

ABSTRACT

Title of Dissertation: THE EFFECT OF TWO MENTORING MODELS
ON TEACHER ATTRITION

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This quantitative study employs Hierarchical Linear Modeling (HLM) to complete a path analysis that determines the effect of two different mentoring models on teacher attrition in a local education agency (LEA). The research focuses on 38 comprehensive public schools to determine if teacher attrition was impacted by a countywide teacher mentoring model employed from 2007 to 2012 compared to a school-based teacher mentoring program employed from 2012 to 2014. The research also assessed if these models had varying impact based on the level of the school (elementary, middle, or high), the setting of the school (urban or rural), and the poverty level of the school as measured by free and reduced meal rate. The results illustrate there was no statistically significant correlation between teacher attrition and the mentoring model employed irrespective of the level, setting, or poverty rate of the school.

THE EFFECT OF TWO MENTORING MODELS ON TEACHER ATTRITION

by

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Dedication

I dedicate this dissertation to the people who have become my life and my world—my family. To my amazing wife Amy, may this effort symbolize our commitment to each other and to modeling the importance of always supporting each other in pursuit of our dreams. To my beautiful daughters Aleyah, Avalynn, Addison, and Abigayle, may you memorialize this moment and effort as a father's belief that you have the ability to change the world, as your love has already changed mine.

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Table of Contents

Dedication.....	ii
Acknowledgements.....	iii
Table of Contents.....	iv
List of Tables.....	vi
Chapter I: Introduction and Overview of the Literature.....	1
Introduction.....	1
Teacher attrition.....	1
Impact of teacher attrition.....	2
Socioeconomic status, urban schools, and attrition rates.....	4
School level and teacher attrition.....	5
Impact on student achievement.....	5
Financial implications.....	7
Significance of mentoring.....	8
Need for Research and Statement of the Problem.....	11
Purpose of the Study.....	17
Research Questions.....	17
Study Approach.....	18
Key Terms.....	18
Chapter II: Methodology.....	20
Conceptual Framework.....	20
Teacher Mentoring Programs 2007-2012 and 2012-2014.....	21
Variables Examined.....	22
Schools.....	22
Attrition.....	23
School level.....	23
Poverty rate.....	23
Urban vs. rural.....	24
Demographic Data.....	25
Teachers per school.....	26
Poverty level and community setting.....	28
Research Questions.....	33
Hypothesis.....	33
Design of Study.....	34
Summary of Methodology.....	37
IRB, Human Subjects, and Confidentiality.....	37
Chapter III: Results.....	38
Descriptive Statistics.....	38
Analytical Approach.....	45
Primary Research Question.....	47
Supplementary Questions.....	49
Data Analysis Summary.....	52
Chapter IV: Discussion.....	53
Primary Research Question.....	53
Supplementary Questions.....	55

Limitations.....57
Implications for Future Research and Recommendations for Practice.....59
Summary.....61
Bibliography.....63

List of Tables and Graphs

Table 1.1: Public School Teachers that are Stayers, Movers, and Leavers.....	13
Table 2.2: Percent of leavers in the district studied and in the state of Maryland.....	13
Table 2.1: Job Posting of District –Wide Mentor Compared to School-Based Mentor...	21
Table 2.2: Population Densities in the Local Education Agency.....	25
Table 2.3: Total Number of Teachers at Each School in the LEA.....	26
Table 2.4: Free and Reduced Meal Rate and Setting for Each School in the LEA.....	28
Table 2.5: The FARM Rate of All Schools by Year.....	30
Table 2.6: The FARM Rate of Each School Level by Year.....	32
Table 3.1: Teacher Attrition Rates for Each School in the LEA.....	39
Table 3.2: Teacher Attrition Rate for All Schools by Year.....	41
Graph 3.3: Teacher Attrition Rate for Each Level of School by Year.....	42
Table 3.4: Teacher Attrition Rate for Each Level of School by Year.....	44
Table 3.5: Summary of Model Fit for Level 1 Variables.....	46
Table 3.6: Final Estimation of Fixed Effects.....	47
Table 3.7: Final Estimation of Fixed Effects in Mentoring Model.....	48
Table 3.8: Final Estimation of Fixed Effects with Dichotomous Level	50
Table 3.9: Final Estimation of Fixed Effects with Elementary, Middle, and High.....	51

