunctional school or district can undermine the impact of even the best teachers. We need schools and districts whose climates and cultures, use of time, approaches to staffing, use of technology, deployment of services, and engagement of families and communities are optimized to continuously improve outcomes for the students they serve" (U.S. Department of Education, 2012).

Losses to students are significant. Inexperienced teachers are generally less effective than experienced teachers, so when the result is a less experienced teacher in the classroom, teacher turnover may negatively impact student achievement (Darling-Hammond & Youngs 2002; Harris & Sass 2011; Hanushek 2011; Natale et al. 2013). Experience-related productivity increases are most evident in early years but do extend throughout the teacher's career, so policies designed to promote retention can yield significant benefits over and above the costs that would be incurred in hiring replacements (Harris & Sass 2011; Ladd 2013).

Additionally, this study has policy implications because data collection and resulting recommended reforms are costly; it is important to determine the most effective approach, relatively, to retain teachers. It is costly to run a state-level teacher working conditions survey, so policy makers must determine how useful information about working conditions is relative to less costly, more readily available data such as demographic characteristics of the school, that may also significantly influence teacher mobility. Current reforms may also include provisions for costly pay increases, class-size reductions and pay-for-performance incentives. If teachers' perceptions of their working conditions emerge as important, then it would be useful to design and evaluate policy interventions specifically intended to improve working conditions within schools and to compare their efficacy with strategies, such as higher salaries, designed to offset the reluctance of teachers to teach in schools with poor working environments (Ladd 2011, Ingersoll & May 2012).

This study focuses on secondary teachers. While teacher turnover in any school is costly and has an adverse effect on student achievement, a teacher with an advanced degree in science, mathematics or the humanities who also holds a teaching license has more options for employment and career change than a teacher with a degree in elementary education, so the concern for retention in secondary schools is greater. The research literature provides strong evidence that attrition is greater among secondary school teachers, and teacher working conditions impact retention (Allen 2005, Ladd 2011, Ingersoll & May 2012). Presumably, the choice between exit and retention is a more viable one for many secondary school teachers, an assumption that is supported by findings in some studies of retention with regard for level taught (Allen 2005).

Finally, in as much as the accountability requirements of national educational policies such as No Child Left Behind [NCLB] lead administrators to be more hierarchical, they, too, impact teacher retention and may have unintended consequences with regard to student achievement. The performance goals of NCLB are desirable, but in as much as school administrators develop and enforce a more hierarchical work environment that encourages exit, those very performance goals may be undermined.

Summary

Educating children is a complex task, and though there are a host of best practices to draw from, the technology remains unclear: no "one way" works in every situation with every student, so standardization is not possible (Walsh, 2006). In this complex human organization, there exists a workforce of highly educated, trained, licensed professionals prepared to teach, yet their workplace offers little opportunity to function with agency and grow as professionals within the classroom. Using the 2014 North Carolina Teachers Working Conditions survey, I will measure the impact of Entrepreneurial Orientation as indicated by the contextually adapted measure of the construct's indicators: innovation, risk taking and proactiveness.

A theoretically defensible model will be developed and multi-level confirmatory factor analysis will be used to test the model's latent constructs underlying responses to survey items directly relevant specifically to the instructional work of classroom teachers within schools. Regression analysis will determine if school-level retention and teacher satisfaction is positively correlated with this measure of the latent variable influencing these observable behavioral measures as well as other professional organizational measures. If the

impact of Entrepreneurial Orientation on professional public school working conditions as indicated by teacher retention and satisfaction is significant, this measure may be considered with other workplace factors to determine the relative value of each in averting exit. Results will inform superintendents and building-level managers and will provide policy makers with focus areas for strategic investments.

CHAPTER 2. LITERATURE REVIEW

Introduction

As noted previously, teacher morale is rapidly declining; in a recent (2013) MetLife survey, public school teacher job satisfaction dropped 23 percentage points, from 62% very satisfied in 2008 to 39% – the lowest in over 25 years – just three years later (Heitin 2013). As outlined in Chapter 1, this research examines teacher's professional working conditions and other factors conducive to retention. This chapter will examine the literature on retention, and on the conditions that affect satisfaction and retention.

This chapter is organized into three major sections. The first section is focused on the dependent variable in this study, retention. This section outlines factors research has demonstrated influence retention of teachers in general, including the impact of remuneration, and explores the more nuanced aspects of retention of experienced teachers in the instructional environment specifically.

The second section introduces factors relevant to the functionally professional workplace, key variables that research indicates influence satisfaction or dissatisfaction as it pertains to exit, particularly focusing on the foundational elements of professional culture and teacher's professional workplace roles.

The final section examines research pertaining to Entrepreneurial Orientation and builds upon the preceding sections' findings on the influence of the professional organizational and work environment in retention, including studies relevant to the applicability of Entrepreneurial Orientation to retention and to public schools.

Teacher Retention

If attrition were healthy, with those not well suited to the profession leaving and others more committed being recruited, retention would not be an issue. On balance, research has found that more talented, more experienced, more high-demand science and mathematics degree holders are lost to turnover with greater frequency (Borman & Dowling 2008; Guarino et al. 2006). With respect to voluntary attrition, which describes the majority of teachers leaving, exit occurs when the opportunity cost of teaching outweigh the rewards, and so the individual with higher measured academic ability will have greater options and will therefore be the one most likely to exit (Guarino et al. 2006).

Some studies of attrition that have focused on demographic characteristics, including gender, race, age, and parental or marital status. A meta-analysis conducted by Borman and Dowling (2008) indicated these personal characteristics and life-cycle factors do correlate with exit. Specifically, odds of attrition are higher for female, White, young, married teachers who have a child. The labor force in teaching exhibits a U-shaped distribution, with the highest levels of exit among early and late career teachers. Early exit aligns with the challenges of assignment and lack of support often experienced by beginning teachers. Mid-career teachers, having built more teaching-specific capital, become more invested every year in the profession so attrition drops off. As retirement approaches, attrition again increases perhaps as a result of a simple cost-benefit analysis of the relatively high pension relative to salary and continued benefits (Borman & Dowling 2008). These personal factors contribute to attrition but cannot necessarily be influenced at the organizational level by managerial changes to policy or structure.

With regard to exit and the potential for effective managerial or policy interventions, national research demonstrates the importance of addressing school conditions of work to address dissatisfaction and improve teacher retention (Borman & Dowling 2008, Guarino et al. 2006, Johnson et al. 2011, Moore 2012, Ingersoll & May 2012). Teachers who leave schools cite opportunity for a better teaching assignment, dissatisfaction with support from administrators, and dissatisfaction with workplace conditions as the main reasons they seek other positions (Guarino et al. 2006). Many characteristics of the school environment can have an influence on retention, including urbanicity, racial and socioeconomic mix of the school's students, and resources, both instructional allocations and salaries (Johnson, Berg, & Donaldson 2005). Pre-service and in-service policies, including mentoring and induction programs for early-career teachers, also have a positive correlation with retention (Guarino et al. 2006).

Retention is also influenced by a teacher's perceptions of efficacy as well as the school's organizational conditions. In a 1992 study, Ostroff used randomized cluster sampling to select 364 schools from 36 states and Canada to complete a survey to assess teacher's satisfaction, job attitudes and turnover intentions. Hierarchical multiple regression was used to control for school characteristics such as percent of students eligible for free lunch and age of the facility. Results indicate significant correlations at the organizational level of analysis between satisfaction and perceived performance measures and the intention to remain teaching (Ostroff 1992).

In their 2012 analysis of math and science teacher turnover, Ingersol and May looked at both individual and organizational-level determinants and their relationship to turnover.

Using data from the National Center for Education Statistics' nationally representative Schools and Staffing Survey and Teacher Follow-Up Survey, this research focused on the relationship of turnover to key aspects in organizational character and conditions often associated with effective school organization, including salary, discipline problems, leadership, resources, professional development offerings, and teacher autonomy and school-wide decision-making influence. The author controls for teacher demographics and school characteristics like size, locale (rural or urban), and poverty (Ingersoll & May 2012). A series of regression models found a clear relationship between organizational conditions and turnover with the association of school-level conditions stronger than that of individual perceptions (Ingersoll & May 2012). These organizational conditions do not exist in isolation and were found to have a joint association with turnover, though teachers of different disciplines were not all equally influenced by the same conditions. Additionally, the data showed the largest variations in rates of teacher turnover was between schools within the same locale, indicating discrepancies even in the same teacher labor market, further supporting the importance of organizational-level determinants to retention of teachers (Ingersoll & May 2012). Notably, data analyses in the Ingersoll and May 2012 study found that organizational conditions statistically accounted for the relationship between school poverty, school urbanicity, and teacher turnover, meaning teachers are not fleeing schools where they would be teaching high-poverty, high-minority populations of students, rather "… teachers are fleeing from the poor organizational conditions disproportionally found in such schools" (Ingersoll & May 2012).

While many characteristics contributing to teacher retention are determined by circumstances beyond the organization level, some are alterable. A 2008 meta-analytic review of the research on teacher attrition and retention conducted by Borman and Dowling cited research indicating organizational characteristics and work context attributes such as input and decision-making power and teacher collaboration are correlated with improved retention, and are among the levers at the organizational level that may be used to improve retention (Borman & Dowling 2008). The labor market for teaching is changing, in part because teachers are constantly assessing the attractiveness of teaching relative to other activities, and school environment plays a large role in the decision to stay or to leave (Guarino et al. 2006).

Remuneration and Retention

North Carolina schools across the state pay teachers relatively equal salaries because certified educators working in Local Education Agencies (LEA) are required to be paid according the salary schedule approved annually by the North Carolina General Assembly. This state-level schedule sets a minimum pay based on the educators years of experience and education level of the teacher, though a LEA may approve additional funds to supplement this pay to account for variances in market conditions, geographic location, or school demographics. Unless teachers are willing to relocate, schools in relative proximity will not provide a more attractive salary option with the possible exception of teachers living those communities close to the state's borders. By adhering to a state salary schedule, North Carolina removes major salary variation from the analysis of teacher retention and limits the generalizability of this study to states where salary varies more broadly. Limiting the

potential for pay to influence satisfaction and therefore exit means professional working conditions are all the more important to the retention of North Carolina's teachers, which is the focus of this study.

Merit pay. Education policy designed to attract and retain high-performing North Carolina teachers has included a measure of monetary reward over and above the typical longevity-based salary, from a fixed-rate increase for 25% of teachers identified by local education agencies-developed criteria as "the best" (NC Appropriations Act of 2013), to variable added salary based upon measures of individual teacher's performance as enacted in Denver, CO and Washington DC. The federal government is also pushing for merit pay, as is evidenced in the requirement that states seeking Race to the Top funding would be competitive only if there were a provision for measuring and rewarding performance. Herzberg has argued that money is not an important motivator in the workplace, and other researchers have shown money can actually demotivate by undermining intrinsic motivation and interest. However, policy makers remain interested in addressing recruitment and retention with these pay-based programs.

The issue is, in part, applicability of the basic premise of these policies to the teaching field. Research on employee compensation for all types of jobs has shown pay for individual performance can have positive effects, both by providing incentive for improved performance among current employees, and by a sorting effect, as employees with desirable attributes and disposition are more likely to seek employment in organizations that "fit" their characteristics (Gerhart & Fang 2014). The effect of these incentives is more intense when objective performance measures are available, when work is simple, easy to measure, and not

interdependent… outside of this narrow context, the plan may not accomplish its goals (Gerhart & Fang 2014).

School is a loosely-coupled organization so it is more difficult to objectively measure individual performance in teaching. Even if the impact of the individual teacher could be isolated, and effective, objective measures of performance were available, teachers may be not be as responsive to external motivations because they have integrated the external actions into their definition of self, and are intrinsically motivated by the work (Bogler 2001; Frase 2001; Gagné & Deci 2005). Studies show that in general, overall salaries, typically based upon longevity, are positively associated with retention; teachers making $2000 more than the state average are half as likely to leave teaching as those making $2000 less than the state average, and over time, unhappiness with salary may affect the decision to remain in teaching (Chamberlin et al. 2002; Guarino et al. 2006). However, merit pay policies, given how difficult it is to isolate and measure the individual's contribution to outcomes, and in as much as the competition these programs engender effectively function as a deterrent to collaboration and cooperation, does not seem to alleviate that dissatisfaction (Chamberlin et al. 2002).

Regardless of the role teacher pay provides in retention in other states, in this study of teachers in North Carolina, there are limited differences in remuneration. In 2014 when these teachers were surveyed, there were no pay-for-performance or merit pay programs in place. In 1996 North Carolina designed and implemented a pay-for-performance teacher bonus program, the ABC Bonus Program, which rewarded all personnel at the school when students from all demographic groups achieved or exceeded expected growth. The program was more

cost-effective than other reforms like reducing class size, and concerns about free-rider effects were unfounded; by rewarding the school rather than the individual and measuring individual students Average Yearly Progress [AYP] incentives were in place for all personnel to work toward the school's goal regardless of the course or class level (Ahn & Vigdor 2011). Despite the apparent success of this all-school incentive, no resources for school-level performance-based bonuses have been allocated by the state legislature since they were discontinued in 2008-2009.

Retention of Experienced Teachers in the Classroom

If a teacher who exits can be inexpensively and easily replaced by a teacher who can get the same or better results, then there is no need to discourage attrition. Indeed, simply increasing retention, retaining teachers regardless of the teacher's performance, may not have the desired effect with regard to student outcomes. If a teacher who exits is ineffective, and will be replaced by a more effective teacher, then retention may actually be detrimental. What factors contribute to teacher productivity and how can we keep the best teachers teaching?

A non-selective retention strategy is based upon two assumptions about teacher performance, first, that struggling teachers will improve, and second, that the teacher replacement will be less effective than the departing teacher (TNTP 2012). Some research has shown that low performing teachers remain less effective despite increased years of experience (TNTP 2012). Additionally, some studies show that on average, three out of four teachers brought in to replace a low performing teacher perform better than the teacher they replaced (TNTP 2012). If we are to improve outcomes, it is not enough to retain more

teachers. Rather we must retain those skilled teachers who are achieving results, and who continue to grow and improve with experience, and we must ensure that policies and incentives are in place to allow and encourage the replacement of teachers who are performing poorly. Schools that are successful in retaining high performing teachers are professional environments with a strong instructional culture, high expectations, and favorable working conditions (TNTP 2012, Ingersoll & May 2012). Teachers report higher satisfaction when teachers at their school are accountable for their performance. By valuing skills, not just intentions, school leaders avoid demoralizing high performing teachers and set performance standards worthy of the profession (Natale et al. 2013; TNTP 2012).

Additionally, developing the professional environment that is correlated with the retention of high-performing teachers will do more than retain those teachers. The teachers retained will have the opportunity to continue to grow in efficacy because experience is essentially informal "on the job training" and the only training that consistently correlates with productivity increases (Clotfelter et al. 2006; Clotfelter et al. 2007; Harris & Sass 2011). In their 2007 longitudinal study of North Carolina teachers, Clodfelter, Ladd and Vigdor used a teacher value-added model with student fixed effects (controlling for the pairing of high-performing teachers with access to more supports with students of greater ability and fewer discipline problem) to determine the effect of teachers by credential while accounting for the learning that students bring to the classroom from the previous year. This study demonstrated that teachers who are licensed perform better than lateral entry or other provisionally licensed teachers, and teachers who have achieved the National Board of Professional Teaching Standards certification were also found to be more effective than those

who had not achieved this certification. However, the biggest differential is associated with experience. Advanced degrees, test scores and the quality of the undergraduate institution have no or negligible impact; experience accounts for the greatest portion of significant effect of teacher quality on student achievement. When these multiple levels of fixed effects are controlled for, neither formal pre-service nor in-service training (with the exception of content-area professional development for middle school math teachers) improves productivity, only the informal, on-the-job training gained through teaching experience (Clotfelter et al. 2007). A similar teacher's value-added study by Harris and Sass (2011) used teacher-and-student-linked data from Florida public schools to determine the effects of human capital obtained both pre-service and after entry to the profession. The teacher's impact on student achievement, controlling for cognitive ability with college entrance exam scores, remains unaffected by professional development (with the single exception of content-area in-service in middle grades math), but does improve with experience. Greater experience effects were measured in initial years but even after ten years of experience, there were still positive marginal gains in productivity.

Ladd's 2013 study of North Carolina middle school teachers indicates that experience-based productivity gains are made across subjects but that in particular, "…math teachers become increasingly effective through about 15 years, at which point they are about twice as effective as novices with two years of experience" (Ladd 2013). Beyond improving test scores, the research suggests that as teacher gain experience "… they become increasingly adept at producing other important results such as reducing student absences and encouraging students to read for recreational purposes outside the classroom" (Ladd 2013).

Experienced teachers also act as mentors for new teachers and contribute to a strong school community; constant turnover is disruptive and harmful, impacting disadvantaged schools disproportionally since these schools are often assigned more inexperienced teachers (Ladd 2013).

School as a Professional Workplace

The working conditions in question go far beyond the safety and cleanliness of the workplace that was the focus of Herzberg's working conditions factor. Herzberg argues that lower-order, extrinsic needs must be satisfied before motivators can have the full positive effect, so a favorable work environment can contribute to productive work; structural and administrative workplace concerns can contribute to dissatisfaction (Bogler 2001; Frase, 1989; Herzberg, 2003). Working conditions also include resource availability, time and extra duty requirements, and school characteristics like class size and student body characteristics. While these more objective and observable elements have been shown to influence the teacher perceptions about their workplace (Berry, Smylie, & Fuller 2008; Moore 2012), they are not the focus of this work. Broader categories of working conditions, including organizational structures that define teachers' formal professional positions and relationships with others in the school, and sociological features that shape how teachers experience their work, including their role and status, have an influence on career decisions that is distinct from hygiene conditions (Dee et al. 2003; Johnson 2006; Louis 1998). Controlling for hygiene, the organizational and sociological structures in which teachers function are important with respect to motivation, satisfaction and retention in the instructional

environment and foundational to the professional culture necessary for retention of experienced teachers.

The research on teacher perceptions of school working conditions and their influences is well established (Berry, Smylie, & Fuller 2008, Johnston 2006, Johnson et al. 2011; Ingersoll 2001, Moore 2012). Statewide, comprehensive surveys of teachers and administrators in North Carolina and other states, as well as other objective studies of working conditions in schools nationwide indicate a range of levers that affect the teaching workforce and drive teacher's job decisions and behaviors. Teachers indicate, and research controlling for characteristics of both teachers and schools confirms, that when the teacher perceives a positive, collaborative school climate with faculty influence and autonomy and support from colleagues and administrators, they are more likely to stay in that school (Berry, Smylie, & Fuller 2008, Borman & Dowling 2008, Johnston 2006, Johnson et al. 2011, Ingersoll 2001; Ingersoll & May 2012, Moore 2012, Pearson & Moomaw 2006). Context of work is the strongest predictor of job satisfaction among teachers, and the overall conditions of the work are a significant predictor of a teacher's intent to transfer or leave teaching entirely (Borman & Dowling 2008; Johnson et al. 2011). Working conditions, both objectively measure and as perceived by teachers, "…mediate what any teacher, however talented or well trained, can accomplish in the classroom" (Johnson 2006).

Professional school working conditions are teaching and learning conditions, potentially influencing outcomes for both teachers and students. This section will examine the impact of the professionally promising workplace, identifying key situational attributes of these teacher working conditions, and determining if and how these structural and contextual

elements moderate the theoretically positive impact of a school's entrepreneurial orientation on teacher retention.

Decision-involved, data-informed teachers: expanding roles. There is growing interest in differentiated roles that provide teachers a chance to stay teaching yet extend their professional influence beyond the classroom (Johnson 2006). Over 50 percent of teachers surveyed in the MetLife Survey of the American Teacher: Challenges for School Leadership (2013) indicate interest in leading from the classroom; collaborative, distributed leadership among teachers correlates with enhanced job satisfaction and teacher retention (Heitin 2013; Natale et al. 2013).

Distributed leadership is distinct from school leadership in that it requires engaging constituents in the more collaborative, less controlling development of a shared vision, and as such, requires trust and mutual respect to be effective (Ladd 2011; Schweig 2013). Though Ladd (2011) did not find Expanded Roles contributed to reduction in an individual teacher's intended departure from positions at elementary and middle school, this expansion of roles does appear to protect against teacher departures at the high school level. A form of distributed leadership, including teachers in key decisions at the school level is a managerial practice which allows teachers to function as a professional, proactively drawing on their experience and using data to play a role in establishing classroom, curricular and administrative policy. Yet to date, few empirical studies have been done to document a connection between these theoretically favorable conditions and teacher retention (Ladd 2011).

Involving teachers in decisions made at the administrative level, providing teachers with data and decision-making opportunities, and enabling their contribution to school-level decisions about hiring, budgeting and other important matters contributes to an agentic environment important to the manifestation of entrepreneurial orientation and is posited to positively moderate the effect on retention.

Professional satisfaction. Though subjective, perceptions, including beliefs and expectations of efficacy, underlie critical behaviors and professional decisions and have been found to influence motivation, satisfaction, and teachers' career plans even after controlling for student demographics, and other school and teacher characteristics (Bogler 2001; Caprara et al. 2006; Johnson et al. 2011; Louis 1998; Moore 2012). The relationship between perceptions of working conditions and teacher satisfaction and career intentions is not simply a product of self-reporting bias or individual differences; peer-average measures of the influence of work context align with those of individuals' perceptions (Johnson et al. 2011).

In their research on dimensions of teacher efficacy, Soodak and Podell (1996) isolated teachers' beliefs with regard to efficacy and aligned them with Bandura's model of self-efficacy. A survey of teacher efficacy developed by Soodak and Podell was distributed to a demographically representative sample of 500 teachers. 310 surveys were completed and a factor analysis was performed to identify the relative contribution of dimensions contributing to perceptions of teacher efficacy. The first factor was interpreted as personal efficacy, a teacher's belief about their ability to perform certain behaviors, representing Bandura's efficacy expectations. The second factor was defined as outcome efficacy, teacher's beliefs that student outcomes were attributable to their actions, like Bandura's

outcome expectations. Teaching efficacy is the third factor, and is defined as teacher's perceptions of relative efficacy of their teaching as compared to external factors. These three dimensions comprise the teacher's perceptions of their contribution to student outcomes (Soodak & Podell, 1996). For a teacher's outcomes to be maximized, they must work in environmental conditions that facilitate and support positive outcomes so as to maintain their sense of efficacy, which has consistently emerged as an independent factor of teacher efficacy (Soodak & Podell, 1996).

Work life satisfaction. A sense of efficacy is important to motivation and commitment to the academic goals of the school, because teachers want to make a difference and to see the impact of their work on student outcomes and that commitment has shown some significant relationship to improved performance (Louis 1998; Ostroff 1992). In a study of the quality of teachers' work life published in 1998, Louis used a stepwise multiple regression analysis to examine the relationship between quality of work life elements and teacher's commitment and sense of efficacy. Respect, feedback and the ability to develop and use skills showed the strongest relationship to commitment, with respect and ability to develop and use skills showing up again as the most significant predictors of teacher's sense of efficacy and commitment (Louis 1998). Teachers' quality of work life, particularly with regard to opportunities for continued professional growth and value, influences important school outcomes including teacher's career plans.

Although teachers' perceptions of their workplace with regard to autonomy and administrative support is not an objective measure of the actual autonomy and support provided, findings from the self-report data have been found highly consistent with the

results in prior regression models (Ingersoll 2001, Ingersoll & May 2012, Louis 1998). Studies have shown an increased sense of efficacy is a predictor of high work effectiveness and commitment and that the design of work environments can contribute to this outcome (Louis 1998; Ostroff 1992). In their 2006 study of Italian secondary school teacher's self-efficacy beliefs, Caprara, Barbaranelli, Steca and Malone found that the sense of self-efficacy extended beyond the individual's satisfaction as related to their professional activities like planning and instruction to broadly influence their level of satisfaction with collegial relationships and job conditions, a school-level effect of aggregated teachers' job satisfaction and organizational efficacy (Caprara et al. 2006).

Decreasing workplace dissatisfaction. Arguably, teachers have significant challenges and opportunities to influence important student outcomes right within their classroom. Widespread adoption of Common Core State Standards (2010), complex and intellectually demanding standards designed to afford teachers the opportunity to delve deeply into content and to promote higher-order thinking skills, requires intellectually ambitious instruction to consistently produce the desired learning outcomes for all students (Lampert et al. 2013). The heavy knowledge demands of teaching require professionals with a deep commitment and the ability to make informed decisions that are not easy for a third party to select, observe or assess (Lampert et al. 2013).

National policy mandates, greater accountability, increased scrutiny and attempts to tighten couplings in education have an adverse impact on teacher motivation, job satisfaction and teachers sense of professionalism (Day, Flores, & Viana, 2007). Traditional keystones of teachers' professionalism, including autonomy, discretionary judgment and even vocational

identity are now being challenged and reframed into forms of audited compliance with results-driven agendas (Day, Flores, & Viana, 2007; Pearson & Moomaw 2006; Webb 2002). Research on perceptions of school environment among teachers indicates job dissatisfaction among teachers is inversely correlated with support for a teacher's decision-making and control, and programs that give teachers more authority over their quality of practice have increased teacher retention (Firestone & Pennell 1993; Ingersoll & May 2012; Louis 1998; Moore 2012; Natale et al. 2013).

In a 2012 study of the influence of school environments on teacher dissatisfaction, Moore found that an incremental increase in teachers' perceptions of control, for example from no control to minor control, decreased the odds of teacher dissatisfaction by 30.9% (Moore 2012). Though management can determine, to an extent, how much autonomy and control teachers have in the classroom, the restrictive policy environment undermines fundamental principles of the profession by limiting debate about practice while simultaneously amplifying standards and pushing to develop intellectually demanding approaches to teaching (Firestone & Pennell 1993, Moore 2012). "Ultimately, it is only through open dialogue, debate and expression of dissent that new thinking about teaching and the profession can emerge. Policies that, when enacted, limit the 'bounds of thinkable thought' (Chomsy 1989), the arena of discourse, and the solutions considered will threaten to diminish learning as a profession" (Achinstein 2006, p. 60). "Teacher disempowerment," a functional separation between the productive activities of the teachers at the operating core and decisions of the administration, has been linked to diminished performance due to

decreased effectiveness, diminished motivation and declining job satisfaction to the over-control of this bureaucratic system (Ingersoll, 2003).

Research on perceptions of school environment among teachers indicates job dissatisfaction among teachers is inversely correlated with support for teachers' decision-making and control and positively correlated with turnover (Ingersoll & May 2012; Louis 1998; Moore 2012; Ostroff 1992; Rinke 2008). Curricular prescription and monitoring, activities that are perceived to "deskill" teachers and serve students poorly, are among the most limiting of conditions and are more often found in schools serving a lower income student body, schools struggling with the organization necessary to support student learning (Johnson, Berg, & Donaldson 2005). "The more the teachers perceive their teaching job as a profession and central to their lives, the more they will be satisfied with it" and the less likely they will be to exit (Bogler 2001).

Developing the professional school workplace. Schools are bureaucratic workplaces but not all agree that formalized procedures and hierarchical structures must, by definition, constrain teachers to the point of limiting their professionalism as related to instruction. Frustration with hierarchy and restrictive, technical rules and procedures is at the heart of the criticism of bureaucracy (Hirschhorn, 1998) but if the formalization is enabling, not coercive, negative conditions may be mitigated (Hoy & Sweetland, 2000). Schools that allow for teacher problem solving and professional judgment, fostering communication and learning from mistakes and have had a positive influence on trust among colleagues while reducing the sense of powerlessness among teachers (Hoy & Sweetland, 2000).

The U.S. education system is a bureaucracy but despite increases in state and federal influence, local control is still significant; more than half of decisions are strongly influenced or made entirely at the school level so the potential remains for designing a work environment that is supportive of teacher professionalism (Ingersoll, 2003). Testing and data-monitoring directives required by federal and state regulations and local initiatives are negotiated and mediated by principals who are "…simultaneously making sense of them, challenging them, and repurposing them to fit their situations" (Koyama 2013, p. 3). Building-level managers act as bricoleurs, taking an active role in local and informal policy making while enlisting and mobilizing the professional workforce in the negotiation and mediation of policy mandates through improvisation and repurposing of resources; building-level managers achieve accountability in distributed ways that fit within their school's context (Koyama 2013).

Entrepreneurial Orientation: Leveraging the Professional School Workplace

As is evident from the previous section, workplace-related structural and managerial practices can influence important school outcomes including retention of the professional teaching workforce, the school's greatest expense. If the potential of this cost and related investments, such as professional development, are to be fully leveraged through decentralization, there needs to be a measure of the locus of control. As a measure of centralization of control, bureaucracy may be a continuous variable which can be qualified by measuring degrees of formal rationalization and routinization within the educational environment, and the school working environment in particular. Conversely, behaviors indicating a lack of bureaucratic centralization can be measured and compared to indicate the

degree to which control rests with the operating core. Entrepreneurial Orientation provides this measure.

Entrepreneurial orientation: strategic management for organizational outcomes. Entrepreneurial Orientation is an organizational behavioral construct measured by levels of innovation, risk-taking and proactiveness. Organizations are posited to function somewhere on an entrepreneurial orientation spectrum, a unidimensional conceptual continuum from the very conservative, risk-averse follower of industry trends to the entrepreneurial innovator, taking on riskier endeavors and leading the way for the competition (Miller, 1983). Entrepreneurial Orientation is about understanding the entrepreneurial process through a central element of the firm or organization – behavior (Stevenson & Jarillo, 1990; Covin & Slevin 1991). Entrepreneurial Orientation gives rise to observable indicators manifested in behaviors, which are overt, demonstrable and measurable, providing a reliable and objective way to identify the organization's entrepreneurial level which cannot otherwise be quantified (Covin & Slevin 1991, Covin & Wales 2011).

Entrepreneurial Orientation addresses the "how" question of entrepreneurship, an important perspective for the discipline of management, since behavior is manageable (Stevenson & Jarillo, 1990; Covin & Slevin 1991). Studies provide empirical support for the posited positive effects of an organization high in Entrepreneurial Orientation in reducing fear, stress and ambiguity associated with employee's risk-taking, proactive and innovative behaviors (Monsen & Boss 2009). Additionally, strategic benefits linked to performance achieved through Entrepreneurial Orientation include increased levels of knowledge creation

and more effective deployment of knowledge-based resources, both critical to improved outcomes in schools (Kreiser 2011, Wiklund & Shepherd 2003).

Finally, Entrepreneurial Orientation is positively related to firm performance. In their 2009 meta-analysis of the magnitude of the EO-performance relationship, Rauch, Wiklund, Lumpkin and Frese computed weighted correlations between EO and performance from 53 samples published in 51 empirical studies, computing a single average effect across performance measures where multiple measures were included. The data from this meta-analysis with an N of 14,259 indicate a moderately large correlation between EO and performance (r = .242) and that this relationship is robust to different operationalizations of key constructs and well as to varied contexts (Rauch et. al 2009).

Entrepreneurial orientation in research. Entrepreneurial Orientation is the leading theoretical construct indicating entrepreneurial posture. It has been repeatedly demonstrated to align with empirical realities consistent with the manifestation of entrepreneurship (Covin & Wales 2011). Entrepreneurial posture, reflected in risk-taking, innovative and proactive behaviors, is affected directly by external variables such as policy and regulation and more broadly by the general economic, political and technological context in which it operates; adoption of an entrepreneurial posture is the theoretical response to challenging environmental conditions (Covin & Slevin 1991). Internal variables, including resources and competencies, also affect entrepreneurial posture, and the strength will vary as the structures and culture are developed to support the expression through the measured behaviors (Covin & Slevin 1991). Indicators within this measurement model are dependent upon context and cannot be assumed to have the same antecedents and consequences; these indicators are

expected to have high inter-item correlation and taken together, they form a measure of Entrepreneurial Orientation (Covin & Wales 2011).

Entrepreneurial Orientation has been one of the most important and established concepts within the field of entrepreneurship for more than 30 years. In an effort to continue to build upon the preponderance of previous empirical work and refine, not redefine, theoretical definitions, Entrepreneurial Orientation as referenced in this work is based upon the original construct defined by Miller (1983) and further developed by Covin and Slevin (1989, 1991). Their work identifies entrepreneurship at the firm level as a multidimensional concept encompassing organizational actions related to three dimensions concurrently manifested by the organization: innovation, risk-taking and proactiveness (George & Marino, 2011). A continuous, latent variable, Entrepreneurial Orientation cannot be observed directly; its magnitude is reflected in the three observable dimensions, allowing for intensity comparisons across and among organizations (Miller 1983, Covin & Lumpkin, 2011).

Entrepreneurial orientation research in public schools. While descriptive studies have broached the possibility that school managers may act entrepreneurially or that certain conditions may be more conducive to a principal's entrepreneurial behaviors, there have been few empirical studies of Entrepreneurial Orientation of public schools. One study of Israeli public schools used an entrepreneurship inventory of factors related to a two-dimensional construct (manager's proactiveness and organizational innovativeness) to examine educational entrepreneurship in relation to centrality, and found that schools at the periphery are better able to transcend system constraints and experienced a greater sense of freedom than those in a more central geo-social location (Eyal & Inbar 2003).

A case study of historically disadvantaged South African schools indicates that some schools perform well under these adverse conditions and also exhibit behaviors consistent with three dimensions of entrepreneurial orientation (proactiveness, innovativeness and risk-taking) (Xaba & Malindi 2010).

A survey conducted by Phelan, Johnson and Semrau (2013) with 89 New Jersey public schools administrator responses found these individual's perceptions of their school's Entrepreneurial Orientation explained 6 to 8 percent of the variance in the school's performance on state-level standardized tests, but this study's low response rate (there are 2500 public schools in New Jersey) limits generalizability of these findings. Other research looks at entrepreneurial leadership's influence on the organization and applies Entrepreneurial Orientation to individuals in an education setting, but research focused on the role this construct may have at the school level on organizational behavior, and its relationship with environmental and structural conditions in public schools in the United States or elsewhere, has not been conducted.

Entrepreneurial orientation defined in the public context. Entrepreneurship in the public sector seems contradictory, but the public agency is much like a large established firm, so the same practices and processes in corporate entrepreneurship are theoretically applicable in these public environments (Stevenson & Jarillo, 1990). Drawing upon the themes of an ongoing process, innovation and proactive behavior from the entrepreneurship literature, the following working definition is proposed by Morris and Jones (1999) *"Public sector entrepreneurship is the process of creating value for citizens by bringing together unique combinations of public and/or private resources to exploit social opportunities"* (p.74). As

public managers work to meet the increasing needs of their constituents in lean and turbulent environments, a management environment conducive to entrepreneurial behaviors may overcome constraints of limited resources and opportunities, and counteract the machine bureaucracy, providing the professionally promising workplace needed to retain teachers and positively affect outcomes (Wiklund & Shepherd 2005).

Entrepreneurial orientation provides a means of ranking organizations' "entrepreneurial strategic posture" relative to how they measure on characterizing dimensions (Lumpkin & Dess, 1996). Entrepreneurial Orientation of an organization is most frequently presented in the organizational and entrepreneurship research as a reflective measure of the behaviors of the organization relevant to three dimensions: innovation, risk taking and proactiveness. Each of the dimensions is salient to an Entrepreneurial Orientation and research (e.g. Covin & Slevin, 1989) suggests they co-vary, but theoretically, the factors may vary independently and contribute to different degrees to the collective measure of behaviors reflective of the organization's Entrepreneurial Orientation. For example one or two factors may be responsible for the majority of collective variance of the three factors in a given context (Lumpkin & Dess, 1996).

Entrepreneurial orientation manifested in the public context. Public sector organizations are responsive to different environmental and internal factors than private sector organizations. For example, both private and public organizations are subject to uncertainty but while private firm's uncertainty may be due to pressures of competition, public uncertainty is related more to openness and exposure to change (Eyal & Inbar, 2003). The differences in context do not indicate different dimensions of entrepreneurial behavior,

but do affect what the salient environmental circumstances are, and how the organization may legitimately behave in response.

Innovation. Innovativeness in the public sector is likely to be manifested as novel process improvements, new services, or an organizational form driven by opportunity that is not in conflict with the purpose of the agency (Morris & Jones, 1999). Subjectivist theory suggests that the availability of innovation-facilitating resources, rich in technological knowledge and skilled professionally, may lead to high levels of entrepreneurial orientation (Miller, 1983; Covin & Lumpkin, 2011).

Risk. The centralized structure of a bureaucracy is negatively correlated with entrepreneurial behaviors like risk-taking (Miller, 1983). Risk taking behaviors in the public sector may be further limited by visibility and statutory restrictions. While high-risk pursuits with public money are inappropriate, there are still some opportunities for enterprising, unconstrained individuals in the public sector to act as agents of change, devising actions or initiatives that appear to have some risk but are aligned with the organization's goals. Public servants remain accountable so the impact of any risk-taking will be measured and subsequent actions informed by the results. Additionally, since authority delegated is risk shared, it makes sense to encourage trying new approaches and autonomy in decision-making because the frontline employee may be in the best position to devise, understand and implement something new (Miller, 1983).

Proactiveness. If proactiveness in the private sector is the creative and action-oriented leveraging of resources and networks (Morris & Jones, 1999) then the public sector, heavily regulated and subject to public scrutiny, limits the degree of "creativity" tolerated. Still, in a professional environment public servants don't just react, rather they draw upon expertise and act to generate solutions before problems emerge, ensuring a more efficient and effective organization going forward.

Public School Entrepreneurial Orientation

In his original article published in 1983, Danny Miller set out to create a broadly applicable measure of firm-level entrepreneurship whilst acknowledging and exploring the ways in which entrepreneurship and its drivers were different in different context (Miller 2011). Over the years researchers have developed and applied what became known as Entrepreneurial Orientation in a wide range of studies using models that account for the structural and environmental variables, building upon the foundational premise that Entrepreneurial Orientation and its correlates manifest differently in different context (Miller 2011; Covin & Slevin 1991). Not only does Entrepreneurial Orientation differ in nature according to context, but its performance implications are also altered by context (Miller 2011). Useful, extensible, applicable findings require a contextualized model of Entrepreneurial Orientation, complete with context- appropriate indicators for the behavioral components of Entrepreneurial Orientation (Miller 2011). In K12 education, this contextually sensitive construct is Public School Entrepreneurial Orientation.

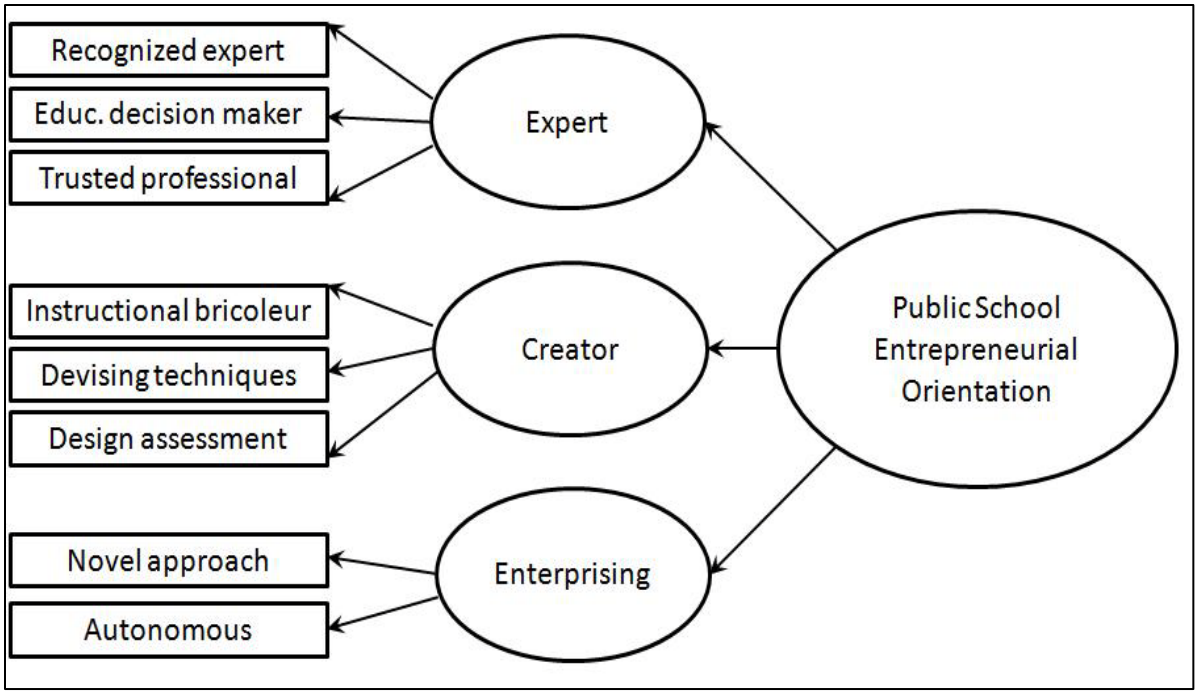

Figure 2. Public School Entrepreneurial Orientation

In the public schools, behaviors may be severely constrained so the manifestation of proactive, innovative or risk-taking behavior will naturally be more subtle. To start, Proactiveness, or the control of a situation through action is, in firm behavior, manifested by being first to market; in the schools, proactive behavior is a function of the organization's acceptance of teacher in the role of Expert, the extent to which they are able to act in an agentic manner, anticipating problems and drawing upon codified and tacit knowledge to thwart or mitigate challenges through decisions and actions. These Experts do innovate, but unlike the cutting-edge innovation of a firm entering a new market, teachers innovate in the instructional context when they are able to assume the role of Creator, deploying expertise to affect classroom instruction including devising teaching techniques, creating instructional

resources and setting assessment practices. Finally, while Risk in the firm means putting resources on the line despite uncertain outcomes, for a teacher, this agentic behavior is relegated to acting Enterprising by showing initiative and resourcefulness within the context of instructional practices and supports.

Entrepreneurial Orientation and Retention

There are a range of factors that contribute to teacher retention, but there is substantial debate about how to remedy this situation through policy and management. Studies have been done to examine the impact of remuneration on teacher retention and although salary overall is important to recruitment and has been shown to influence retention in some fields, merit pay and other accountability-based policies employed in public education ostensibly to retain high-performing teachers have not had the desired effect.

Researchers have studied the career cycle for teachers, assessing the effect of educational attainment, demographic factors, and other categories that describe and differentiate teachers, and while these factors may play a role in policy development, they cannot be influenced by management at the local level.

Local managers at the system and building level are influential in organizational and work context. Working conditions, particularly those that provide a favorable organizational environment for professionals, have an impact on teacher's motivation, satisfaction, and intent to exit and managers can shape these conditions. Some studies have indicated that reconfiguring the school's organizational structure to provide teachers with growth opportunities and leadership roles beyond the classroom will improve the retention of experienced teachers but these initiatives require significant investments in personnel and

training, so may not be an option the building-level manager can implement. Managers can, however, influence the school's Entrepreneurial Orientation by demonstrating an entrepreneurial posture which is reflected in innovative, proactive and risk-taking behaviors.

While the potential for a committed entrepreneurial strategy to improve firm-level performance is theoretically supported, and studies have found links between corporate entrepreneurship and firm performance in the private sector (e.g. Zahra and Covin 1995, Zahra & Garvis 2000 as well as the meta-analysis by Rauch et. al. 2009 cited previously), few empirical studies look at the impact of any measure of entrepreneurship on non-financial firm performance measures such as retention, commitment or satisfaction.

A 2007 study of a single mid-sized organization (N=264, 53% response rate) found perceptions of the organization's innovative climate did mediate the relationship between work process and satisfaction, commitment and turnover intention outcomes (Rutherford & Holt 2007). In a study of information technology firms in New Zealand, corporate entrepreneurship was positively and significantly related to employee retention; it accounted for a sizable 10 percent of the variance (Haar & White 2013). In a 2013 study, Giannikis and Nikandrou surveyed employees in Greek manufacturing companies and found that an organization's corporate entrepreneurial environment has a positive correlation with facets of job satisfaction and commitment (Giannikis & Nikandrou 2013). Though these studies do touch on the potential positive influence of an organizations entrepreneurial environment, the literature includes no empirical research specifically on the relationship of a public school's Entrepreneurial Orientation on the retention of teachers.

As in the private sector, retention of talent in public education represents return on investment in human resources. Theoretically, the implementation of an entrepreneurial strategy or the support of entrepreneurial behaviors may itself present stresses that impact retention, yet the correlation has been shown to be negative; Entrepreneurial Orientation is generally associated with reduced intention to exit (Monsen & Boss, 2009).

In their 2009 study of survey data from 1,975 managers and staff of a not-for-profit medical care system, Monsen and Boss found that departments that demonstrate higher levels of Entrepreneurial Orientation were generally associated with less role ambiguity and less intent to exit (Monsen & Boss 2009). Entrepreneurial environments support a culture of change and creativity, demonstrate attitudes toward failure as a relatively ordinary event that contributes to learning, and reduce fear, stress and ambiguity theoretically associated with risk-taking, innovation and proactiveness (Monsen & Boss 2009; Wiklund & Shepherd 2011). The public education agency is constrained, but variance in managerial context and a manager's strategic posture may be able to create the space needed to move from a machine bureaucracy to a professional bureaucracy where faculty behavior is agential, thereby improving working conditions and teacher retention.

CHAPTER 3. RESEARCH DESIGN

Traditional research on teacher retention is focused upon individual and contextual factors: the teacher's individual characteristics, subjects taught, school demographics, school leadership, salary, etc. While these factors can be correlated to teachers' career decisions, traditional studies neglect the teachers' perspective and process of career movement (Rinke 2008). This research considers retention with a focus on the teacher's professional work environment and their satisfaction in that workplace, linking professional experiences to their career and their decisions to keep teaching in their classroom or exit the school.