Chapter I

Introduction and Overview of the Literature

Introduction

School systems nationwide continue to be challenged to maintain quality teaching staff for their educational communities. This challenge is not due to a shortage of teachers entering the profession; the ongoing challenge is many teachers are choosing to exit the profession within their first few years (Brill & McCartney, 2008, p. 751). According to Brill and McCartney (2008), “thirty-three percent of teachers leave their school in the first three years, 46 percent after five years” (p. 750). While many experts differ on the best ways to address teacher attrition, all acknowledge this high attrition rate has many negative effects on our educational communities.

Teacher attrition. The issue of high teacher attrition rates has been an ongoing concern for many years nationwide. A 1997 study by Henke (as cited in Reynolds & Wang, 2015) found that among the ranks of novice teachers (defined as those with less than four years of experience), the average turnover rate was nine percent annually (p. 212). Six years later, Ingersoll (2003) released similar findings that reflected 40-50 percent of teachers exit the profession entirely within their first five years (p. 13). Since this topic has been a focal point of research and states have made a concerted effort to enhance teacher retention many hoped this high teacher attrition rate would decline. Unfortunately, this trend appears unwavering as more recent findings from the National Commission on Teaching and America’s Future paralleled both of the said findings “...estimating that one-third of all new teachers leave after three years, and 46 percent are gone within five years” (Kopkowski, 2008, p. 2). Research continues to focus on studying the effects and reasons for high teacher attrition; unfortunately the challenge and current reality is teacher attrition is attributed to many factors.

Compounding the high rates of teachers exiting the field of education, are the many teachers referred to as “movers” who change schools. Many teachers transfer schools for numerous reasons inclusive of location, administrative support, pay, professional development, etc. Irrespective of the individual’s rationale, the relocation of a teacher and the reality of a new hire is quite common. According to the National Center for Education, while six percent of teachers leave the profession in a typical year, there is also an estimated seven percent of teachers who transfer or move schools (Brown, 2003, p. 18). These national statistics also mirrored Ingersoll’s findings in 1997-1998 that determined approximately half of the 13.2% of teachers who were not teaching in the same school the following year were movers and switched schools (Harris & Adams, 2007, p. 326). As should be expected, the high number of transfers when coupled with the teachers departing the field poses tremendous challenges for educational communities.

Impact of teacher attrition. Comparative studies have determined the probability of teachers departing the profession parallels other careers with high attrition rates such as nurses and accountants. One study determined, “There is a 7.73% chance that a teacher will leave the profession in any given year during the sample period, compared with 6.09%, 14.94%, and 8.01% for nurses, social workers, and accountants, respectively” (Harris & Adams, 2007, p. 330). In addition, it was determined that of the four groups, teachers had the highest probability of leaving the labor force. This high attrition rate not only impacts the cohesiveness of a school, but also has tremendous financial implications.

The impact of teacher attrition is well documented and has been an ongoing concern for school effectiveness. While the departure of ineffective teachers may be warranted and sought, research is clear that schools are also losing quality employees who may offer capacity. One

study conducted by Mobley (1982) determined that approximately 25% of the turnover has negative organizational impacts as thriving schools need coherence and continuity (Ingersoll, 2003, p. 505). This “revolving door,” as it has been coined, impacts relationships, long-term goals, and on-going professional development. Effective schools strive to attain consistency as teacher turnover is a “disruptive influence” to instructional coherence and relationships vital to effective schools (Struit & Smith, 2012, p. 269). In addition to teacher attrition having direct negative impacts, unfortunately it is also frequently associated with other school deficiencies such as administrative support or behavior concerns. Studies continue to show that high teacher attrition may not only compound existing problems, but also frequently tends to be an outcome of other underlying problems (Ingersoll, 2001, p. 505). This poses a real challenge as teacher attrition is often related to internal and external factors.