Research Model

Entrepreneurial Orientation provides a behavioral construct to frame a potentially beneficial organization-level entrepreneurial posture. An entrepreneurial organization is one conducive to improved performance and support for professionalism as facilitated by managerial leadership. This study also posits that it will lead to better retention of professional staff. One challenge to this study is that Entrepreneurial Orientation is more difficult to discern and to measure in the public school because risk, innovation and proactive behaviors are limited in scope by the nature of the work as well as by the bureaucratic structure.

This challenge is exacerbated in my study by the imperfect match between the survey items in the Teachers Working Conditions survey and the three broadly accepted defining constructs of Entrepreneurial Orientation (innovation, proactiveness and risk) as they are conventionally understood in other contexts. The Teacher Working Condition survey was not developed for the purpose of studying these entrepreneurial orientation constructs, but the

survey questions do address perceptions of important school-specific working conditions that theoretically (albeit imperfectly) align with Entrepreneurial Orientation. As will be discussed shortly, this lead to an adaptation, the context-relevant construct Public School Entrepreneurial Orientation.

Like Miller's originally conceived three-factor Entrepreneurial Orientation, Public School Entrepreneurial Orientation is a relative measure at the organization level of the ability to address problems, generate solutions and create possibilities, a measure which is derived in the school context from the collective strength of the teacher's expert and agentic behavioral attributes. For this reason, this exploratory study will determine if a school environment that teachers perceive as supportive, an environment where creative (Innovation), expert (Proactive) and enterprising (Risk) behaviors can be manifested in the teaching-centric professional aspects of teacher working conditions, will also measure higher in teacher satisfaction and retention.

This study will measure the collective strength of these indicators in the North Carolina public high schools at both the school building and school system levels to determine where the schools and school systems fall, relative to each other, on the dimension of Public School Entrepreneurial Orientation. The analysis will then determine if there is a significant correlation between this orientation and other professional factors, and teacher retention, while controlling for other factors relevant to teacher's work environment that have been shown to have influence upon retention. Theoretically, schools that measure higher on the scale measure Public School Entrepreneurial Orientation are providing the professional

teaching conditions teachers require and therefore retain teachers better than those schools that measure relatively low.

This research proposes four hypotheses:

H^1: Schools that have higher levels of Entrepreneurial Orientation – where teachers are enterprising, expert creators (proxy for risk taking, proactiveness and innovation) – will have higher levels of teacher retention.

H^2: As the levels of two key professional elements – teachers involved in decisions and data for informed decision-making – increase, the level of teacher retention will increase.

$H^{3:}$ Schools that have higher levels of Entrepreneurial Orientation will have higher levels of teacher satisfaction.

$H^{4:}$ School systems that have higher levels of Entrepreneurial Orientation will have higher levels of teacher retention.

Data Sources

Teacher working conditions survey. Utilizing the 2014 North Carolina Teacher Working Conditions survey data, this research will operationalize the organizational and perceptual dimensions indicated in Public School Entrepreneurial Orientation. It will then determine the correlation between those factors as well as key professional conditions of the work environment, and teacher satisfaction and retention, while controlling for other factors that research has shown influence teacher retention.

In a professional field with few options for advancement and little variance in remuneration, working conditions are important to satisfaction and retention. The Teacher Working Conditions survey, administered to all personnel across North Carolina every two

years since 2006, includes questions about work, work environment, resources, time, and other elements considered relevant to working conditions in schools. The 2014 survey (see Appendix 2) was completed by over 100,000 school personnel, over 89% of the school-based licensed educators in the state. The minimum response-rate threshold for releasing data about a school is a 40% response and at least 5 respondents.

Sample. For the purpose of this study, the data were limited to just high school teacher respondents in public non-charter high schools. These teachers, as discussed earlier in this work, have more opportunities in the labor market so they are hard to retain, and in the case of math and science teachers, are also often more difficult to replace.

Drawing upon the sample, administrators, social workers, and other non-instructional staff were excluded. The remaining 93,179 educator respondents were further narrowed to capture the response of only high school teachers teaching at grade 9 or above. The response rate for these schools was calculated at 89.46%. Therefore the 20,306 teacher respondents working in 407 city and county school system-run senior high schools are the complete sample used in this analysis.

Teacher survey questions in the Teacher Working Conditions Survey-labeled categories Teacher Leadership and Instructional Practices include perceptions of the teacher's workplace relevant to shared vision, trust, and respect as well as perceptions of the workplace functionally as an environment supportive of teacher's professional contributions and decision-making. There is also a work satisfaction question about the school as a good place to work overall. Responses to all of these questions are measured with a five-point Likert scale, responses ranging from "strongly disagree" to "strongly agree" with an option

for “don’t know.”[1] The survey item associated with a teacher’s future professional plans, a dependent individual-level variable in this study, includes a range of responses from “continue teaching at my current school” to “leave teaching entirely.”

An SPSS analysis of missing data indicated that 89.4% of the cases in the sample completed the survey fully, so these cases had no missing data. Of the 2,147 cases with some missing data only 1.1% of the values are missing. Response rates to specific questions used as variables in this study range from the most completed question, “Overall, my school is a good place to work and learn,” with only .4% of the 2,147 cases skipping this question, to “Teachers have knowledge of content covered and instructional methods used by other teachers at this school” which was skipped by 2.1% of the respondents with missing values.

TWC survey question selection. Relevant questions from the Teacher Working Condition Survey were chosen based upon their theoretical impact on teacher perceptions of the workplace as professionally promising. Care was taken to select only those questions relevant to the teacher’s role specifically and actions that are within the teacher’s locus of control. Since this research is focused upon the behaviors of the teacher within the professional context of teaching, the Teacher Working Condition survey questions included in this study are limited to those that address the core role of the teacher: classroom teaching. Questions relevant to the teacher’s perception of the school’s organizational and environmental support for their ability to function as a teaching professional with agency and

[1] To address the fact that the “don’t know” response will skew the results towards “agree,” all “don’t know” responses were coded as non-response. The frequency of these responses varied from .7% of the responses to the question “majority of teachers are trusted…” to 11.7% of the responses to the question about teacher’s role in selection of teachers new to the school. Where teachers knew or felt the question applied, they answered the question, so “don’t know” is not useful in discerning teacher’s perceptions of their working conditions.

trust include items in the survey areas labeled instructional practices, leadership and empowerment. See Appendix 1 for a list of the selected questions.

The Teacher Working Conditions survey was not designed to measure some of the constructs of interest in this research. Therefore the application of this data to certain variables, in particular, the measurement of the innovation, risk-taking and proactive behaviors, is imperfect. The researcher acknowledges this along with the concerns about an appropriately sensitive test for the theoretically subtle manifestation of Entrepreneurial Orientation in the school setting.

Recognizing these obstacles to measuring the traditional concept of Entrepreneurial Orientation, this researcher will instead compute the school's Public School Entrepreneurial Orientation, a contextually-appropriate construct derived from the concept of Entrepreneurial Orientation but focused upon behaviors more appropriately aligned with the environment of the school. Since Public School Entrepreneurial Orientation is reflected in dimensions more likely to manifest in the school environment and more readily measured in the teacher's perceptions of their working conditions, and it is a better fit for this study.

Teacher turnover report. Teacher retention in North Carolina is reported at the system level in the Teacher Turnover Report, and at both the system and school level online at the NC School Report Card website, http://www.ncpublicschools.org/src/

All schools in the 115 school systems are required to report their turnover which is represented as a percentage rate for each school; individuals are not demographically identified and no individual-level data is reported. For the purpose of this study, the

percentage turnover at both the building and system level is the variable hypothesized to be influenced by the conditions in which the teachers are working.

At the system level, the report includes not only the number of teachers leaving but also an analysis of turnover. The reasons reported for leaving are grouped and reported at the system level by the State of North Carolina into five categories:

1) Teachers who left the LEA but remained in education

2) Teachers who left the LEA for personal reasons

3) Teachers who were terminated by the LEA

4) Teachers who left the LEA for reasons beyond the LEA's control

5) Teachers who left the LEA for other reasons not listed above

Data used to develop the Teacher Turnover Report and NC School Report Cards is available from the Department of Public Instruction website at http://www.ncpublicschools.org/src/researchers/

Theoretical Model

Figure 3 represents the model proposed. Retention is positively influenced by the second-order latent variable Public School Entrepreneurial Orientation which is derived from the combined relative strength of the first-order latent variables Creator, Expert and Enterprising, which are indicated by the 8 indicator variables, questions from the Teacher Working Condition survey, which will be listed and discussed in detail shortly.

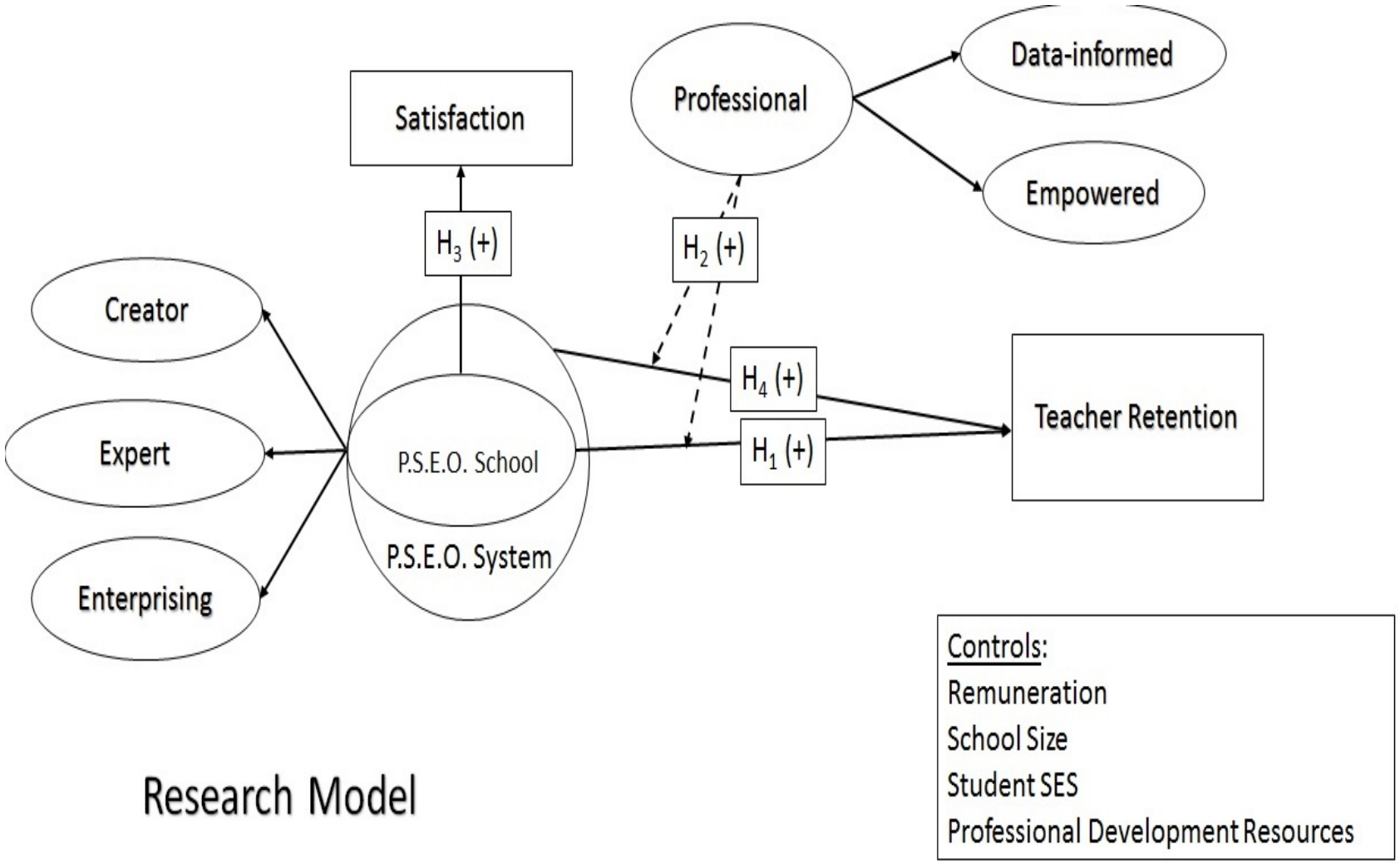

Figure 3. Theoretical Model

Retention is also positively moderated by the second-order latent variable Professional, derived from the relative strength of the two first-order latent variables Decision-involved and Data-informed, which are indicated by an additional 8 indicator variables which are also questions from the Teacher Working Conditions survey. The second-order latent variables Public School Entrepreneurial Orientation and Professionally Promising are organizational factors measured at the school and school system levels. Teacher-reported satisfaction with their school and teacher career intention are assessed at the individual level.

Dependent variables.

Turnover. Teacher turnover, measured as a rate at both the building level and the system level, is the primary dependent variable. Public School Entrepreneurial Orientation, an organizational construct measured at the building and system-level, will theoretically affect the turnover rate, as will measures indicating a Professionally Promising workplace.

The Teacher Turnover Report (2014) indicates 13,557 teachers out of the 96,010 teachers employed during the 2013-2014 school year left their LEAs, resulting in an overall state turnover rate of 14.12%. Attrition rates at the LEA level range from a high of 32% to a low of 6%, and at the school level, from no teachers leaving to turnover of as much as 60% of the school's teachers in one year. While the turnover rate includes some teachers who leave to retire or for family relocation, they constitute only 18% of the teachers leaving the classroom (Teacher Turnover Report 2015). Most leavers are leaving the classroom for other non-teaching jobs or "churning" between schools and school systems, including departing for

private school or out-of-state jobs. The majority of this turnover could be theoretically affected by the school's Public School Entrepreneurial Orientation.

Teacher turnover is reported to the North Carolina Department of Public instruction and the building-level rate is published as a part of the School Report Card[2]. According to the School Report Card Data Source Guide available online at http://www.ncpublicschools.org/src/guide/personnel/, teacher licensure, salary and payroll data are available real-time; a snapshot is pulled in March of each year for this report. Unfortunately, the data does not capture "churn" (teachers moving between schools) if the teacher stays in district. Reported school turnover rates reported are therefore lower than the actual school-level teacher departure rate as teachers are only counted in the turnover rate if they are not employed as a teacher in that same school district.

Satisfaction. Although turnover is the primary focus of this dissertation, the analysis will also briefly examine how the independent variables affect teacher satisfaction. Satisfaction is indicated in the answer to the question "Overall, my school is a good place to work and learn" which may be similarly assessed to measure the extent to which perceptions of working conditions influence retention-related behavior. The survey also measures perceptions of working conditions in areas such as facilities and resources, time, community involvement, professional development, and other factors that contribute to the overall conditions in which teachers are teaching. Therefore the professional and entrepreneurial orientation-related factors will not explain all of the variability. Nonetheless it will be

[2] Report Card data are made available for researchers at http://www.ncpublicschools.org/src/researchers/. Turnover is reported in the Personnel Table.

informative to see what portion of teacher satisfaction can be explained by these more strategic and economical managerial and organizational culture dimensions.

The Teacher Working Conditions survey includes a question about the teacher's "immediate professional plans" but unlike the state-reported survey of reasons for exit which is administered to teachers who are actually leaving their positions, teachers may or may not follow through on their plan as indicated. Still, at the organizational level the response to this question may indicate an important measure of satisfaction with the working environment that will be considered on its own and also compared the school's actual retention rate.

Teachers who respond with their intention to "Continue teaching at my current school" will be classified as Staying, and all other responses (Continue teaching in this district but leave this school, Continue teaching in this state but leave this district, Continue working in education but pursue an administrative position, Continue working in education but pursue a non-administrative position, and Leave education entirely) are classified as Exiting, although as was mentioned, this is a measure of the teacher's intentions and so may not align with the school's actual teacher retention.

Independent variables: PSEO & professionally promising culture. In this section, the survey items used to operationalize the components indicative of Public School Entrepreneurial Orientation (Enterprising, Expert and Creator) and Professionally Promising culture (Decision-involved and Data-Informed) are discussed.

Independent variable: expert. Expert is a first-order latent variable contributing to the second-order latent variable Public School Entrepreneurial Orientation. Experts embody proactiveness in the public school work context: As discussed in chapter 2, in a school

setting, proactiveness is a benefit of the organization's recognition of teacher as expert; experts are adept at anticipating problems and drawing upon codified and tacit knowledge to thwart or mitigate these challenges through decisions and actions. Although there is no consistent definition for or method of identifying an "expert" teacher in educational research, some researchers have used normative and criteria-based evidence, including the intentional development of a problem-solving orientation toward teaching, to determine if an educator is an "expert" (Palmer et al. 2005). Teacher experts do not wait for the results of a summative assessment to act. Expert teachers are guided in their decision-making by underlying causes. Therefor proactively adapting instruction in response to student's learning is a defining characteristic of the expert teacher's decision making (Westerman 1991).

Theoretically, questions from the *Teacher Leadership* section of the Teacher Working Conditions survey are the most closely aligned with perceptions of teacher as expert instructional decision maker, leading by acting in response to data trends they have found to be indicative of future challenges. In particular the following questions indicate teacher's expert stance:

- Teachers are recognized as educational experts.
- Teachers are relied upon to make decisions about educational issues.
- Teachers are trusted to make sound professional decisions about instruction.

Although these two items do not contain the anticipatory aspect specifically, the expert decision maker is planning and adapting instruction proactively to generate solutions to problems, mitigating the challenges students face and orchestrating the best student achievement outcomes possible.

Independent variable: creator. Creator is a first-order latent variable contributing to the second-order latent variable Public School Entrepreneurial Orientation. The teacher in the creator role is demonstrating behaviors considered innovative in public school work context: as discussed in Chapter 2, teacher-created classroom instruction, to the extent that conditions allow it, provides the context for teacher as "creator." Creativity in the teaching role involves the deployment of teacher's knowledge and skills to affect classroom instruction including devising teaching techniques, creating instructional resources and setting assessment practices. The creator is able to implement an instructional approach that is customized, responsive and potentially innovative. The teacher in the role of creator may indicate a willingness to diverge from the standard or norm, a practice that if observed in the relatively bureaucratic and standardized environment of a school will differentiate this teacher from their colleagues if not cause concern or outright censure.

Specifically there are three questions about behaviors indicative of the teacher's creator role in the Teacher Leadership section of the survey. Respondents indicate the role, from "no role at all" to "large role" (with an option for "don't know") that teachers in their school have in the following areas:

- Selecting instructional materials and resources
- Devising teaching techniques
- Setting grading and student assessment practices

Independent variable: enterprising. Enterprising is a first-order latent variable contributing to the second-order latent variable Public School Entrepreneurial Orientation.

Enterprising teachers are risk-taking actors in the classroom, the teachers' public school work context. As discussed in Chapter 2, the enterprising teacher generates possibility in the context of instructional practice and these conditions occur when teachers act with autonomy to try new things in their teaching to improve classroom instruction. Because public schools are so risk averse, risk-taking is perhaps the most difficult to support dimension of entrepreneurial orientation. Risk-taking is indicated by the teacher's perception of autonomy and agency to engage in new, even untested, approaches to improve outcomes for their students. Despite the importance of their work and their obligation to the public to produce positive results, teachers are justified in their willingness to experiment with new approaches when experience and data mitigate the risk. Teachers are asked to rate how strongly they agree or disagree with statements in the Instructional Practices and Support section of the survey. In that section, these two questions come closest to representing instructional risk-taking behaviors as appropriate for the public school setting:

- Teachers are encouraged to try new things to improve instruction.
- Teachers have autonomy to make decisions about instructional delivery (i.e. pacing, materials and pedagogy).

Independent moderator variable: professionally promising culture. In addition to those factors relevant to the organization's Public School Entrepreneurial Orientation the working conditions survey questions indicate additional latent factors contributing to a professionally promising workplace. Research has demonstrated that while Entrepreneurial Orientation may be useful for predicting positive performance outcomes, the influence may be contingent upon internal factors (Covin & Slevin 1991, Lumpkin & Dess 1996, Wiklund

& Shepherd 2003). The strength of the impact of the Entrepreneurial Orientation of the teacher's workplace may be positively influenced by key aspects of the school's professional working conditions.

The second-order latent variable Professionally Promising culture indicates schools where teachers are involved in important administrative decisions and where data systems to effectively inform decisions are in place. Public School Entrepreneurial Orientation in these schools may be better able to influence teacher retention. The extent to which these moderator variables impact retention will be determined by an analysis of variance.

Decision-informed. Decision-informed is a first-order latent variable contributing to the second-order latent variable Professionally Promising culture. Teachers engaged in decisions that have school-wide impact are influencing and contributing significantly to the organization. Questions indicating the involvement of teachers and their potential influence upon important aspects of the school's management include questions that ask if teachers have a role in the following important administrative areas:

- Establishing student discipline procedures
- Providing input on how the school budget will be spent
- The selection of teachers new to this school
- Determining the content of in-service professional development opportunities

Data-informed. Data-informed is a first-order latent variable contributing to the second-order latent variable Professionally Promising culture. Decisions require adequate data. In order to effectively function as a professional in the workplace, teachers draw upon all available information. Clearly, it is important to have access to adequate data systems that

provide what teachers perceive as reliable information valuable to the instructional environment and contributing to improved student achievement. Therefor available data is one key element in this professional culture that supports informed decisions and continual improvement. The questions posited to provide adequate information about the availability of instructionally relevant data are the following:

- State assessments provide schools with data that can help improve teaching
- State assessments accurately gauge students' understanding of standards
- Teachers know what students learn in each of their classes.
- Teachers have knowledge of the content covered and instructional methods used by other teachers at this school.

Control: student demographics. Controls will include school-level student body characteristics, including socio-economic status and race, which have been demonstrated to influence teacher retention.

Odds of teacher attrition increase in high-poverty schools; schools with predominantly low-SES students often employ more beginning and provisionally-licensed teachers (Borman & Dowling 2008; Guarino 2006; Allen 2005). Attrition may be related to the correlation between student achievement and poverty, possibly indicating teaching low-income students is more difficult. Since research has demonstrated attrition is correlated with low socio-economic status of the student body, this study will control for socio-economic status of the school as indicated by the percentage of students at the school who seek assistance, as a result of family income, for free and reduced meals.

Teacher turnover has also been higher in schools that have a high percentage of minority students correlated, often, with poverty levels and subsequently, student achievement (Borman & Dowling 2008; Guarino 2006; Allen 2005). To ensure this factor is not contributing to the measured retention, this study will control for racial make-up of the school's student body as indicated by the percentage of minority students enrolled.

These school-level data are reported to the NC Department of Public Instruction annually and made available at http://www.ncpublicschools.org/src/researchers/ and included in the School Report Card http://www.ncpublicschools.org/src/.