When the impact of high attrition rates on the school climate is coupled with the financial impacts, it is clear why educational communities welcome any remedies that promote teacher retention. In 2005, the Alliance for Excellent Education estimated that nationally it cost approximately \$4.9 billion to replace teachers who opt to leave the profession or transfer schools (Struit & Smith, 2012, p. 269). Unfortunately, what is even more troubling is that more recent studies continue to reflect that teacher attrition and the fiscal implications are only increasing. In 2008, “The National Commission on Teaching estimates that teacher attrition has grown by 50 percent over the past 15 years—costs roughly \$7 billion a year, as districts and states recruit, hire, and try to retain new teachers” (Kopkowski, 2008, p. 2). In an era where budgets are becoming more restrictive, this is a very unwelcomed trend that many are striving to address.

It is clear that high teacher attrition rates are an ongoing concern that is fiscally troubling and organizationally disturbing to many educational communities. Studies reflect “...that high

levels of employee turnover are both cause and effect of ineffectiveness and low performance in organizations” (Ingersoll, 2001, p. 505). This study addressed the concern of teacher attrition in efforts to determine the impact of two mentoring models on teacher retention.

Socioeconomic status, urban schools, and attrition rates. Teacher attrition continues to impact the landscape of most educational communities and is of greater concern in urban schools. While it has been shown that 20 percent of all newly hired teachers depart the field in the first three years, nearly half of all teachers in urban districts leave the school within the first five years (Brown, 2003, p. 18). Annual statistics from the National Center for Education Statistics are equally concerning as they reflect the teacher turnover rate in urban districts to be 20 percent, which is higher than the reported averages of 17 percent nationwide (Kopkowski, 2008, p. 2). Since many of our urban schools serve minority students who often possess the greatest learning gaps, it is even more concerning to know “...teachers in schools with minority enrollments of 50 percent or more migrate at twice the rate of teachers in schools with relatively few minority students” (Prince, 2008, p. 6). These disparities underscore why many worry about the learning gap increasing for some of our most troubled populations.

Teacher attrition rates are not only high in urban schools and schools with high minority rates, but are also prevalent in educational communities of low socio-economic status (SES). Ingersoll (2001) highlighted this concern when he determined “...teachers in high poverty schools have higher rates of turnover than do those in more affluent public schools” (p. 519). This finding was supported by other studies that showed the teacher attrition rate is in excess of 25 percent annually in the schools that are in the lower quartile of SES, while less than 20 percent of teachers depart from the upper quartile of schools (Hanushek, Kain, & Rivkin, 1999). When this high attrition rate is coupled with the fact there are “twice as many movers in high

poverty than low poverty schools,” it is clear to see why some of our neediest children are frequently underserved (Gladis, Lewis, Potter, & Meisels, 2005, p. 776).

It is evident that a higher teacher attrition rate in urban schools and schools of low socio-economic status will have negative implications on educational communities. A study by Prince (2002), determined “the more impoverished and racially isolated the school, the greater the likelihood that students in the school will be taught by inexperienced teachers, uncertified teachers” (p. 6). These concerns have mobilized many school leaders to develop and promote programs that will recruit and retain teachers. If students and organizations are going to progress, they must develop practices that will support teacher retention and end the “revolving door” created by high teacher attrition. This researcher will assess the impact of internal and external mentor programs in urban schools, rural schools, and schools of varied socio-economic status to determine if teacher retention was enhanced.

School level and teacher attrition. Prior studies have also determined attrition rates do vary based on the level of the school. In a study conducted by Borman and Dowling (2008), it was determined that elementary teachers are 1.02 times more likely to depart the teaching field. (p. 387). This finding was determined to be significant as it was attained from research conducted in 14 separate studies. This researcher will assess the impact of the mentor model on the levels of the school (elementary, middle, and high schools) to determine if teacher retention varied and was enhanced.