Control: teacher salary. Salary would also be a control variable, theoretically, as it can be demonstrated to influence teacher's employment decisions. However, as was noted earlier, teachers' compensation in North Carolina is calculated according to a published, uniform salary schedule based upon years of experience, degree status, and National Board of Professional Teaching Standards certification. The only source of variation for teacher salaries is the local supplement, if any.

To account for this difference, Ladd (2011) developed a single salary for each district (8 years of experience, master's degree plus an estimate of the salary supplement) resulting in a nominal range of salaries (between $36,830 and $42,910) across districts that is theoretically attributable to cost of living in those districts. If adjusted for cost of living, Ladd predicted that these already small variations in salaries would have little or no predictive power in the analysis (Ladd 2011).

Despite the limited variation in salary across school systems in North Carolina, salary is in theory not completely without influence in teacher's employment decisions. Using the

North Carolina Public School Salary Schedule (NCDPI 2014), a salary figure will be determined for each school system and used as a control variable. This control variable is a school system-specific figure, calculated as per Ladd (2011) for a teacher with 8 years of experience and a master's degree.

Control: financial resources. Environmental munificence is also a factor in working conditions that theoretically needs to be controlled, since the lack of adequate resources for teaching and learning has been a factor in teacher attrition (Johnson et al. 2005). One commonly used measure of relative support at the school level is per-pupil expenditures which have been shown to be positively correlated with teacher retention (Allen 2005). North Carolina's Department of Public Instruction publishes the per-pupil expenditure by school system as a part of the Statistical Profile Online available at http://apps.schools.nc.gov/statisticalprofile. Per-pupil expenditures include state, federal and local funds. The average per-pupil expenditure in 2013-14 was $8,477 but the range is broad, from the high of $16,615 in Hyde County and $7,282 in Davidson County.

One factor contributing to the range of expenditures per pupil is the size of the school system. Those systems with the highest per-pupil costs are among the smallest systems, but this does not mean there is more spent on instruction; in small systems the fixed costs of central office administration and other operational expenses are a larger percentage of the costs since the total is divided by a smaller number of students. Additionally, this number is at the system level and does not indicate the availability of resources at the school level; school-level per pupil expenditure data is not collected at the building level for North Carolina schools.

Despite the imprecision of this information, per-pupil expenditure as reported for each of the school systems is an available and commonly used parameter indicating general school resource availability and so this will be used as a control variable for this study.

Control: school and system size. Finally, the study will control for the relative size of school or system based upon the reasoning of Hirschman's classic (1970) framework which posits that members who disagree with the policies of an organization face three basic options: exit, voice, or loyalty. Teachers who disagree in smaller schools either conform or exit, making odds of teacher attrition greater at smaller (<600 students) schools (Ingersoll 2001; Borman & Dowling 2008). In contrast, large public schools, simply by virtue of their size, may offer more job and mobility opportunities for teachers either within the school or within the district (Ingersoll 2001). Since school size has some influence on retention, it will be a control variable.

Analytic Tool: Structural Equation Modeling

Building upon theory and previous empirical research, a model will be specified and tested to determine if and/or how much of the school's turnover can be explained by the relative strength of Public School Entrepreneurial Orientation at the school level as well as the strength of the Professionally Promising work environment and controlling for structural factors, taking into account that school's membership in the greater school system whose Public School Entrepreneurial Orientation may also influence teacher retention. As these constructs operate uniquely at an aggregate level of analysis and are assessed at the organizational level; they are compilation variables, group level constructs meaningful only at the school unit level of analysis (Dyer, Hanges & Hall 2005).

Due to the nested nature of teachers within schools within school systems, research in school settings may need to account for the effect of both within-level and between-level interactions. In the case of teacher working conditions and the measure of the organizational construct Public School Entrepreneurial Orientation, the school and school system levels are both theoretically influential, both potentially contribute to the level of Public School Entrepreneurial Orientation and the posited impact upon teacher retention levels.

Structural Equation Modeling using MPlus allows the researcher to specify a model for grouping cases within the multilevel data thereby modeling the non-independence of observations due to clustering, testing the influence of Public School Entrepreneurial Orientation on teacher retention within the hierarchical structure of the school and school system (Dyer, Hanges & Hall 2005).

The Teacher's Working Condition Survey data are ordinal. As is the case with other statistical packages, Structural Equation Modeling in MPlus does not require continuous data to measure constructs. Confirmatory Factor Analysis, an application of structural equation modeling in MPlus, tests for both the factor loadings and the overall quality of the factor solution. Finally, this confirmatory approach to data analysis and hypothesis testing incorporates observed as well as first and second order latent variables, and it is possible to include direct or moderating effects in the model, all critical considerations for the theoretically proposed model (Byrne 2012; Muthén & Muthén 2001). Mplus also handles latent variable interactions.

Survey Data Summary and Background

The data set for this analysis is 20,206 high school teacher respondents to the 2014 North Carolina Teacher Working Conditions Survey in 401 traditional public high schools.

The measure of satisfaction for this analysis is the teacher's response to the statement "Overall, my school is a good place to work and learn." Most teachers see their school as a workplace conducive to teaching and learning, with 82.7% of respondents answering "Agree" or "Strongly Agree."

Of the 20,206 respondents, 9,825 of these teachers were beginning teachers (in the first three years of teaching) or mid-career teachers (4-10 years of experience), and these teachers were only slightly less positive about their school as a good place to work and learn compared to the entire sample, with 81.4% of both beginning and mid-career teacher groups agreeing or strongly agreeing with this statement. Veteran teachers, teachers with more than 11 years of experience, agreed at a slightly higher rate, with 8,641 (83.2%) indicating they feel their school is a good place for teaching and learning.

Teacher's career intent is based upon their response to the question "Which of the following best describes your immediate professional plans?" The teacher's plan to continue as a classroom teacher in their current school is the only answer to this question that is not considered exit for the purpose of this study. As is discussed elsewhere, the costs and disruptions of teacher turnover occur with "churn" also; even if teachers leave their school to teach in another school, that exit is not without cost. Retention then is focused on teaching in the current school, and this career intent is the one reported by the vast majority of the respondents. Of the entire population for this data set, 77% of the teachers indicated that they

planned to continue teaching in their current school. Of the beginning and veteran teachers, 79% reported they intended to stay teaching but only 71% of mid-career teachers planned to return to the classroom at their school. The percentage of teachers who indicate the intent to stay teaching at their current school is lower than the state's retention rate because the Teacher Turnover Report (2014) does not include "churn" between schools in the same system. Their measure of the overall state turnover rate is 14.12%.

Survey Validity and Reliability

The 2014 North Carolina Teacher Working Conditions survey instrument was developed over 10 years and this survey's elements have been tested and analyzed extensively. More information about the instrument is included in the research brief "The 2014 North Carolina Teacher Working Conditions Survey: Design, Validity and Reliability" available online at: http://www.ncteachingconditions.org/uploads/File/NC%20val%20rel%20brief%20%205-14.pdf

External validity testing was done to ensure that the survey accurately measures core constructs such as Time, Teacher Leadership and Facilities and Resources as intended. Testing assessed the structure of the response scale and survey constructs indicate the survey is a reliable and valid measure of teaching conditions and provides stable and generalizable measures of teaching and learning conditions (Moir 2009).

Predicative validity is indicated as teacher retention and student achievement are positively correlated with teacher working conditions. As has been presented previously,

empirical studies indicate teacher's perceptions about the school facilities and the context in which they work is influential in their career decisions.

Threats to validity. Threats to the internal and external validity of this dissertation were assessed and addressed.

Internal validity. Internal validity relates to the confidence a researcher has that what is attempting to be measured or investigated is truly what is being measured or investigated. This potential for systematic error is elevated in this study due to two conditions; the use of secondary data not designed to specifically detect behaviors associated with Entrepreneurial Orientation, and the development of the Public School Entrepreneurial Orientation construct.

The latent firm-level construct Entrepreneurial Orientation is well established in the empirical literature and instruments designed to detect the related behaviors developed and tested. As has been addressed earlier, the survey questions in the Teacher Working Conditions were not designed to measure the construct-relevant behaviors and Public School Entrepreneurial Orientation is a school-context-appropriate measure distinct from but inspired by Entrepreneurial Orientation. As a result of these two constraints, there is enough of a threat to internal validity to categorize this study as experimental. The development of context-appropriate instruments designed to detect the theoretically subtle manifestation of entrepreneurial behaviors like proactiveness, innovation and risk-taking in the public school, could potentially address this threat to internal validity.

External validity. The results of this study can be generalized to North Carolina because, as is articulated above, external validity tests indicate the Teacher Working Conditions survey instrument is a stable measure of teaching conditions. Additionally, the

population responding to the survey is extensive and the sample used for this study is comprised of all of the high school teacher respondents, making it more likely that the results can be generalized back to the population of high school teachers. There is no interaction or test effects for this assessment associated with the completion of the survey.

Model Revision

The initial model included the Professional Workplace as a moderating variable, positing that a more professional environment, a workplace in which teachers had the data they needed to function professionally and that teachers played a role in important decisions, would strengthen the effect of the school's PSEO. While access to these data and participation in these decisions are positive workplace indicators, it is not in the control of the teachers to put these systems in place. The theoretical premise of Mintzberg's model of professional bureaucracy is agentic. The operating core is not only functionally professional but they are actively seeking to increase professionalism.

Theoretically, there was an expectation that factors that make a school a professionally promising workplace contribute positively to the potential that this school is a workplace that measures high in entrepreneurial orientation. High correlation between these two factors may be indicative of a third-order factor that is comprised of all elements in the professional and PSEO factors or it may just be an indicator that environments that are supportive of teacher's ability to function in the classroom as Creator and Expert in an Enterprising fashion are also environments in which teachers are routinely involved in important decisions and have access to data that informs their instruction.

Given the large sample size and model uncertainty, comparisons were made using Bayesian Information Criteria [BIC approximation] to determine the most parsimonious model with the best fit (Raftery 1995). BIC is calculated by subtracting the product of the degrees of freedom multiplied by the natural logarithm of the sample N from the chi-square value (Raftery 1995). The Bayesian model comparisons for the Teacher Intent, Teacher Satisfaction and School-Level Teacher Turnover models fit Raftery (1995) BIC difference criteria at the >10 “very strong evidence” level, indicating that the following model is a better model.

In an effort to determine the best model fit by modeling different roles and relationships for Prof and PSEO instead of just running the theoretically supported model, a sequence of model tests were run to determine the most parsimonious model with the best fit. As an example, for the Teacher Satisfaction model: Initial measurement model fit was adequate, with RMSEA .087 just exceeding the recommended .08 and CFI/TLI .946/.934 close to the recommended >.95. Adding in the clustering effect greatly improves fit (RMSEA .041, CFI/TLI .976/.972). Progressing to the structural model, a mediated and a non-mediating (constraining correlation between second order latent variables to zero) model were run. The constrained model had poor model fit (RMSEA .134 CFI/TLI .730/.702) compared to the well-fitting model that allowed these variables to co-vary (RMSEA .041 CFI/TLI .976/.972). Results for the intent model as well as the school-level model assessing the impact on teacher turnover also had a better fitting structural model when correlation was unconstrained. Final model decisions were based upon goodness-of-fit in combination with model parsimony (Byrne 2012).

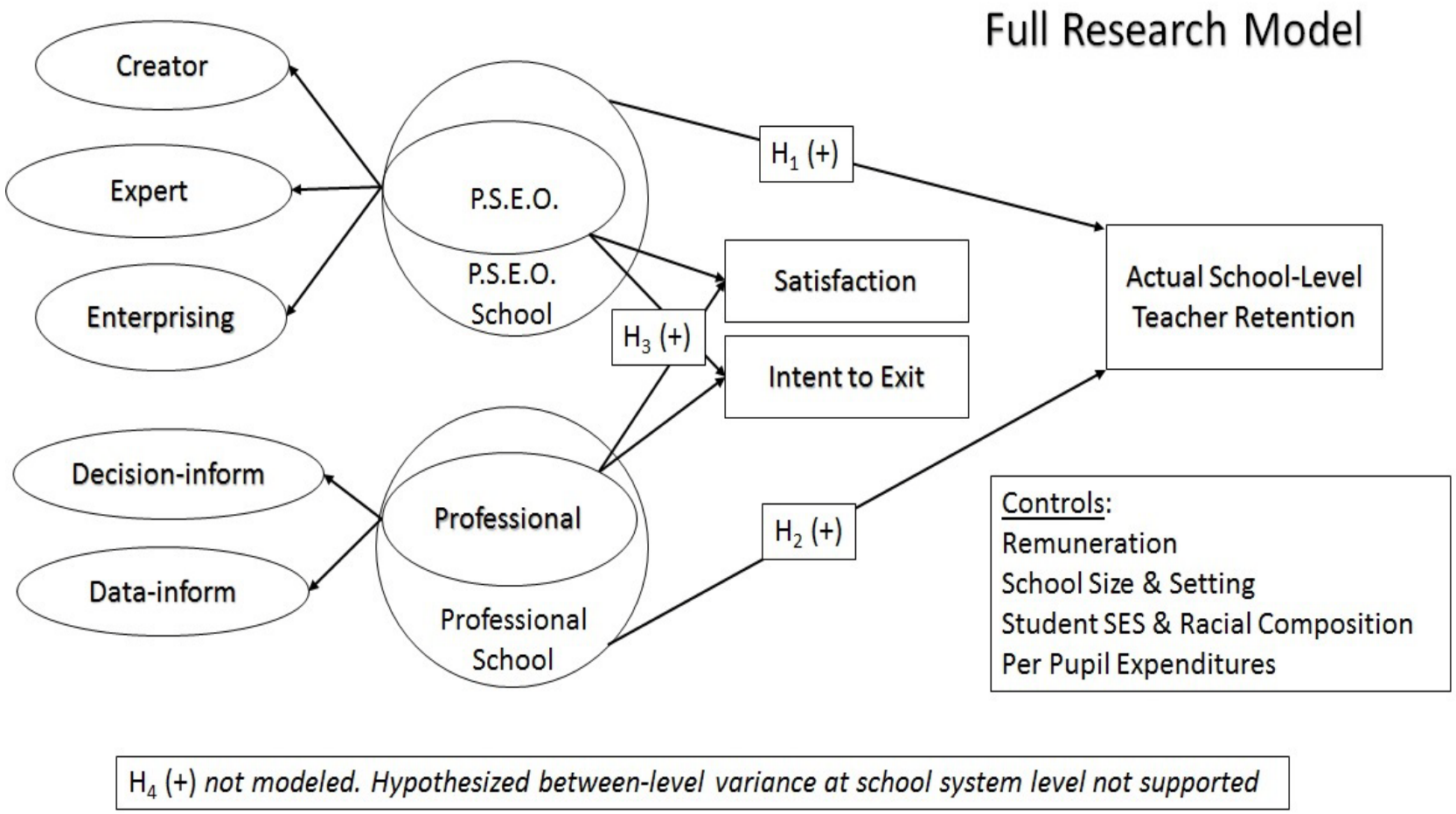

Figure 4. Final Model

As a result of the ICC assessment of variance (presented in Chapter 4) and these tests, the model is revised as illustrated above in Figure 4. The revised model is different in the two ways.

First, rather than looking at the professional environment as a moderating variable that influences the impact of Public School Entrepreneurial Orientation on satisfaction, intent and retention [DVs], this model assesses the independent contributions of both Public School Entrepreneurial Orientation [PSEO] and Professionally Promising workplace [Prof] to the DVs.

Second, because between-level variance at the school system [LEA] level was not influential, this model is reduced from a three-level model to a two-level model, assessing the school-level PSEO and Prof on retention, but not the system-level effect.

This revised model acknowledges the influence of the professionally promising workplace as not only influential with regard to the strength of PSEO but theoretically affecting the outcomes directly in important ways. The roles and opportunities inherent in a professionally promising workplace do more than support the teacher's ability to be creative, enterprising and innovative. Involvement in budget, hiring and other key organizational decisions invite teachers to lead in important areas. Theoretically these roles empower teachers so may be as influential as (or even more influential than) PSEO (Ingersoll, 2003). Assessing the influence on satisfaction and turnover directly will help to determine the relative importance of these factors, and will provide building-level managers with more information about how teacher's work and roles in decisions influence their perceptions and decisions.

Conclusion

In order to test the influence of theoretically positive professional Teacher Working Conditions on teacher retention, a multi-level model featuring second-order latent variables is proposed. Controlling for demographic and structural variables found to influence teacher retention, an analysis of the correlation of these professional conditions on retention and satisfaction will be conducted to test the hypothetical influence of these factors at the school level on teacher retention rates. The findings will inform building-level managers as well as policy makers as to the influence of a professionally promising work environment upon teacher career plans.

CHAPTER 4. ANALYSIS OF RESULTS

This chapter provides the results of the analysis of the model. First, the results of the multi-level confirmatory factor analysis are presented along with the assessment of the influence of the various levels upon the variability of responses. Next is an analysis of the teacher-level results, the influence of the second-order latent variables upon teacher satisfaction and career intent. Third, the school-level results, the influence of these conditions on the actual rate of teacher retention at the school, is presented. The chapter concludes with a discussion of what this data indicates about the relationship between satisfaction, career intent and turnover.

Confirmatory Factor Analysis

In this section, multilevel confirmatory factor analysis [MCFA] is used to confirm the underlying factor structure among the items hypothesized to indicate the five unobservable latent variables that indicate Public School Entrepreneurial Orientation (Enterprising, Expert and Creator) and Professionally Promising (Decision-involved and Data-informed). These first-order latent variables theoretically account for covariance among the observable measured variables.

Inherently nested, the responses of individual teachers are likely to be correlated rather than independent; this non-independence violates the conventional factor analysis assumption of independence and will affect standard error and parameter estimates (Bliese & Hanges 2004; Dyer, Hanges & Hall 2005).

The confirmatory factor analysis is multi-level because these factors are hypothesized to be indicated in survey responses of teachers who are nested within schools (two-level),

and teachers within schools within school systems (three-level). The multilevel confirmatory factor analysis provides a simultaneous analysis of both the within- and between-group covariance matrices (Dyer, Hanges & Hall 2005). Both the Public School Entrepreneurial Orientation and Professionally Promising constructs are organizational variables that can theoretically manifest on both the school level in response to building-level conditions and the school system-level in response to the system-level work environment. The hypothesized factor structure is isomorphic between the school and school system levels with observed items loading at both levels on the theoretically supported five first-order latent constructs Enterprising, Expert, Creator, Decision-involved and Data-informed.

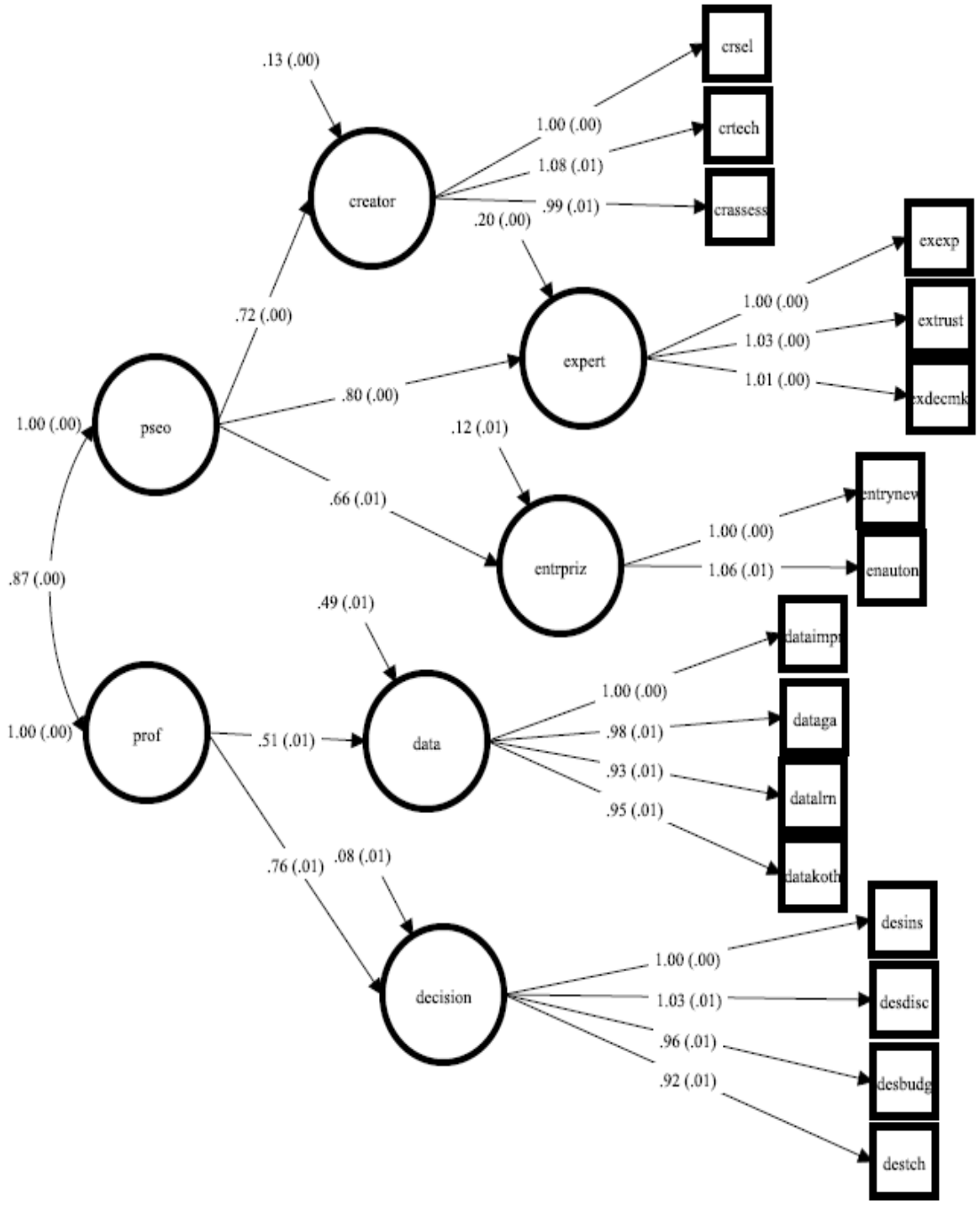

Figure 5. MCFA with two second-order latent variables

Relative fit for the MCFA of this model were good. Comparative Fit Index [CFI] 0.964 and Tucker-Lewis index [TFI] 0.956. However, the absolute fit index, Root Mean Square Error of Approximation [RMSEA] measured 0.107 which is above the recommended .10 upper limit indicating a fair model fit.