Impact on student achievement. The fact that student learning is directly related to the effectiveness of the teacher is common knowledge in the educational world. As Tom Boasberg, the Superintendent of Denver School District states, “Great teaching is the most important in-

school factor in determining student achievement. It is critical that we provide our teachers with the feedback and coaching they need to master this very challenging profession and become great teachers” (Foundation, 2013, p. 3). Any effort to ensure quality teachers are retained should correlate directly to a positive impact in student attainment.

Unfortunately, high teacher attrition not only decreases the number of experienced teachers, but it also impacts the progression of professional development and curriculum implementation. Research reflects the constant churning of teachers negatively impacts collaboration, organizational norms, and efforts to attain common goals. High attrition rates “...can lead to fragmented instructional programs and professional development plans that must be adapted each year to meet the needs of a teaching staff in constant flux” (Struit & Smith, 2012, p. 269). The “constant flux” also impacts the continuity of curriculum that is delivered to students in the classroom. As Brill determined in his research (2008), frequent staff changes have a direct impact on the “...planning and implementation of a coherent, comprehensive, and unified curriculum” (p. 752). If schools are going to advance new initiatives and develop into professional learning communities, they must retain teachers that are trained and knowledgeable of the school efforts.

Studies continue to show that when professional development is coupled with years of experience, students are privileged to an enhanced educational endeavor. One study determined, “...experienced teachers are, on average, more effective at raising performance than those in their early years of teaching” (Hanushek, Kain, & Rivkin, 1999, p. 1). In addition to experience, research has also shown that professional development and learning has a positive effect on educator practice—specifically teacher practice (Learning Forward, 2011, p. 16). It seems

evident that as educators attain more experience and are exposed to more professional learning, student attainment reaps positive gains.

The educational community is therefore better served when it maintains experienced teachers and supports professional development. At a time when there are increasing demands to enhance student achievement and to hold educators accountable, no school can afford to lose good teachers (Curran & Goldrick, 2002, p. 3). Therefore, it seems viable that if successful mentoring models could be implemented to enhance teacher retention and promote ongoing professional development, student achievement would be favorably impacted.

Financial implications. The attrition of approximately half of all teachers exiting the field of education within their first five years has tremendous financial implications. At a time when many districts are operating with restrictive budgets and making every effort to minimize expenditures, the cost of replacing teachers can be a staggering burden. At a national level, “This leads to an annual \$2.2 billion to \$4.9 billion process to find, hire, and train new teachers. In Connecticut alone, the total turnover cost, without including retirements, is over \$67 million” (Kersaint, 2005, p. 4). When studies assessed the impact of attrition on larger states the benefits of enhancing teacher retention becomes even more evident. According to the Texas State Board of Educator Certification, it was estimated that in the year 2000 Texas spent at least \$329 million dollars to fill the voids caused by teacher attrition (Gladis, Lewis, Potter, & Meisels, 2005, p. 775). There is not any doubt that educational communities and local governments would welcome any opportunity to use these funds in a different effort.

While varied, the research also reflects the financial implications to the local districts are significant. In a recent study, Barnes, Crowe, and Schaefer (2007) estimated it cost in excess of \$15,000 for every teacher that departed five urban districts (p. 85). Other studies have made

efforts to determine the amount of savings for each teacher. One study determined the impact of teacher retention is translated into a monetary savings to the district of about \$807.00 per teacher per year for a total of \$3,736 per teacher after five years (Villar & Strong, 2007, p. 14).

Irrespective of how it is viewed, teacher attrition results in a significant financial cost to education, and teacher retention saves money. The cost of teacher attrition is truly multifaceted, “As trained teachers leave their schools, a double loss occurs: money has been lost in training that will not be applied as a tool for improvement at the school, and more money has to be spent in the training of incoming teachers” (Brill & McCartney, 2008, p. 753). The results of this study will provide research that may impact teacher attrition and teacher retention; any direction to enhance teacher retention, thereby, decreasing expenditures, is welcomed by any educational community. Any money that can be saved by enhancing teacher retention is money the district can reallocate to support new or current endeavors that advance student attainment and teacher development.