In the absence of a single standard measure for assessing model fit, multiple measures are collectively considered for overall model evaluation (Bagozzi and Yi, 2011). CFI, which tends to fit more complex models better, indicates this a well-fitting MCFA while RMSEA, which tends to reward parsimony and penalize for complexity, indicates a mediocre fit (Bagozzi and Yi, 2011). This model fit assessment is not completely unexpected since the model is necessarily complex. Still, since these indices are important to understanding how well the model fits the sample data and they are not in agreement, the potential of some model misspecification cannot be ruled out. As noted earlier in this analysis, this is an exploratory study and the data are not being used in the manner designed. Though potentially useful information can be gleaned from this exploratory analysis, it remains a possibility that the proposed theory is not the best fit for the data (Hooper 2008).

Variability and levels of analysis. Intraclass correlation is used to describe how variable responses are within units as compared to total variation across all responses. Assessing the variability between groups will help to determine if it is necessary to model the influence of the grouping of individuals within schools and schools within systems as theorized or if the variation is not attributable to the group level.

Two-level model factor analysis. To determine factor structure at the school-level of analysis and to determine if multi-level analysis is appropriate and to estimate the proportion of systemic between-group variation for each observed variable, a multi-level confirmatory factor analysis [MCFA] was conducted in Mplus version 7.3 (Dyer, Hanges & Hall 2005). Intraclass correlation coefficients [ICC] in Table 1 indicate an estimate of the proportion of variability explained by the school-level cluster.

Table 1

Estimated Intraclass Correlations for the Y Variables for SCHOOL level

	Intraclass		Intraclass		Intraclass
Variable	Correlation	Variable	Correlation	Variable	Correlation
AGEXP	0.092	AGTRUST	0.096	AGDECMKR	0.086
EXINSTMA	0.049	EXTECHNQ	0.057	EXASSESS	0.055
DESINS	0.065	DESDISC	0.096	DESBUDG	0.097
DESTCH	0.098	AGTRYNEW	0.05	AGAUTON	0.048
DATAIMPR	0.033	DATAGA	0.027	DATALRN	0.03
DATAKOTH	0.034				

ICCs greater than 0.05 indicate between-level variance and if the majority of items measure at or above that threshold, a two-level model is indicated.

As anticipated, the responses of teachers within schools are strongly correlated. It is expected that teachers teaching in the same school are influenced by their grouping. These results suggest that the two-level nature of the data, teachers within schools, must be taken

into account, as the majority of the items meet or exceed the recommended threshold of 0.05 indicating between-level variance.

Three-level model factor analysis. To determine the variance at the school system [LEA] level, a second multi-level confirmatory factor analysis [MCFA] was conducted. H_4 posits that the school system could influence organizational constructs at the school-level.

Table 2

Estimated Intraclass Correlations for the Y Variables for LEA_ID level

	Intraclass		Intraclass		Intraclass
Variable	Correlation	Variable	Correlation	Variable	Correlation
AGEXP	0.018	AGTRUST	0.024	AGDECMKR	0.021
EXINSTMA	0.017	EXTECHNQ	0.025	EXASSESS	0.036
DESINS	0.02	DESDISC	0.012	DESBUDG	0.033
DESTCH	0.017	AGTRYNEW	0.008	AGAUTON	0.022
DATAIMPR	0.028	DATAGA	0.023	DATALRN	0.005
DATAKOTH	0.007				

According to commonly accepted measures of between-level variance, it appears the data (Table 2) from the MCFA does not support this hypothesis. According to Dyer, Hanges & Hall (2005), the benchmark for high values of between-level variance is an ICC of at least .05, but in this analysis the highest ICC at the LEA level is .036 with the majority much lower.

Schools within the school system are subject to many of the same policies, management and constraints, so it would be expected that the school's placement within the school system would be influential in the variance between school-level responses. System-level commonalities include teachers' salaries (local supplement is added to state salary scale and is uniform across the system) and management and leadership (system-level administrators make decisions about testing, calendar, professional development, etc.).

Though there are theoretically plausible reasons to expect a school system-level effect, the analysis does not support this hypothesis. It is possible that the system-level effect is diluted by inconsistency among schools. Per-pupil expenditure is reported at the system level but may vary at the school level and this variation in available resources may be exacerbated by differences in parental involvement within the system. School systems in North Carolina are primarily county systems, and many counties are large and geographically diverse. Despite the within-system commonalities, there is no evidence of between-level variance and therefore no greater bias if the cluster by school system [LEA] is not taken into account. As the school's membership in a school system is not influential in the between-levels variance, LEA will not be specified in the structural model.[3]

[3] Other sources that indicate the intraclass correlation coefficient alone is not sufficient to determine if a model including clustering at this third level of analysis is meaningful. Based upon research by Muthén, the design effect, a function of ICC and average cluster size, should be taken into account (Muthén 1998-2012). The rule cited is a design effect greater than 2 (design effect = 1 + (average cluster size - 1)*intraclass correlation) should be taken into account during estimation (Muthén 1998-2012). The researcher is aware of this theory but chose to align this work with the commonly used standard indicator of between-level variance, an ICC of .05 or greater.

Teacher-level Impact

While theory indicates that a workplace with high Public School Entrepreneurial Orientation [PSEO] would be a favorable environment and therefor correlated with increased satisfaction, it is necessary to determine the extent to which satisfaction is indeed the result of PSEO or Professionally Promising culture or both. An initial analysis of the variables at the individual level was run to explore the impact of PSEO and Professionally Promising culture on teacher satisfaction. Using only the Teacher Working Condition survey data and accounting for the school-level clustering, PSEO and Professionally Promising culture were found to be positively related to the teacher-level dependent variable satisfaction (Figure 6a) as well as to the question indicating immediate career intent (Figure 6b). Though these preliminary analyses did not yet include the controls, the impact of the IVs of interest was encouraging, indicating the potential that PSEO's influence on teacher satisfaction is worth exploring and is relatively more important, perhaps, than that of Professionally Promising culture on both teacher's reported overall satisfaction and their intent to continue teaching at their school. Results of the complete analysis with full model controls follows.

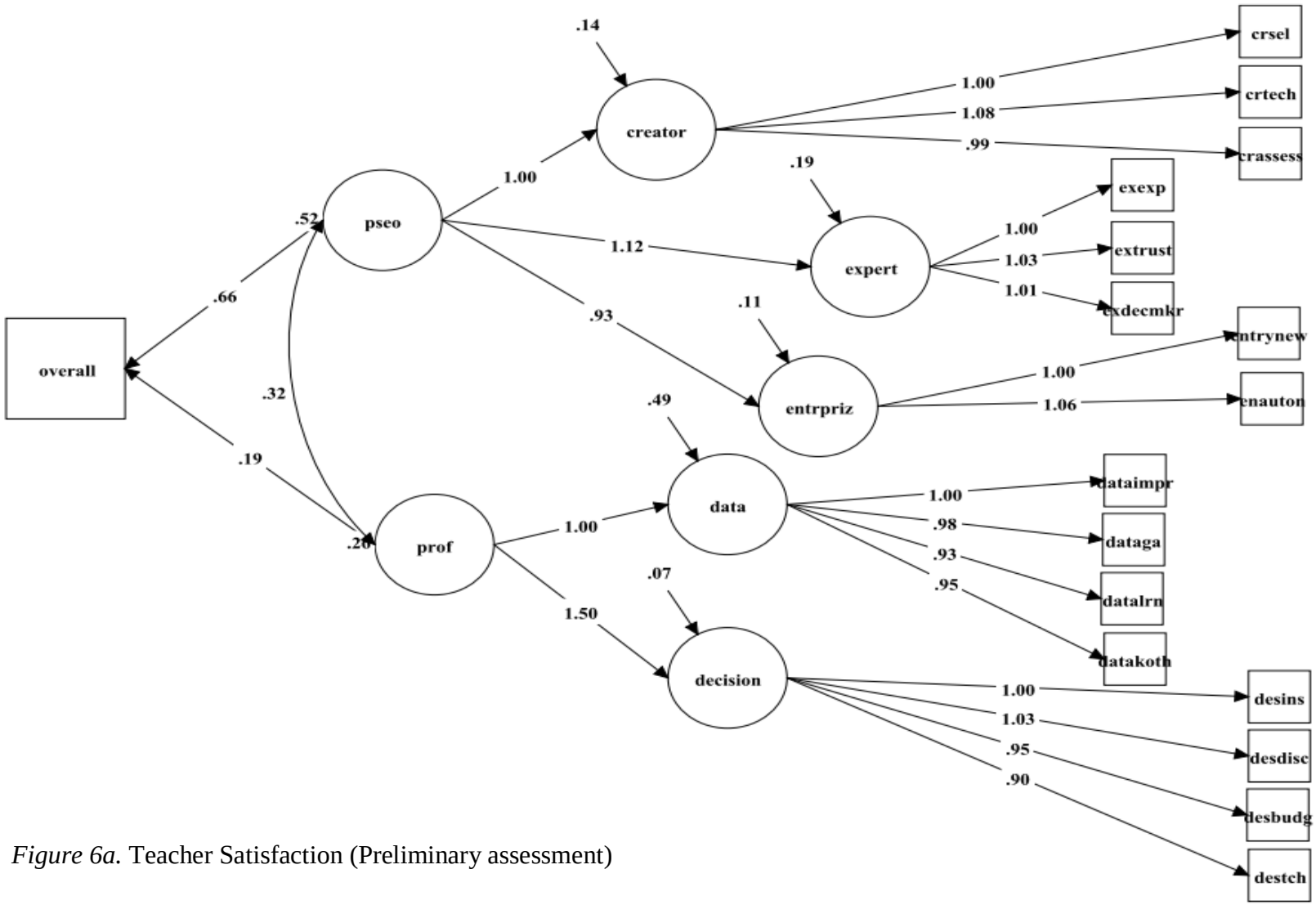

Figure 6a. Teacher Satisfaction (Preliminary assessment)

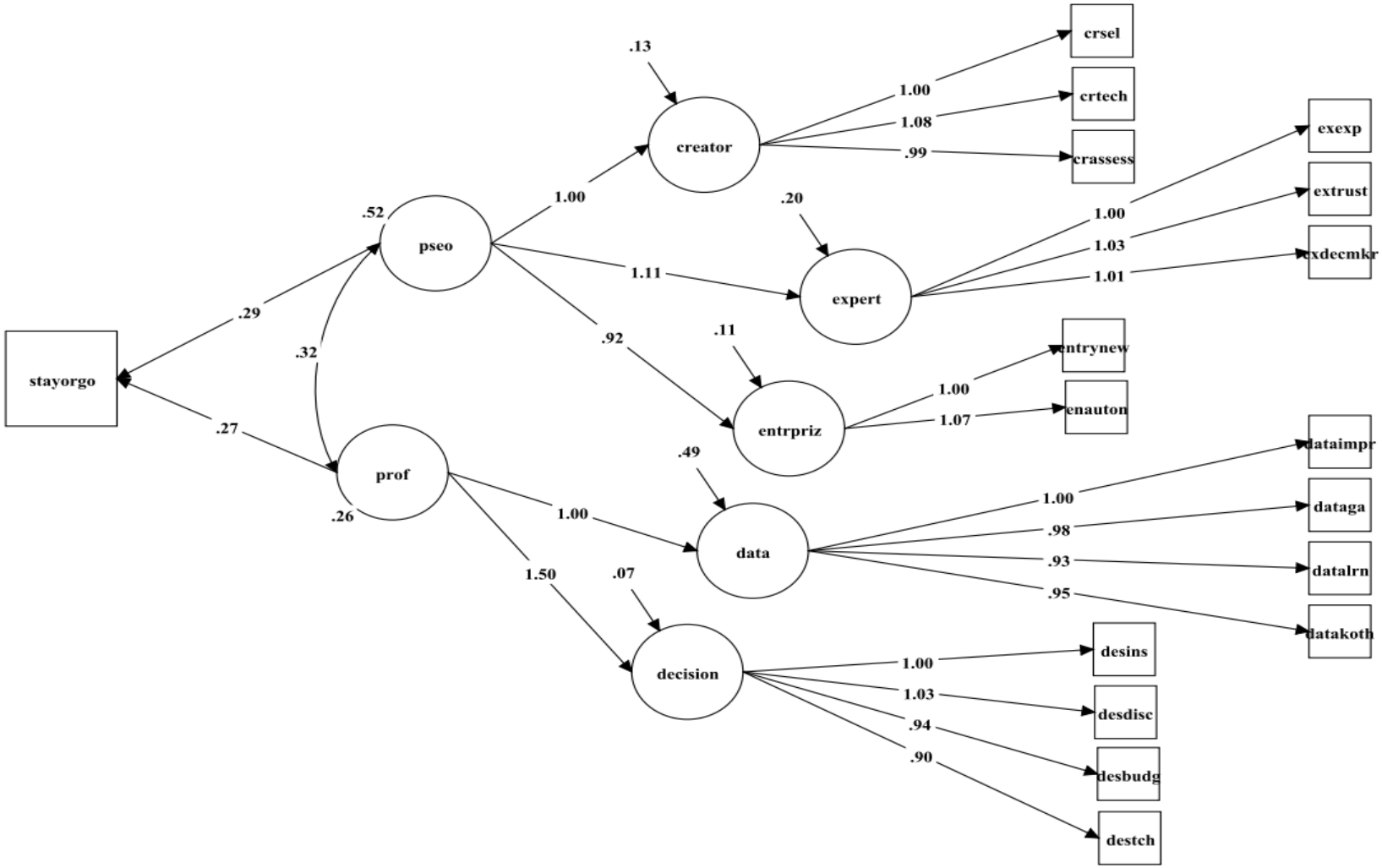

Figure 6b. Teacher Intent (Preliminary assessment)

NC Public School Entrepreneurial Orientation: Teacher-Level Findings

The following are the results of the analysis of the impact of Public School Entrepreneurial Orientation [PSEO] and a Professionally Promising workplace [Prof] on teacher satisfaction and teacher's intent to exit (within-level model). Analysis is of the entire population, 20,206 traditional high school teachers clustered in 401 schools.

Teacher satisfaction.

Results: satisfaction. The teacher-level analysis of satisfaction considered clustering of teachers in schools. Analysis includes teacher-level second-order latent independent variables PSEO and Prof and measures their influence on the dependent variable labeled Overall which is the teacher's overall workplace satisfaction indicated by their response to the question "Overall, my school is a good place to work and learn." This analysis includes full model controls on the output.

The model fit was very good, with a Root Mean Square Error of Approximation [RMSEA] of 0.41 (Test for close fit is nonsignificant), Comparative Fit Index [CFI] and Tucker-Lewis Index [TLI] of .976 and .972 respectively.

Results of the teacher's workplace satisfaction analysis are indicated in Table 3 and graphically represented in Figures 6 and 7, below. All estimated parameters in the measurement part of the model are significant. Looking at structural components, both estimated parameters, PSEO and Prof, are statistically significant at the .01 level for explaining teacher satisfaction, as are the controls for school size and the student demographic measure for socio-economic status (SES). Per Pupil Expenditure is significant at the .05 level.

Table 3

Model Results: Teacher Satisfaction

Factor Label	Factor Meaning	Standardized Estimate	Standard Error	Two-Tailed P-Value	Estimate (unstandardized)
CREATOR BY					
CRSEL	Selection	0.809*	0.004	0.000	1.000
CRTECH	Technique	0.878*	0.003	0.000	1.086
CRASSESS	Assessment	0.799*	0.005	0.000	0.988
EXPERT BY					
EXEXP	Expert	0.915*	0.002	0.000	1.000
EXTRUST	Trusted	0.946*	0.002	0.000	1.034
EXDECMKR	Decider	0.930*	0.002	0.000	1.016
ENTRPRIZ BY					
ENTRYNEW	Novel	0.743*	0.006	0.000	1.000
ENAUTON	Autonomous	0.791*	0.005	0.000	1.065
DATA BY					
DATAIMPR	Improves	0.867*	0.004	0.000	1.000
DATAGA	Gauges	0.848*	0.004	0.000	0.978
DATALRN	Learned	0.811*	0.004	0.000	0.935
DATAKOTH	Covered	0.820*	0.004	0.000	0.946
DECISION BY					
DESINS	In-service	0.814*	0.004	0.000	1.000
DESDISC	Discipline	0.835*	0.004	0.000	1.025
DESBUDG	Budget	0.769*	0.006	0.000	0.945
DESTCH	Hiring	0.740*	0.007	0.000	0.909
PSEO BY					
CREATOR		0.886*	0.004	0.000	1.000
EXPERT		0.879*	0.004	0.000	1.122
ENTRPRIZ		0.892*	0.005	0.000	0.924

Table 3 Continued

PROF BY					
DATA		0.594*	0.006	0.000	1.000
DECISION		0.945*	0.005	0.000	1.494
OVERALL ON					
PSEO		0.445*	0.019	0.000	0.634
PROF		0.106*	0.021	0.000	0.211
OVERALL ON					
LOCALETYPE		0.012	0.030	0.688	0.001
SES		-0.153*	0.030	0.000	-0.008
MIN_DIV		-0.050	0.030	0.099	-0.204
PERPUPILTO		-0.054**	0.023	0.017	0.000
SIZE		-0.077*	0.019	0.000	-0.087
SALARY_THO		-0.042	0.037	0.247	-0.026
PROF WITH					
PSEO		0.862	0.005	0.000	0.318

*= p<.01; **= p<.05

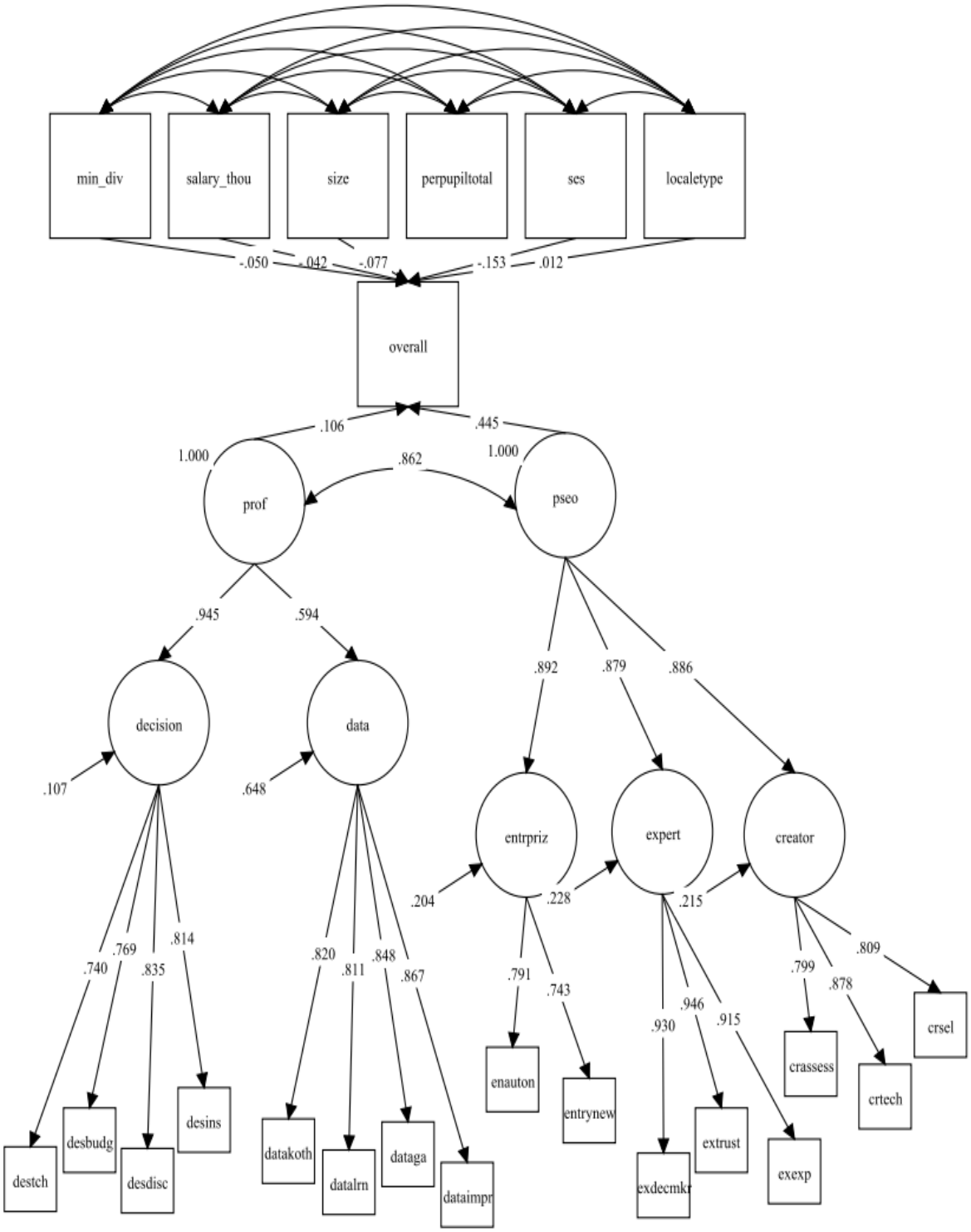

Figure 7. Teacher Satisfaction (standardized results)

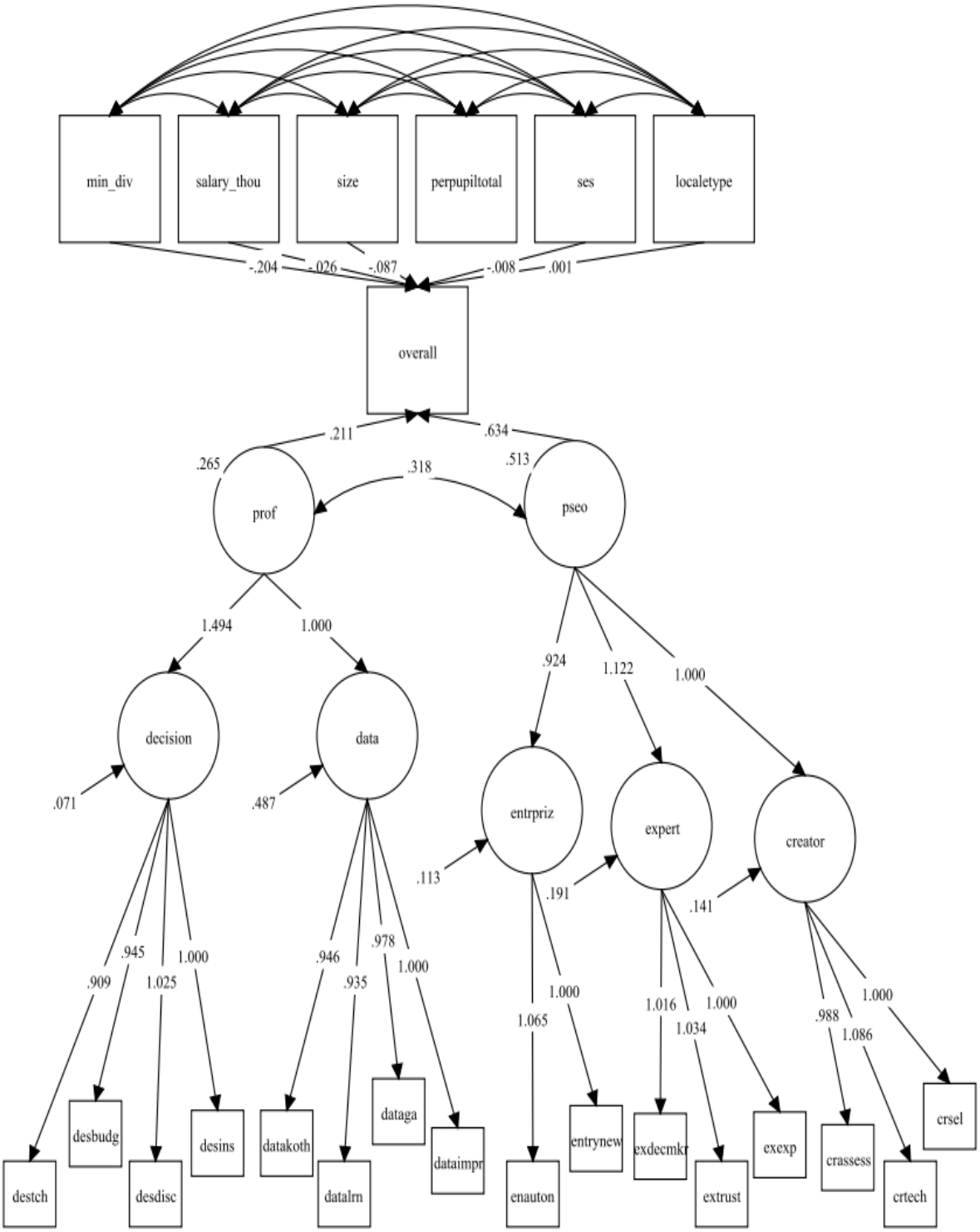

Figure 8. Teacher Satisfaction (unstandardized results)

Analysis: satisfaction. Standardized results are useful in the case of a multivariable analysis because the relative influence of each variable can be directly compared even when each of the parameters are measured in different units and have varying means and variances. When results are standardized, all predictor and outcome variables are converted to Z-scores, allowing meaningful comparisons of magnitude in standard deviation units. Comparing all coefficients using standardized results, the predictor with the largest Beta value can be considered the most influential of the variables on the outcome.

A review of the standardized results indicates that Public School Entrepreneurial Orientation has a far greater impact upon teacher's overall satisfaction in their school than the school's status as a Professionally Promising workplace. These two variables are strongly correlated. PSEO is also more impactful individually than any one of the controls. The most impactful statistically significant control is the socioeconomic status [SES] of the school's students. A higher value in the SES indicates more students are eligible for free or reduced-price meals; this factor has a negative effect on the teacher's overall satisfaction. Both school size [SIZE] and per pupil expenditure [PERPUPILTO] were significant controls which had a negative but smaller impact on the teacher's overall satisfaction.

Unstandardized results are expressed in terms of the variable's original units, so for each increment of change in the independent variable this regression coefficient indicates how much change there will be in the dependent variable with all other variables in the model held constant. This increment is difficult to conceptualize when the variable is a latent variable without natural units or inherent scale. In this case, the latent variables Public School Entrepreneurial Orientation and Professional Promising workplace reflect incremental

changes in teacher perceptions of school conditions as measured on a categorical scale and are conceptualized as relative measures, not distinct units. The unstandardized parameters indicate the difference in teacher satisfaction per unit change in the independent or control variable and should be statistically significant.

In this analysis, the unstandardized results further validate the positive impact of the school's relative measure of Public School Entrepreneurial Orientation and Professionally Promising workplace upon the teacher's overall satisfaction in their school. The influence of both PSEO and Prof was statistically significant. The unstandardized estimate for size of the school indicates a small but statistically significant negative influence of school size on teacher satisfaction and both socioeconomic status and per pupil expenditure show a statistically significant influence that manifests a negligible change in teacher satisfaction. Unlike standardized results, unstandardized results are indicated in raw units. Since each variable is measured using different units, direct comparisons between these unstandardized results cannot be made.

Why satisfaction is important. Research shows perceptions of professional characteristics of teaching as vocation, including occupational self-efficacy and autonomy at work, contribute to teacher's job satisfaction and presumably their satisfaction in the role makes them less inclined to exit (Bogler 2001; Caprara et al. 2006; Pearson & Moomaw 2006; Herzberg, 2003). Working conditions include organizational structures that define teachers' formal professional positions and relationships with others in the school. The research indicates that sociological features that shape how teachers experience their work, including their role and status, have an influence on career decisions that is distinct from

hygiene conditions (Dee et al. 2003; Johnson 2006; Louis 1998). The teacher's relative opportunity to function with agency within the school's organizational structure, the teacher's reported perceptions of their opportunity to act as a creative, enterprising expert in their key role as classroom instructor, is indicated by the school's Public School Entrepreneurial Orientation.

As expected, Public School Entrepreneurial Orientation's influence on teacher-reported overall satisfaction with their school workplace is positive and statistically significant. This factor is by far the most influential among those modeled, exerting four times the influence of the next most influential factor.

Intent to continue or exit.

Results: intent. As noted, these sections will focus on teacher level analysis. In this subsection, we will examine teachers' intent to leave. Earlier sections pointed out the survey item answer "Continue to teach at my current school" is the intent that not only indicates the experienced teacher's willingness to continue teaching but also avoids some of the aforementioned negative and costly elements of teacher "churn" between schools or systems. As noted, intent to leave does not consistently produce exit and actual exits are discussed in a later section. However intent to leave is a measure of the intensity of dissatisfaction within the school and is important to understanding the school as a working environment that will or will not be conducive to teacher retention.

The teacher level analysis considers the clustering of teachers in schools. Analysis includes teacher-level second-order latent independent variables PSEO and Prof and measures their influence on the dependent variable Stayorgo, which is the teacher's

expressed intent to continue teaching or to exit. The analysis includes full model controls on output.

Model fit was very good, with a Root Mean Square Error of Approximation [RMSEA] of 0.41 (Test for close fit is nonsignificant), Comparative Fit Index [CFI] and Tucker-Lewis Index [TLI] of .977 and .973 respectively.

Results of this analysis are shown in Table 4, below, and Figures 8 and 9. All estimated parameters in the measurement part of the model are significant at the .01 level. Looking at structural components, both estimated parameters, PSEO and Prof, are statistically significant at the .01 level for explaining teacher intent to continuing teaching at their school, as are the controls for teacher salary and the student demographic measure for race (div_min).

Table 4

Model Results: Teacher Intent to Stay or Exit

Factor Label	Factor Meaning	Standardized Estimate	Standard Error	Two-Tailed P-Value	Estimate (unstandardized)
CREATOR BY					
CRSEL	Selection	0.809*	0.004	0.000	1.000
CRTECH	Technique	0.878*	0.003	0.000	1.085
CRASSESS	Assessment	0.799*	0.004	0.000	0.988
EXPERT BY					
EXEXP	Expert	0.914*	0.002	0.000	1.000
EXTRUST	Trusted	0.946*	0.002	0.000	1.034
EXDECMKR	Decider	0.93*	0.002	0.000	1.017
ENTRPRIZ BY					
ENTRYNEW	Novel	0.741*	0.006	0.000	1.000
ENAUTON	Autonomous	0.792*	0.005	0.000	1.07
DATA BY					
DATAIMPR	Improves	0.867*	0.004	0.000	1.000
DATAGA	Gauges	0.849*	0.004	0.000	0.979
DATALRN	Learned	0.81*	0.004	0.000	0.935
DATAKOTH	Covered	0.819*	0.004	0.000	0.945
DECISION BY					
DESINS	In-service	0.816*	0.004	0.000	1.000
DESDISC	Discipline	0.833*	0.004	0.000	1.021
DESBUDG	Budget	0.769*	0.006	0.000	0.944
DESTCH	Hiring	0.739*	0.007	0.000	0.906
PSEO BY					
CREATOR		0.892*	0.004	0.000	1.000
EXPERT		0.873*	0.004	0.000	1.106
ENTRPRIZ		0.892*	0.005	0.000	0.916
PROF BY					
DATA		0.594*	0.006	0.000	1.000

Table 4 Continued

DECISION		0.944*	0.005	0.000	1.495
STAYORGO ON					
PSEO		0.19*	0.032	0.000	0.266
PROF		0.151*	0.033	0.000	0.297
STAYORGO ON					
LOCALETYPE		0.002	0.021	0.909	0.000
SES		-0.041	0.028	0.142	-0.002
MIN_DIV		-0.104*	0.026	0.000	-0.421
PERPUPILTO		-0.007	0.015	0.617	0.000
SIZE		0.002	0.018	0.924	0.002
SALARY_THO		-0.055**	0.025	0.028	-0.033
PROF WITH					
PSEO		0.863*	0.005	0.000	0.321

*= p<.01; **= p<.05

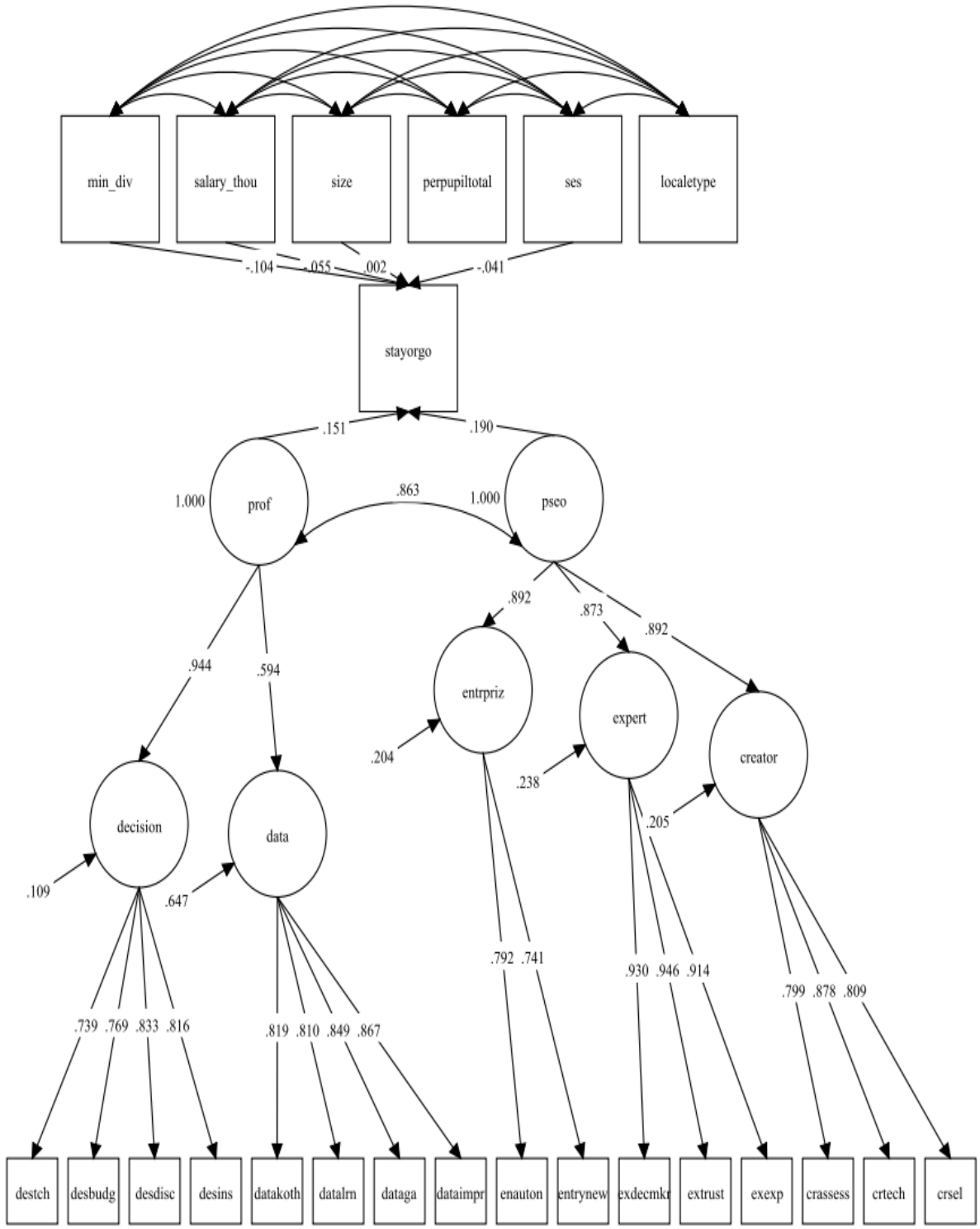

Figure 9. Teacher Intent to Stay or Exit (standardized results)

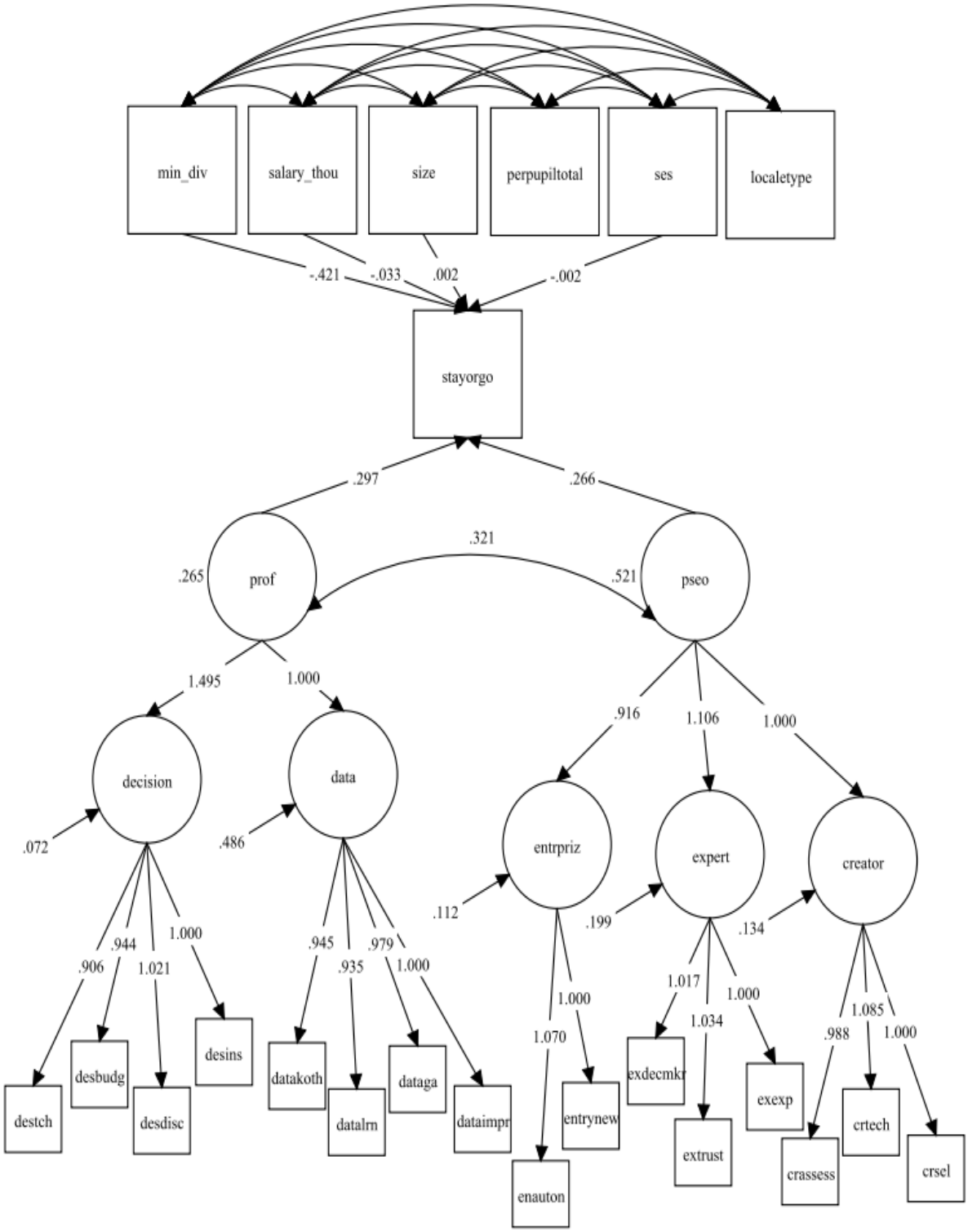

Figure 10. Teacher Intent to Stay or Exit (unstandardized results)

Analysis: intent. Review of the standardized results indicates that Public School Entrepreneurial Orientation has a greater impact upon teacher's express intent to continue teaching at the school than the school's status as a Professionally Promising workplace although both are more impactful individually than any one of the controls. These two variables are strongly correlated.

However, what Public School Entrepreneurial Orientation picks up that Professional does not is the agentic nature of the work. Both Public School Entrepreneurial Orientation and a Professionally Promising workplace are favorable aspects of the school and both put teachers in a position to make important decisions that will potentially impact the school, but when it comes to intent to stay teaching in their school, teacher agency in key elements of teaching and learning seems to trump inclusion in budgetary and hiring decisions and other more administrative functions. This seems to indicate the added value that Public School Entrepreneurial Orientation provides, over and above more traditional measures of a teacher's workplace role, is a measure of their school environment's support for teacher's expert, creative, enterprising actions in classroom instruction, the core work of teaching. More teachers report that they intend to stay teaching in an environment where the teacher has agency, a school where they perceive that they can more effectively affect their classroom and positively influence student learning.

The most impactful significant control is the minority population [MIN_DIV] of the school which is about half as impactful as PSEO. The minority population of the school had a negative effect on the teacher's intent to continue teaching. The second most impactful

significant control is teacher salary which had a smaller and unexpectedly negative impact on the teacher's intent to remain teaching at their school

When we move from the standardized results to the unstandardized results, we continue to see indications of the positive impact of the school's relative measure of Public School Entrepreneurial Orientation and Professionally Promising workplace upon the teacher's intent to continue teaching in that school. As discussed previously, latent variables PSEO and Prof are relative measures of teacher perceptions of specific conditions in the school workplace and are not measured in natural, easy to conceptualize units. Incremental positive changes in PSEO and Prof school conditions result in a 27% and 30%, respectively, increase in the teacher's intent to remain teaching in that school, indicating these variables are influential, if difficult to quantify. The unstandardized estimate for racial composition of the school (MIN_DIV) appears to be a strong predictor for teacher exit but it is measured in different units so cannot be directly compared to the influence of other unstandardized estimates.

Relating these findings to previous research on career intention. Researchers who have studied other organizations, especially private sector organizations, have found that people working in organizations demonstrating higher levels of Entrepreneurial Orientation generally expressed a reduced intent to exit (Monsen & Boss 2009; Wiklund & Shepherd 2011; Rutherford & Holt 2007). As discussed in detail in chapter 2, employees in organizations measuring high in Entrepreneurial Orientation reported less role ambiguity and their organizations were more effective and efficient in knowledge creation and deployment; all these positive conditions are found to be influential on employee intent to exit (Monsen &

Boss 2009; Kreiser 2011; Wiklund & Shepherd 2003). This analysis has extended these findings in two ways: by looking at Public School Entrepreneurial Orientation rather than Entrepreneurial Orientation, and by looking at teachers.

Findings for teacher commitment as indicated by reduced turnover intention is positively correlated with the school's PSEO as well as with the measure of the school's Professional Promise. These factors are more influential in teacher's intent to continue teaching at their school than any of the controls, including student demographics and remuneration, both factors noted in the literature to be influential in teacher's career decisions.

NC Public School Entrepreneurial Orientation: School-Level Findings

As we have discussed, the exit intent measure is useful in capturing the intensity of teacher dissatisfaction, but at the same time it often does not closely correspond with actual exit. North Carolina school data allows us to look at actual exit at the school level. The main question is: Do schools higher in Public School Entrepreneurial Orientation [PSEO] and a Professionally Promising workplace [Prof] have lower turnover rates? Analysis is of the entire population, 20,206 traditional high school teachers clustered in 401 schools.

Results: teacher turnover. The school level analysis was run, accounting for clustering of teachers in schools. This analysis includes second order latent independent variables Public School Entrepreneurial Orientation and the Professionally Promising workplace and the school-level dependent variable labeled teacherturnover which is the actual reported teacher turnover rate for that school. This analysis includes full model controls on output.

Model fit was very good, with a Root Mean Square Error of Approximation [RMSEA] of 0.41 (Test for close fit is nonsignificant), Comparative Fit Index [CFI] and Tucker-Lewis Index [TLI] of .977 and .973 respectively.

Results of school-level teacher turnover are indicated below in Table 5 and Figures 10 and 11. All estimated parameters in the measurement part of the model (first- and second-order latent variables) are significant at the .01 level. Looking at structural components, the estimated parameter Prof is not significant but PSEO is significant at the .01 level as are the controls for the student demographic measure for minority composition (DIV_MIN) and socio-economic status (SES). Teacher salary control is significant at the .05 level.