Significance of mentoring. The importance of mentoring has been recognized nationwide for many decades. By 1987, the entire country, with the exception of three states had full mentor programs or pilot mentor programs in place to support new teachers (Brown, 2003, p. 18). It was the belief of policy makers and educational leaders that mentor programs could significantly enhance the quality of the instructional delivery and the performance of schools (Little, 1990, p. 333). In more recent years, efforts have shifted to provide the mentoring of entry-level teachers by more experienced teachers with hopes it will better serve the day-to-day challenges of being a teacher in the K-12 classroom (Smith & Ingersoll, 2004). Many believe this more personalized approach will provide a deeper more intimate level of support.

There are significant findings supporting the belief that mentoring can be a “game changer” and enhance teacher retention. In 2004, Kelley conducted research that reflected expert mentoring and the networking provided in an induction program can yield positive gains in teacher retention (Gladis, Lewis, Potter, & Meisels, 2005, p. 790). Another study in California determined that induction and mentoring programs are among the best initiatives a district can adopt to enhance teacher retention; this study showed these supports reduced teacher attrition by 26 percent in just two years (Brill & McCartney, 2008, p. 750). With these favorable results, it is easy to see why policy makers and union representatives alike continue to push and advocate for strong mentoring and induction programs. According to the National Education Association (NEA), “...new teachers who participate in induction programs like mentoring are nearly twice as likely to stay in their profession. Some even believe that mentoring programs can cut the dropout rate from roughly 50 to 15 percent during the first five years of teaching” (Brown, 2003, p. 18). The significant results in retention are mobilizing researchers to more deeply explore the possibilities of mentoring.

The mentoring of teachers also has the potential to yield favorable results with the classroom and school environment. Costa and Garmston (2002) determined that many teachers need coaching and instruction to enhance effective teaching practices; quality teaching skills and practices are not innate (p. 3). Other research has shown that since teachers make tremendous improvements in their first few years of teaching, retaining teachers is significantly more beneficial than hiring a new teacher (Brill & McCartney, 2008, p. 752). Understanding that mentoring is frequently supported by veteran teachers, the experienced teachers also enhance their instructional practices in the process. For quite some time, studies have shown “By assisting new teachers, veteran teachers expand upon their teaching skills and develop new ones”

(Odell & Ferraro, 1992, p. 200). It would seem with all the benefits mentoring would be a viable solution to the noted high attrition rates.

Even though mentoring has been shown to provide a favorable impact on teacher retention and teacher practices, defining mentoring in a prescriptive manner poses many challenges. Hanson and Parker (1995) determined teachers preferred four mentoring functions: (a) personal support, (b) advice and assistance with specific tasks, (c) advice and assistance with specific problems, and (d) deep reflection with feedback regarding specific teacher practices. While another study conducted by Helman (2006) promoted multiple coaching “stances” to include extending the teacher’s thinking, modeling or providing specific practices, or focusing on school efforts or state standards (p. 80). One thing most researchers and practitioners tend to support is the belief that teachers need and benefit from differing support systems at various stages in their careers (Kiani, 2006, p. 64). Based on these findings it seems plausible that mentors could be of benefit to new and veteran teachers alike.

While the mentoring models and efforts may vary, the research is clear that mentoring programs can significantly enhance teacher retention, and this retention is critical to maintaining a quality educational program. As Ingersoll (2003) found in his study:

Predicted probability of turnover of first year, newly hired, experienced teachers who did not participate in any induction and mentoring programs was 40 percent. For teachers who had “some” induction (i.e., a mentor within their field, common planning with other teachers, collaborative approach to issues of instruction, etc.) the probability of turnover was on 28 percent. Teachers exposed to “full” mentoring and induction (aforementioned components plus others—e.g. a seminar for beginning teachers, open communication with the principal, external network, etc.) had a turnover rate of 18 percent.” (p. 20)

The data clearly illustrates that mentoring programs have the capacity to drastically decrease teacher attrition. It also supports the findings of Brill and McCartney (2008) that emphasizes, “Out of every strategy aimed at increasing teacher retention, induction and mentoring programs are the most consistently successful” (p.766). This study will extend the findings on mentoring programs by assessing the effectiveness of a school-based mentoring model in comparison to system-based mentoring model on teacher attrition in a local education agency (LEA).

Need for Research and Statement of the Problem

Prior research has focused on the impact of teacher preparation programs as a potential barometer of teacher’s success. One study found, “Graduates who feel prepared to teach and who feel they can reach all students are more likely to remain in the profession” (Reynolds & Wang, 2005, p. 215). However, understanding the curricular and pedagogic variations from district to district and state to state, it would be extremely difficult for any teacher preparation program to fully prepare a graduate for the current reality in teaching. It is also important to acknowledge “...the single most important shift in the public policy arena has been the emergence of a tidal wave of support for what is loosely called teacher accountability” (McNergney & Imig, 2013, p. 6). The challenge of varied expectations from school to school and an era of accountability explain why many teachers perform very well according to the metrics of preparation programs and student teaching, but are truly not prepared for the challenges that will face them as a fulltime classroom teacher (Goodwin, Stevens, Goodwin, & Hagwood, 2000, p. 28). It is clear if teachers are to be successful, they must be supported in the challenges they face in the day-to-day role as an educator.

These challenges also lead to high teacher attrition rates, which continue to adversely impact student achievement, pose negative monetary implications, and interrupt the continuity of

professional development within educational communities. The evidence is clear that high attrition rates create teacher quality gaps that must be addressed if student achievement and schools are to advance. Two strategies have the potential to minimize teacher quality gaps: reduce high attrition rates and employ targeted professional development to advance instructional capacity (Moir, Barlin, Gless, & Miles, 2009, p. 14). Mentoring has been shown to address both of these issues as it focuses on embedded professional development to promote the success of the teacher, thereby decreasing the likelihood the teacher will depart due to dissatisfaction within the profession.

In the past decade, studies have started to focus on induction programs and mentoring as a pragmatic approach to enhancing teacher retention. This rejuvenated effort is not new, as every state with the exception of three states had full or pilot mentor programs in 1987 (Brown, 2003, p. 18) . However, despite decades of induction and mentor programs, the research illustrates that attrition rates continue to rise. As illustrated in Table 1.1, more and more teachers are deciding to leave (leavers) the teaching profession across the United States. The National Center for Education Statistics defines “leavers” as teachers who left the profession; this also would include teachers who decide to retire (p. A-8). In addition, despite many efforts the number of movers continues to stay high and stagnant. The “movers” are defined as teachers who depart their school to work in another school or their school closed and merged with another school (Institute of Education Science, 2014).

Table 1.1: Percent of public school teachers that are stayers, movers, and leavers (Institute of Education Science, 2014, p. 6)

Years	Stayers	Movers	Leavers
1988-1989	86.5	7.9	5.6
1991-1992	87.6	7.3	5.1
1994-1995	86.3	7.2	6.6
2000-2001	84.9	7.7	7.4
2004-2005	83.5	8.1	8.4
2008-2009	84.5	7.6	8.0
2012-2013	84.3	8.1	7.7

As illustrated in Table 1.2, the aforementioned stagnant national statistics are slightly higher than the state and district assessed in this study. The state of Maryland hosts twenty four school districts in a county-wide system. While the state does not monitor the number of stayers or movers in its Maryland Teacher Staffing Report, it does actively monitor the number of leavers (Education, 2012, p. 29). This data clearly reflects that Maryland is slightly below the national average and over the course of this study the district fell below the state and national average.