Table 5

Model Results: School Level Teacher Turnover

Factor Label	Factor Meaning	Standardized Estimate	Standard Error	Two-Tailed P-Value	Estimate (unstandardized)
CREATOR BY					
CRSEL	Selection	0.809*	0.004	0.000	1.000
CRTECH	Technique	0.878*	0.003	0.000	1.085
CRASSESS	Assessment	0.799*	0.004	0.000	0.988
EXPERT BY					
EXEXP	Expert	0.914*	0.002	0.000	1.000
EXTRUST	Trusted	0.946*	0.002	0.000	1.034
EXDECMKR	Decider	0.930*	0.002	0.000	1.018
ENTRPRIZ BY					
ENTRYNEW	Novel	0.741*	0.006	0.000	1.000
ENAUTON	Autonomous	0.793*	0.005	0.000	1.070

Table 5 Continued

DATA BY					
DATAIMPR	Improves	0.867*	0.004	0.000	1.000
DATAGA	Gauges	0.849*	0.004	0.000	0.980
DATALRN	Learned	0.811*	0.004	0.000	0.935
DATAKOTH	Covered	0.819*	0.004	0.000	0.945
DECISION BY					
DESINS	In-service	0.816*	0.004	0.000	1.000
DESDISC	Discipline	0.833*	0.004	0.000	1.021
DESBUDG	Budget	0.769*	0.006	0.000	0.943
DESTCH	Hiring	0.739*	0.007	0.000	0.906
PSEO BY					
CREATOR		0.893*	0.004	0.000	1.000
EXPERT		0.872*	0.004	0.000	1.103
ENTRPRIZ		0.893*	0.005	0.000	0.915
PROF BY					
DATA		0.594*	0.006	0.000	1.000
DECISION		0.944*	0.005	0.000	1.497
TEACHERT ON					
PSEO		-0.106*	0.038	0.006	-0.009
PROF		0.065	0.037	0.078	0.008
TEACHERT ON					
LOCALETYPE		0.131	0.075	0.081	0.001
SES		-0.234*	0.064	0.000	-0.001
MIN_DIV		0.539*	0.057	0.000	0.138
PERPUPILTO		0.070	0.042	0.099	0.000
SIZE		-0.051	0.045	0.258	-0.004
SALARY_THO		-0.165**	0.076	0.030	-0.006
PROF WITH					
PSEO		0.863*	0.005	0.000	0.321

*= p<.01; **= p<.05

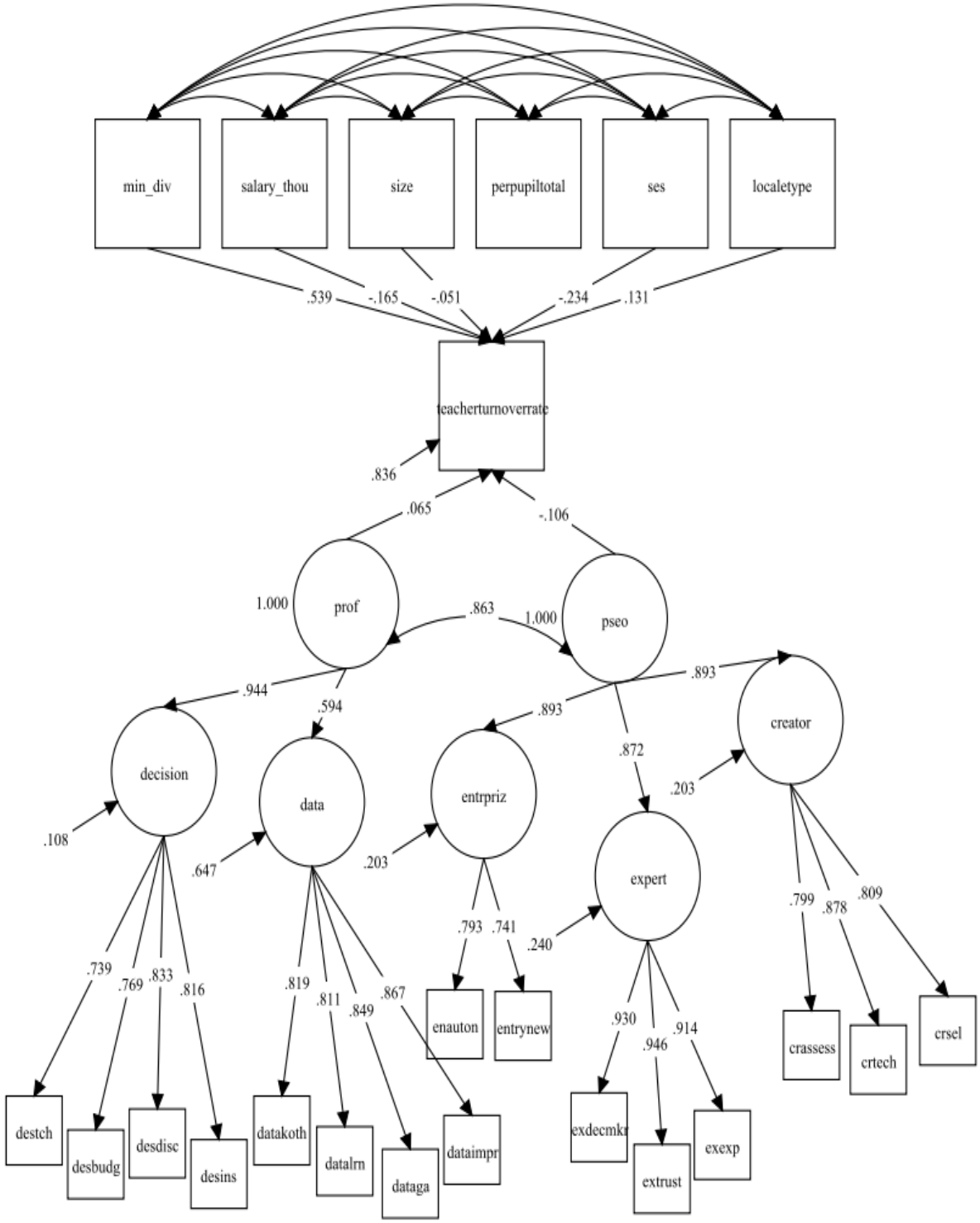

Figure 11. School-Level Teacher Turnover (standardized results)

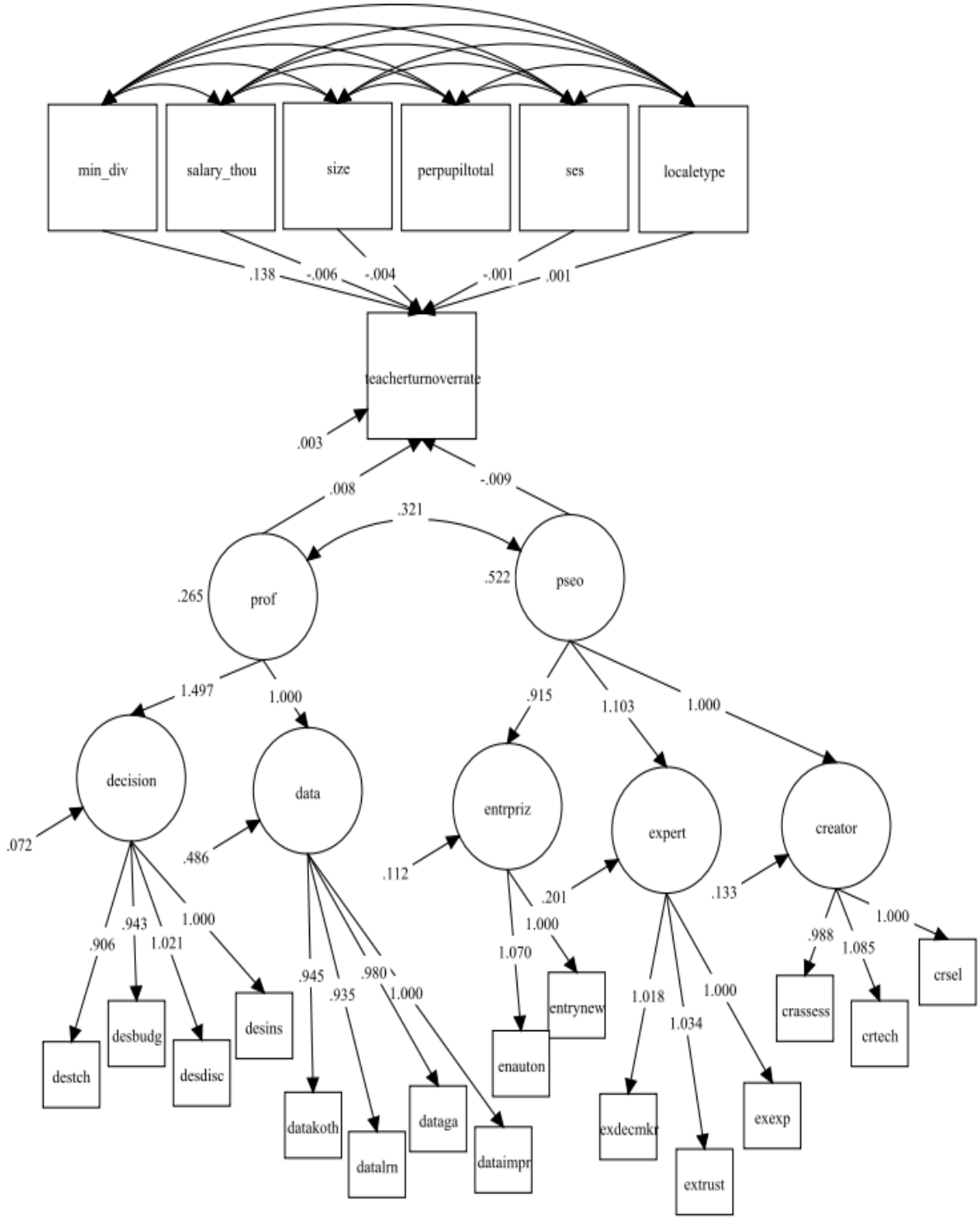

Figure 12. School-Level Teacher Turnover (unstandardized results)

PSEO and actual turnover. Review of the standardized results indicates that Public School Entrepreneurial Orientation has a negative impact upon the rate of teacher turnover at the school, although its impact on turnover was not as large as some other variables. The implications of this finding will be discussed in the next subsection.

As anticipated, other factors found influential in studies of teacher attrition affected actual teacher turnover in this analysis. All three control factors that were found to be significant for explaining teacher turnover were more influential than Public School Entrepreneurial Orientation.

Reviewing the standardized results, the most influential among the statistically significant factors is the minority population [MIN_DIV] of the school. The minority population of the school had a positive effect on the teacher turnover that is more and twice that of any other single variable. Based upon previous research on teacher attrition, the direction of relationship between the level of student poverty [SES] in the school and teacher turnover is expected to be positive. In this analysis, however, increased poverty had a small negative influence on school-level teacher turnover. Teacher salary [SALARY_THO] was found to be slightly more influential than PSEO in reducing school-level turnover.

Review of the unstandardized results also indicate that the school's relative measure of Public School Entrepreneurial Orientation had a statistically significant, negative effect on the school's turnover rate. The unstandardized estimate for racial composition and socioeconomic status of students in the school indicate each is responsible for an increase in turnover rates. Increases in average teacher salary decreases the school-level turnover rate, albeit slightly.

PSEO and actual measures of teacher turnover. As expected, higher levels of Public School Entrepreneurial Orientation had a negative impact on the school's turnover rate. This small but statistically significant negative impact accounts for approximately a 1 percent decrease in the school's teacher turnover rate when controlling for other theoretically important demographic and organizational factors.

National research demonstrates the importance of assessing and improving conditions of work in schools to address dissatisfaction and improve teacher retention, and the results of the analysis of 2014 North Carolina public high school teacher school-level turnover rates align with this research (Borman & Dowling 2008, Guarino et al. 2006, Johnson et al. 2011, Moore 2012, Ingersoll & May 2012). At the same time, though, no previous study has defined conditions in terms of Public School Entrepreneurial Orientation, and this study adds to the literature by showing that the school that supports agency in the teacher's instructional function is a school in which more teachers will continue teaching.

The Professionally Promising workplace, the school in which teachers are involved in key organizational decisions and have adequate data to make important instructional decisions, is theoretically also influential in teacher's career decisions. Although this measure is highly correlated with Public School Entrepreneurial Orientation, the professionally promising workplace variable does not have a statistically significant influence on the school's teacher turnover.

Of the demographic and organizational factors research has indicated are influential in teacher turnover, only three factors, the racial composition and socioeconomic status of the

students in the school and teacher salary, are statistically significant for explaining teacher turnover in this analysis.

Previous research indicates that teachers are less likely to stay in schools with higher minority populations which correlates often with poverty and subsequently, low student achievement (Borman & Dowling 2008; Guarino 2006; Allen 2005). Minority population proved to be a significant factor in this study. Minority student membership is the factor with the strongest influence on the school's teacher turnover rate, with higher minority population resulting in higher teacher turnover.

Research on teacher turnover has demonstrated that schools with a higher percentage of students with a low socioeconomic status experience more teacher attrition (Johnson, Berg, & Donaldson 2005, Ingersoll & May 2012). This study found the opposite to be true. One possible explanation for this anomalous finding is that many schools in North Carolina are located in rural, low-wealth areas. Teachers working in these schools are living and working in a geographically isolated region and have limited options for finding a position in a more advantaged community or taking a job within a reasonable commute at a school with fewer impoverished students. The impact of SES on teacher turnover was smaller than that of minority population, but this factor is still more influential than other significant factors including teacher salary and Public School Entrepreneurial Orientation.

The standardized impact of teacher salary differentials is as expected, with higher salaries responsible for a relatively small but significant reduction in teacher turnover (Chamberlin et al. 2002; Guarino et al. 2006, Ingersoll & May 2012). The school's location

in a rural, suburban or urban setting, the school's size and the per-pupil expenditures did not prove significant in influencing the teacher turnover rate in this study.

Satisfaction, Intent and Retention

Previous research has shown perceptions of professional characteristics of teaching as vocation, including occupational self-efficacy and autonomy at work, contribute to teacher's job satisfaction and presumably their satisfaction in the role makes them less inclined to exit (Bogler 2001; Caprara et al. 2006; Pearson & Moomaw 2006; Herzberg, 2003). Working conditions include organizational structures that define teachers' formal professional positions and relationships with others in the school. The research indicates that sociological features that shape how teachers experience their work, including their role and status, have an influence on career decisions that is distinct from hygiene conditions (Dee et al. 2003; Johnson 2006; Louis 1998). The teacher's relative opportunity to function with agency within the school's organizational structure, the teacher's reported perceptions of their opportunity to act as a creative, enterprising expert in their key role as classroom instructor, is indicated by the school's Public School Entrepreneurial Orientation.

In a school high in Public School Entrepreneurial Orientation, the workplace challenge is aligned with teacher skills and abilities and personnel are effectively utilized, resulting in, as Herzberg suggests, an increase in teacher-reported overall satisfaction with their school workplace that is both is positive and statistically significant. This factor is by far the most influential among those modeled, exerting four time the influence on teacher satisfaction of the next most influential factor.

Similar effects are correlated with employee-expressed intent to exit. People working in organizations demonstrating higher levels of Entrepreneurial Orientation generally expressed a reduced intent to exit (Monsen & Boss 2009; Wiklund & Shepherd 2011; Rutherford & Holt 2007). The theoretical impact of these professionally favorable conditions upon employee's career intentions in the context of public schools aligns with the retention findings in previous EO research conducted in different types of organizations. As expected, schools measuring higher in Public School Entrepreneurial Orientation along with the measure of the school's Professional Promise had a reduction in teacher-reported intent to exit.

Reconciling responses with results. This study of high school teachers finds that both satisfaction and intent are strongly influenced by a workplace that is supportive of creative, enterprising teachers functioning as experts. As in previous studies, teacher's job satisfaction is highly correlated with their intent to remain teaching in that school (Ostroff 1992). With an increase in teacher-reported satisfaction and an increase in the teacher's intent and commitment to remain teaching in schools with higher levels of Public School Entrepreneurial Orientation, one might expect the actual retention rate in these schools to be much higher, but individual satisfaction and intent to remain do not seem as influential against actual exit at the school level as the individual levels would indicate.

Turnover intention has often been used as a dependent variable in studies of turnover (Cohen, et al. 2015). Though employee turnover intentions and quit behaviors are theoretically linked and positively statistically correlated, research indicates that the factors that influence intent are not necessarily the same factors that influence exit, so individual

intent is not necessarily a good proxy for or predictor of actual organizational-level turnover (Cohen, et al. 2015).

Results of this school-level analysis are aligned also with previous research that found organizational-level determinants are more influential in teacher turnover than individual perceptions (Ingersoll & May 2012). The conditions in which teachers can function with agency may be favorable working conditions but they cannot transcend the poor organizational conditions disproportionally found in high-poverty schools with higher percentage of minority populations in systems that have low or no local supplement to teacher's salaries. Though working conditions that value the teacher's professional contribution and provide these teachers with greater satisfaction, effective school organization encompasses much more and when it comes to teacher retention, these other factors are influencing the teacher's actual decisions about their career path.

Hypotheses and results. Research suggests that higher levels of Entrepreneurial Orientation will result in positive organizational outcomes including, theoretically, employee retention. Until this exploratory study, this has not been researched in schools. The following hypotheses were proposed in this study:

H^1: Schools that have higher levels of Entrepreneurial Orientation – where teachers are enterprising, expert creators (proxy for risk taking, proactiveness and innovation) – will have higher levels of teacher retention.

H^2: As the levels of two key professional elements – teachers involved in decisions and data for informed decision-making – increase, the level of teacher retention will increase.

$H^{3:}$ Schools that have higher levels of Entrepreneurial Orientation will have higher levels of teacher satisfaction.

$H^{4:}$ School systems that have higher levels of Entrepreneurial Orientation will have higher levels of teacher retention.

As posited in H^1, schools with higher levels of Entrepreneurial Orientation are more likely to retain teachers. However, the presence of other professional conditions were not found to contribute significantly to teacher retention, so H^2 was unsupported. Schools that have higher levels of Entrepreneurial Orientation were found to have higher levels of teacher satisfaction so H^3 is supported. H^4 is unsupported as school systems were not found influential so were not modeled.

CHAPTER 5. CONCLUSION

Keeping Teachers Teaching

Teacher retention is important. Public school managers and policymakers need information about what influences teacher exit if they are to maintain their skilled and experienced professional teaching workforce. This research posits that schools that measure higher in the organizational construct Public School Entrepreneurial Orientation (based upon Entrepreneurial Orientation – defined as a combination of risk taking, proactiveness and innovation) will retain teachers at a higher rate than those that measure lower.

The study supports the hypothesis that working conditions supportive of teacher as expert, where their enterprising and creative actions are less limited and teachers can function with agency, teachers will be more committed and satisfied [H^3] and less likely to exit [H^1]. While other measures of a professionally promising workplace posited to positively influence teacher retention did not have a statistically significant influence on the level of teacher retention [H^2], they did positively influence teacher commitment and satisfaction. The hypothesized effect of school system-level influences on teacher retention was determined through an early analysis of variance to be unsupported [H^4] and was not modeled.

Contributions

PSEO. This research includes the development of a new, contextually appropriate construct, Public School Entrepreneurial Orientation. Entrepreneurial Orientation provides a behavioral construct to frame a potentially beneficial organization-level entrepreneurial posture, one conducive to improved performance and support for professionalism as facilitated by managerial leadership (Miller 1983, Rauch et. al. 2009, Wiklund & Shepherd

2005). To begin to frame the use of this construct in schools, this research defines the contextually appropriate behaviors contributing to a school's Public School Entrepreneurial Orientation: the teacher as expert with the agency and autonomy to create and the room for enterprising efforts in new, untested directions.

Like Entrepreneurial Orientation, Public School Entrepreneurial Orientation is theoretically aligned with positive organizational outcomes including teacher retention.

Limitations

The use of the Teacher Working Conditions survey to develop and measure Public School Entrepreneurial Orientation is a limitation of this work. While the Teachers Working Conditions Survey data is useful in measuring key workplace attributes, it is not designed to discern the presence of key elements contributing to an agentic, professional workplace. The application of an instrument designed to measure entrepreneurial strategic posture in the private sector, however, is not contextually appropriate and will likely not be more useful a measure of the subtle manifestation of the behaviors indicative of Public School Entrepreneurial Orientation. Ideally, an instrument could be developed and tested or targeted questions could be added to the workplace surveys, providing a clearer indication of this construct in context of public schools.

Additionally, the measure of teacher turnover may be a limitation to this work. Teacher turnover at the system level does not take into account teacher "churn;" as was discussed earlier, there are costs associated with teachers who leave the school but not the system.

Future Research

This study is focused solely on traditional public high schools. This instrument is used in multiple states so the findings extrapolated here from the high school teacher's responses to the 2014 Teacher Working Conditions survey may be replicable in other states, and also replicable within other levels or types of schools within the 2014 survey.

The inclusion of other models, including charters, academies or private schools, as well as other levels (elementary and middle schools) would provide an interesting contrast. Charters, in particular, are public schools that are exempt from some of the rules that constrain the traditional schools. Theoretically, the schools with fewer state and federal constraints would measure higher in Public School Entrepreneurial Orientation and would also retain teachers at a higher rate. However, as these schools are notably less diverse and have, in addition to the freedom to design their programs, different hiring practices including the ability to employ some unlicensed educators as a percentage of their staff. It would be interesting to see how their teachers react to these agentic, professionally-promising conditions when compared to teachers in the traditional high school.

While teacher working conditions provide a contextual and perceptual tool for assessing behaviors in the school that indicate the organization's Entrepreneurial Orientation, this is just one lens for viewing the school's strategic posture. Researchers assessing the school environment to determine its EO are not limited to surveys. Focus groups and interviews could provide insight into the factors indicative of high levels of Public School Entrepreneurial Orientation. Document analysis, the examination of public relations materials, publications, Board proceedings, meeting minutes, handbooks and policies, can

tell the reader a great deal about teacher roles, assessment, decision-making, instructional approaches and teacher-initiated programs. Forensic budgetary analysis could also provide insight into organizational priorities. Any of these approaches could enhance or supplant the working conditions data.

This study focuses on prevailing patterns for Entrepreneurial Orientation's impact on important organizational attributes, but it does not address the possible causes. The level of a school's Public School Entrepreneurial Orientation may be influenced by leadership, but there are other factors that also may be conducive to this organizational construct. Once the positive influence of these working conditions has been established, the next steps are to analyze the causes as well as the contributing factors to determine how best to influence the school workplace and, ultimately, teacher satisfaction and retention.

Managing for Teacher Retention

While working conditions overall are understood to be important for school outcomes, the potential for school environments with a strong Public School Entrepreneurial Orientation is unrealized. Many factors in schools are beyond the school manager's control but the organizational structure and function of the workplace is not one of them. Teachers are the expert professionals whose creative, enterprising work will return results if the conditions in the school are supportive of agentic behaviors. Unfortunately, the opposite is also true. If professional staff are relegated to the margin, limiting their autonomy and their expert contributions to teaching and learning, they are more likely to be dissatisfied and exit completely.

The value of retaining an experienced, effective teacher far exceeds the direct costs associated with finding a replacement. Experience contributes to improved teacher performance and more effective teachers improve student achievement, a desirable, favorable outcome that is much more difficult to monetize than direct replacement cost (Darling-Hammond 2000; Clotfelter et al. 2006; Goldhaber et al. 2010; Harris & Sass 2011; Hanushek 2011; Staiger & Rockoff, 2010; Synar & Maiden 2012, Watlington et al. 2010). More work must be done to identify conditions conducive to supporting the creative, enterprising teacher-expert in the professional working environment and to provide school managers with more information about what policies, organizational and informational elements are essential to a professionally promising workplace.

Developing the Professionally Promising Workplace

Schools demonstrating a strong Public School Entrepreneurial Orientation are a workplace where teachers want to keep teaching. What can be done to foster this environment?

Toward the professional bureaucracy. Working conditions matter, but teachers and building-level managers can do little in some areas to influence these conditions. Per-pupil expenditure, the condition of the facility, teacher salary scales, even, in some cases, the curriculum standards and authorized instructional materials are often determined at the system, state and even federal level. Many resource aspects of North Carolina's public education ecosystem are decided at the state level including salary scales for teachers and resource allocations for student. Adjustments are sometimes made locally through locally-funded supplements to teacher pay and local allocations that both operating costs and capital

improvements. These local resources are not tremendously influential as the additional resources are proportional to the available tax base, cost of living, and enrollment numbers. Even these system-level decisions are removed from the teacher and building administrator.

As articulated in Chapter 1, the typical United States secondary public school's structure resembles Mintzberg's Machine Bureaucracy in structure. Increasingly, decision-making is centralized, and important teaching procedures are formalized or routinized. In some cases this is the result of an overlay of "efficient" systems of resource allocation, procedures or incentives that work well in the private sector but are not well aligned with or effective in the public sector. Sometimes standardization is a misguided effort to "protect" students from a diversity of instructional experiences. This is, perhaps, a well-intentioned attempt to impose a uniform distribution of services in the name of "fairness" but as students come in with different needs and experiences requiring differentiation of instruction, this standardization is wholly inappropriate. Education is not a clear technology; positive student outcomes are not dependent upon following specific procedures or specifications.

There is a theoretically favorable organizational structure that can potentially provide both the centralized functions supporting the need for accountability and the working environment teachers need to achieve desired outcomes: the Professional Bureaucracy. This research supports the idea, as described in Chapter 1, of Mintzberg's Professional Bureaucracy as the appropriate structure of an organization that relies upon highly trained professional like teachers. With set rules and procedures, the Professional Bureaucracy is still highly structured but the output is controlled by professionals who are making their own decisions and in control of their own work. If schools were structured to provide teachers

with the autonomy, agency and power to make instructional decisions and control their work these highly-trained knowledge workers would be better able to apply their expertise, creativity and enterprising abilities to meet the needs of their students.

Teachers in entrepreneurial organizations. In the Professional Bureaucracy the operating core of highly-trained professionals is clearly best equipped to make the front-line decisions and these workers demand control of the work. In the context of teaching, the component conditions of Public School Entrepreneurial Orientation are not only key to teachers controlling the instructional work but they function interdependently, resulting in better outcomes when combined. Teachers functioning as Experts can fully deploy the methods their skills and experience dictate but cannot be fully responsive to the instructional need unless creative, enterprising behaviors are supported. Teachers who are asked to be creative and enterprising in an assigned context and are not given the option of being responsive to their own assessment of instructional need or to draw upon the tacit knowledge forged in professional preparation and on-the-job experience, are developing a package or program that may be sound in content but ill-suited for the particular context.

Most importantly, teachers in entrepreneurially oriented schools are fully engaged in the work, using their skills and experience to improve teaching and learning and contributing substantively to the school's positive student outcomes.

Managing the entrepreneurially-oriented public school. The manager in the public school is surrounded by highly-trained professionals who will, given the opportunity, use their skills and experience to help the organization achieve school-wide goals for positive student outcomes. To foster a workplace that measures high in Public School

Entrepreneurial Orientation, the school's decisions processes and culture must provide teachers with the room for creativity and enterprise in their activities, from classroom instruction to school-wide or programmatic planning. Outcomes impacted may be more than just teacher retention. Theoretically, the teacher-designed solution is informed, responsive, and specific to the circumstances and may well be more effective that an intervention mandated by a system, state or federal entity.

For example, the administration at a high school addressing school-wide issues like high freshman course failure rates or low graduation rates provides the school staff with measureable goals, time for collaboration and planning, and the data required to assess performance. Teachers then can research and assess circumstances based upon this information, design responsive classroom instruction, conduct action research through custom assessment, develop content vertically to build upon the instruction in courses from previous grades, and otherwise leverage their expertise and creativity, creating a personalized solution to achieve their school's goals. Administration coordinates these efforts across the school and communicates both challenges and success, facilitating continual improvement school-wide.

The administrator who provides their professional staff with the charge and opportunities to design, assess and revise interventions is leveraging the extensive (and expensive) operating core of teachers. But this is more than an efficient use of staffing. By fostering Public School Entrepreneurial Orientation, school administrators provide teachers with a challenging and satisfying professional life that not only keeps them teaching, but connects their work with improved outcomes for students.

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APPENDIX

Appendix 1: Select Questions: Teachers Teaching & Professional Workplace

Please rate how strongly you agree or disagree with the following statements about instructional practices and support in your school.	
NC14_ipl021improve	State assessments provide schools with data that can help improve teaching
NC14_ipl021gauge	State assessments accurately gauge students' understanding of standards
NC14_ipl021whatlearn	Teachers know what students learn in each of their classes.
NC14_ipl021knowother	Teachers have knowledge of the content covered and instructional methods used by other teachers at this school.
NC14_ipl021trynew	Teachers are encouraged to try new things to improve instruction.
NC14_ipl021autonomy	Teachers have autonomy to make decisions about instructional delivery (i.e. pacing, materials and pedagogy).
Please rate how strongly you agree or disagree with the following statements about teacher leadership in your school.	
NC14_eml021experts	Teachers are recognized as educational experts.
NC14_eml021trustsound	Teachers are trusted to make sound professional decisions about instruction.
NC14_eml021decmake	Teachers are relied upon to make decisions about educational issues.
Please indicate the role teachers have at your school in each of the following areas.	
NC14_eml021instmat	Selecting instructional materials and resources

NC14_eml021techniq	Devising teaching techniques
NC14_eml021assess	Setting grading and student assessment practices
NC14_eml021inserve	Determining the content of in-service professional development programs
NC14_eml021studiscip	Establishing student discipline procedures
NC14_eml021schbudget	Providing input on how the school budget will be spent
NC14_eml021newtch	The selection of teachers new to this school

Appendix 2: North Carolina Teacher Working Conditions Instrument 2014

NC TEACHER WORKING CONDITIONS 2014 - Main Survey

Demographics

Q1.1. Please indicate your position:

☐ Teacher (including instructional coaches, department heads, vocational, literacy specialist, etc.)

☐ Principal

☐ Assistant Principal

☐ Other Education Professional (school counselor, school psychologist, social worker, etc.)

Q1.2. How many total years have you been employed as an educator?

☐ First Year

☐ 2-3 Years

☐ 4-6 Years

☐ 7-10 Years

☐ 11-20 Years

☐ 20+ years

Q1.4. How many total years have you been employed in the school in which you are currently working?

☐ First Year

☐ 2-3 Years

☐ 4-6 Years

☐ 7-10 Years

☐ 11-20 Years

☐ 20+ years

Time

Q2.1. Please rate how strongly you agree or disagree with the following statements about the use of time in your school.

	Strongly disagree	Disagree	Agree	Strongly agree	Don't know
a. Class sizes are reasonable such that teachers[1] have the time available to meet the needs of all students.	◉	◉	◉	◉	◉
b. Teachers have time available to collaborate with colleagues.	◉	◉	◉	◉	◉
c. Teachers are allowed to focus on educating students with minimal interruptions.	◉	◉	◉	◉	◉
d. The non-instructional time[2] provided for teachers in my school is sufficient.	◉	◉	◉	◉	◉
e. Efforts are made to minimize the amount of routine paperwork[3] teachers are required to do.	◉	◉	◉	◉	◉
f. Teachers have sufficient instructional time to meet the needs of all students.	◉	◉	◉	◉	◉
g. Teachers are protected from duties that interfere with their essential role of educating students.	◉	◉	◉	◉	◉

1. Teachers means a majority of teachers in your school.

2. Non-instructional time includes any time during the day without the responsibility for student contact, including collaboration planning, meetings/conferences with students and families, etc.

3. Routine paperwork means both electronic and paper forms and documentation that must be completed to comply with school, district, state, and federal policies.

Q2.2. In an AVERAGE WEEK, how much time do you devote to the following activities during the school day (i.e., time for which you are under contract to be at the school)?

	None	Less than or equal to 1 hour	More than 1 hour but less than or equal to 3 hours	More than 3 hours but less than or equal to 5 hours	More than 5 hours but less than or equal to 10 hours	More than 10 hours
a. Individual planning time	◉	◉	◉	◉	◉	◉
b. Collaborative planning time[1]	◉	◉	◉	◉	◉	◉
c. Supervisory duties[2]	◉	◉	◉	◉	◉	◉
d. Required committee and/or staff meetings	◉	◉	◉	◉	◉	◉
e. Completing required administrative paperwork[3]	◉	◉	◉	◉	◉	◉
f. Communicating with parents/guardians and/or the community	◉	◉	◉	◉	◉	◉
g. Addressing student discipline issues	◉	◉	◉	◉	◉	◉
h. Professional development[4]	◉	◉	◉	◉	◉	◉
i. Preparation for required federal, state, and local assessments	◉	◉	◉	◉	◉	◉
j. Delivery of assessments	◉	◉	◉	◉	◉	◉
k. Utilizing results of assessments	◉	◉	◉	◉	◉	◉

1. Collaborative time includes time spent working with other teachers within or across grade and subject areas as part of a Professional Learning Community to plan and assess instructional strategies.

2. Supervisory duties include hall monitoring, recess, bus and cafeteria coverage, etc.

3. Paperwork means both electronic and paper forms and documentation that must be completed to comply with federal, state and local policies.

4. Professional development includes all opportunities, formal and informal, where adults learn from one another including graduate courses, in service, workshops, conferences, professional learning communities and other meetings focused on improving teaching and learning.

Q2.4. In an AVERAGE WEEK of teaching, how many hours do you spend on school-related activities outside of the regular school work day (before or after school, and/or on weekends)?

☐ None

☐ Less than or equal to 1 hour

☐ More than 1 hour but less than or equal to 3 hours

☐ More than 3 hours but less than or equal to 5 hours

☐ More than 5 hours but less than or equal to 10 hours

☐ More than 10 hours

Facilities and Resources

Q3.1. Please rate how strongly you agree or disagree with the following statements about your school facilities and resources.

	Strongly disagree	Disagree	Agree	Strongly agree	Don't know
a. Teachers[1] have sufficient access to appropriate instructional materials[2].	◉	◉	◉	◉	◉
b. Teachers have sufficient access to instructional technology, including computers, printers, software and internet access.	◉	◉	◉	◉	◉
c. Teachers have access to reliable communication technology, including phones, faxes and email.	◉	◉	◉	◉	◉
d. Teachers have sufficient access to office equipment and supplies such as copy machines, paper, pens, etc.	◉	◉	◉	◉	◉
e. Teachers have sufficient access to a broad range of professional support personnel[3].	◉	◉	◉	◉	◉
f. The school environment is clean and well maintained.	◉	◉	◉	◉	◉
g. Teachers have adequate space to work productively.	◉	◉	◉	◉	◉
h. The physical environment of classrooms in this school supports teaching and learning.	◉	◉	◉	◉	◉
i. The reliability and speed of Internet connections in this school are sufficient to support instructional practices.	◉	◉	◉	◉	◉

1. Teachers means a majority of teachers in your school.

2. Instructional materials include items such as textbooks, curriculum materials, content references, etc.

3. Professional personnel includes positions such as school counselors, nurses, school psychologists and social workers, library media specialists, etc.

Community Support and Involvement

Q4.1. Please rate how strongly you agree or disagree with the following statements about community support and involvement in your school.

	Strongly disagree	Disagree	Agree	Strongly agree	Don't know
a. Parents/guardians are influential decision makers in this school.	◉	◉	◉	◉	◉
b. This school maintains clear, two-way communication with the community.	◉	◉	◉	◉	◉
c. This school does a good job of encouraging parent/guardian involvement.	◉	◉	◉	◉	◉
d. Teachers[1] provide parents/guardians with useful information about student learning.	◉	◉	◉	◉	◉
e. Parents/guardians know what is going on in this school.	◉	◉	◉	◉	◉
f. Parents/guardians support teachers, contributing to their success with students.	◉	◉	◉	◉	◉
g. Community members support teachers, contributing to their success with students.	◉	◉	◉	◉	◉
h. The community we serve is supportive of this school.	◉	◉	◉	◉	◉

1. Teachers means a majority of teachers in your school.

Managing Student Conduct

Q5.1. Please rate how strongly you agree or disagree with the following statements about managing student conduct in your school.

	Strongly disagree	Disagree	Agree	Strongly agree	Don't know
a. Students at this school understand expectations for their conduct.	◉	◉	◉	◉	◉
b. Students at this school follow rules of conduct.	◉	◉	◉	◉	◉
c. Policies and procedures about student conduct are clearly understood by the faculty.	◉	◉	◉	◉	◉
d. School administrators consistently enforce rules for student conduct.	◉	◉	◉	◉	◉
e. School administrators support teachers'[1] efforts to maintain discipline in the classroom.	◉	◉	◉	◉	◉
f. Teachers consistently enforce rules for student conduct.	◉	◉	◉	◉	◉
g. The faculty work in a school environment that is safe.	◉	◉	◉	◉	◉

1. Teachers means a majority of teachers in your school.

Teacher Leadership

Q6.1. Please rate how strongly you agree or disagree with the following statements about teacher leadership in your school.

	Strongly disagree	Disagree	Agree	Strongly agree	Don't know
a. Teachers[1] are recognized as educational experts.	◉	◉	◉	◉	◉
b. Teachers are trusted to make sound professional decisions about instruction.	◉	◉	◉	◉	◉
c. Teachers are relied upon to make decisions about educational issues.	◉	◉	◉	◉	◉
d. Teachers are encouraged to participate in school leadership roles[2].	◉	◉	◉	◉	◉
e. The faculty has an effective process for making group decisions to solve problems.	◉	◉	◉	◉	◉
f. In this school we take steps to solve problems.	◉	◉	◉	◉	◉
g. Teachers are effective leaders in this school.	◉	◉	◉	◉	◉

1. Teachers means a majority of teachers in your school.

2. School leadership roles may include formal roles such as department chair, an elected member of the School Improvement Team, mentor, coach or leader of a professional learning community, etc.

Q6.2. Teachers[1] have an appropriate role at your school in each of the following areas.

	Strongly disagree	Disagree	Agree	Strongly agree	Don't know
a. Selecting instructional materials and resources	◉	◉	◉	◉	◉
b. Devising teaching techniques	◉	◉	◉	◉	◉
c. Setting grading and student assessment practices	◉	◉	◉	◉	◉
d. Determining the content of in-service professional development programs	◉	◉	◉	◉	◉
e. Establishing student discipline procedures	◉	◉	◉	◉	◉
f. Providing input on how the school budget will be spent	◉	◉	◉	◉	◉
g. The selection of teachers new to this school	◉	◉	◉	◉	◉
h. School improvement planning	◉	◉	◉	◉	◉

1. Teachers means a majority of teachers in your school.

Q6.5. Teachers[1] have an appropriate level of influence on decision making in this school.

☐ Strongly disagree

☐ Disagree

☐ Agree

☐ Strongly agree

☐ Don't know

1. Teachers means a majority of teachers in your school.

Q6.6. Members of the school improvement team are elected.

☐ Strongly disagree

☐ Disagree

☐ Agree

☐ Strongly agree

☐ Don't know

School Leadership

Q7.1. Please rate how strongly you agree or disagree with the following statements about school leadership in your school.

	Strongly disagree	Disagree	Agree	Strongly agree	Don't know
a. The faculty and staff have a shared vision.	◉	◉	◉	◉	◉
b. There is an atmosphere of trust and mutual respect in this school.	◉	◉	◉	◉	◉
c. Teachers[1] feel comfortable raising issues and concerns that are important to them.	◉	◉	◉	◉	◉
d. The school leadership[2] consistently supports teachers.	◉	◉	◉	◉	◉
e. Teachers are held to high professional standards for delivering instruction.	◉	◉	◉	◉	◉
f. The school leadership facilitates using data to improve student learning.	◉	◉	◉	◉	◉
g. Teacher performance is assessed objectively.	◉	◉	◉	◉	◉
h. Teachers receive feedback that can help them improve teaching.	◉	◉	◉	◉	◉
i. The procedures for teacher evaluation are consistent.	◉	◉	◉	◉	◉
j. The school improvement team provides effective leadership at this school.	◉	◉	◉	◉	◉
k. The faculty are recognized for accomplishments.	◉	◉	◉	◉	◉

1. Teachers means a majority of teachers in your school.

2. School leadership is an individual, group of individuals or team within the school that focuses on managing a complex operation. This may include scheduling; ensuring a safe school environment; reporting on students' academic, social and behavioral performance; using resources to provide the textbooks and instructional materials necessary for teaching and learning; overseeing the care and maintenance of the physical plant; or developing and implementing the school budget.

Q7.3. The school leadership[1] makes a sustained effort to address teacher concerns about:

	Strongly disagree	Disagree	Agree	Strongly agree	Don't know
a. Leadership issues	◉	◉	◉	◉	◉
b. Facilities and resources	◉	◉	◉	◉	◉
c. The use of time in my school	◉	◉	◉	◉	◉
d. Professional development	◉	◉	◉	◉	◉
e. Teacher leadership	◉	◉	◉	◉	◉
f. Community support and involvement	◉	◉	◉	◉	◉
g. Managing student conduct	◉	◉	◉	◉	◉
h. Instructional practices and support	◉	◉	◉	◉	◉
i. New teacher support	◉	◉	◉	◉	◉

1. School leadership is an individual, group of individuals or team within the school that focuses on managing a complex operation. This may include scheduling; ensuring a safe school environment; reporting on students' academic, social and behavioral performance; using resources to provide the textbooks and instructional materials necessary for teaching and learning; overseeing the care and maintenance of the physical plant; or developing and implementing the school budget.

Professional Development

Q8.1. Please rate how strongly you agree or disagree with statements about professional development in your school.

	Strongly disagree	Disagree	Agree	Strongly agree	Don't know
a. Sufficient resources are available for professional development[1] in my school.	◉	◉	◉	◉	◉
b. An appropriate amount of time is provided for professional development.	◉	◉	◉	◉	◉
c. Professional development offerings are data driven.	◉	◉	◉	◉	◉
d. Professional learning opportunities are aligned with the school's improvement plan.	◉	◉	◉	◉	◉
e. Professional development is differentiated to meet the individual needs of teachers[2].	◉	◉	◉	◉	◉
f. Professional development deepens teachers' content knowledge.	◉	◉	◉	◉	◉
g. Teachers have sufficient training to fully utilize instructional technology.	◉	◉	◉	◉	◉
h. Teachers are encouraged to reflect on their own practice.	◉	◉	◉	◉	◉
i. In this school, follow up is provided from professional development.	◉	◉	◉	◉	◉
j. Professional development provides ongoing opportunities for teachers to work with colleagues to refine teaching practices.	◉	◉	◉	◉	◉
k. Professional development is evaluated and results are communicated to teachers.	◉	◉	◉	◉	◉
l. Professional development enhances teachers' ability to implement instructional strategies that meet diverse student learning needs.	◉	◉	◉	◉	◉
m. Professional development enhances teachers' abilities to improve student learning.	◉	◉	◉	◉	◉

1. Professional development includes all opportunities, formal and informal, where adults learn from one another including graduate courses, in service, workshops, conferences, professional learning communities and other meetings focused on improving teaching and learning.

2. Teachers means a majority of teachers in your school.

Q8.2. In which of the following areas (if any) do you need professional development to teach your students more effectively?

	Yes	No
a. Your content area	◉	◉
b. Common core and essential standards	◉	◉
c. Student assessment	◉	◉
d. Differentiating instruction	◉	◉
e. Special education (students with disabilities)	◉	◉
f. Special education (gifted and talented)	◉	◉
g. English Language Learners	◉	◉
h. Closing the Achievement Gap	◉	◉
i. Methods of teaching	◉	◉
j. Reading strategies	◉	◉
k. Integrating technology into instruction	◉	◉
l. Classroom management techniques	◉	◉

Q8.3. In the past 2 years, have you had 10 clock hours or more of professional development in any of the following areas?

	Yes	No
a. Your content area	◉	◉
b. Common core and essential standards	◉	◉
c. Student assessment	◉	◉
d. Differentiating instruction	◉	◉
e. Special education (students with disabilities)	◉	◉
f. Special education (gifted and talented)	◉	◉
g. English Language Learners	◉	◉
h. Closing the Achievement Gap	◉	◉
i. Methods of teaching	◉	◉
j. Reading strategies	◉	◉
k. Integrating technology into instruction	◉	◉
l. Classroom management techniques	◉	◉

Instructional Practices and Support

Q9.1. Please rate how strongly you agree or disagree with the following statements about instructional practices and support in your school.

	Strongly disagree	Disagree	Agree	Strongly agree	Don't know
a. State assessment[1] data are available in time to impact instructional practices.	◉	◉	◉	◉	◉
b. Local assessment[2] data are available in time to impact instructional practices.	◉	◉	◉	◉	◉
c. Teachers[3] use assessment data to inform their instruction.	◉	◉	◉	◉	◉
d. The curriculum taught in this school is aligned with Common Core Standards.	◉	◉	◉	◉	◉
e. Teachers work in professional learning communities[4] to develop and align instructional practices.	◉	◉	◉	◉	◉
f. Provided supports (i.e. instructional coaching, professional learning communities, etc.) translate to improvements in instructional practices by teachers.	◉	◉	◉	◉	◉
g. Teachers are encouraged to try new things to improve instruction.	◉	◉	◉	◉	◉
h. Teachers are assigned classes that maximize their likelihood of success with students.	◉	◉	◉	◉	◉
i. Teachers have autonomy to make decisions about instructional delivery (i.e. pacing, materials and pedagogy).	◉	◉	◉	◉	◉
j. State assessments provide schools with data that can help improve teaching.	◉	◉	◉	◉	◉
k. State assessments accurately gauge students' understanding of standards.	◉	◉	◉	◉	◉
l. Teachers believe almost every student has the potential to do well on assignments.	◉	◉	◉	◉	◉
m. Teachers believe what is taught will make a difference in students' lives.	◉	◉	◉	◉	◉
n. Teachers require students to work hard.	◉	◉	◉	◉	◉
o. Teachers collaborate to achieve consistency on how student work is assessed.	◉	◉	◉	◉	◉
p. Teachers know what students learn in each of their classes.	◉	◉	◉	◉	◉
q. Teachers have knowledge of the content covered and instructional methods used by other teachers at this school.	◉	◉	◉	◉	◉

1. State assessments include end of course and end of grade tests.

2. Local assessments are standardized instruments offered across schools within the district and can include any norm or criterion referenced tests, diagnostics, or local benchmarks.

3. Teachers means a majority of teachers in your school.

4. Professional learning communities include formalized groupings of teachers within or across grade and subject areas that meet regularly to plan and assess instructional strategies for student success.

Overall

Q10.1. Which of the following best describes your immediate professional plans?

☐ Continue teaching at my current school

☐ Continue teaching in this district but leave this school

☐ Continue teaching in this state but leave this district

☐ Continue working in education but pursue an administrative position

☐ Continue working in education but pursue a non-administrative position

☐ Leave education entirely

Q10.3. Which aspect of your teaching conditions most affects your willingness to keep teaching at your school?

☐ Time during the work day

☐ Facilities and resources

☐ Community support and involvement

☐ Managing student conduct

☐ Teacher leadership

☐ School leadership

☐ Professional development

☐ Instructional practices and support

Q10.5. Which aspect of your teaching conditions is most important to you in promoting student learning?

☐ Time during the work day

☐ Facilities and resources

☐ Community support and involvement

☐ Managing student conduct

☐ Teacher leadership

☐ School leadership

☐ Professional development

☐ Instructional practices and support

Q10.6. Overall, my school is a good place to work and learn.

☐ Strongly disagree

☐ Disagree

☐ Agree

☐ Strongly agree

☐ Don't know