Table 2.2: Percent of leavers in the district studied and in the state of Maryland (Education, 2012)

Years	School System	Leavers
2006-2007	District	8.2
	State	7.8
2009-2010	District	4.7
	State	6.0
2010-2011	District	5.0
	State	7.1

As teacher attrition rates continue to stay stagnant or rise, educational communities are welcoming any promise that research can provide. Numerous studies have shown that teacher

induction and mentoring programs can make a significant contribution to increase teacher retention. For example, one effort by the New Teacher Center organized trained mentors who were teachers to support first year teachers (one-to-one) and mentors released from teaching to mentor a cohort of new teachers; during that first year, retention increased from 70% to over 85% in Boston Public Schools (New Teacher Center, 2015, p. 1). Another study determined, “An induction and mentoring program in California, for example, reduced teacher attrition by 26 percent in just two years. We conclude, therefore, that well operated induction and mentoring programs are the best method for increasing teacher retention” (Brill & McCartney, 2008, p. 750). However, despite these findings and numerous other studies, the research on the best mentoring model is still undetermined. There is definitely a need for more research on induction and mentoring programs as “...the data is still limited in scope in many cases, and to be considered conclusive it needs to be augmented with research in the larger settings” (Moir, Barlin, Gless, & Miles, 2009, p. 16).

In efforts to support the research and enhance teacher retention, the state of Maryland specifies the requirements of a “Comprehensive Teacher Induction Program” in the Code of Maryland Regulation (COMAR). COMAR regulation 13A.07.01 states that schools within Maryland are required to:

1. Establish and maintain a comprehensive induction program. This program should align to the Maryland Teacher Professional Development standards (2004).
2. Require all new teachers to participate until tenure is attained (currently three years) and veteran teachers new to the district to participate for their first year.

3. Establish a mentoring program as an active part of the induction program. To the extent practical, the mentor to mentee ratio should not exceed one mentor to 15 mentees.

(COMAR13A.07.01, 2014)

While the Maryland State Education Department required compliance by July 1, 2011, the regulation clearly provides autonomy for local districts to interpret some of the requirements. Of particular interest to this research is the regulation does not specify or require the mentor to be “on-site.”

This study assessed a school district that provided a district-wide mentoring program then switched to a school-based mentoring program to determine if either approach impacted teacher retention. Research would suggest the school based mentor would enhance teacher satisfaction and thereby increase retention; “to be most effective, the mentor should be in the same subject or grade level as the new teacher and should have common planning time during the school day to encourage collaboration” (Smith & Ingersoll, 2004, p. 702). However, there is also research that shows teachers preferred frequent informal and unscheduled meetings, rating them higher in effectiveness to formalized scheduled meetings; telephone and written communications were rated as least effective mentor strategies (Kopkowski, 2008, p. 23). As previously emphasized, while research demonstrates the viability of mentoring to enhance attrition, assessing the needs of each person can be a challenging task.

Perhaps neither model will demonstrate any enhancement of teacher retention as the most important ingredients are time and professional development. Ponder (2005) determined the best way to make teachers reflective was to “...provide continuous coaching, modeling, and questioning technique.” It seems feasible that either mentor model could attain these prescriptive measures; irrespective of the model, as long as time with the mentor and new teacher

is held sacred, mentoring tends to be more successful. However, it also seems practical that being removed from the school could limit availability and unintentionally impact time.

As one study found:

Well intended mentoring systems can falter upon implementation. Neglect is one factor: in a study of 217 first and second year teachers in a small urban district, 69% of the beginning teachers reported that their mentor had observed them zero to three hours. An astounding 55 percent reported they did not observe their mentor at all.

(Wynn, Carboni, & Patall, 2007, p. 220)

These findings paralleled the research of Frazier (2006) who determined the primary reason for teacher dissatisfaction in mentoring programs is adequate time to work together.

While this research did not specifically measure time, it sought to determine if district-based or school-based mentors promoted any significant changes in teacher retention and attrition. It is reasonable to believe that with the increased number of mentors and the all the mentors being site-based, that mentoring time would be significantly enhanced. It is worthy of study as “most of this empirical research has sought to explain teacher turnover as a function of the characteristics of individual teachers. Researchers have rarely focused on explaining teacher turnover as a function of schools” (Ingersoll, 2001, p. 502). Exploring and assessing organizational structures such as mentoring programs could also provide school systems platforms to enhance teacher retention. There is definitely a need for research that provides proactive measures and recommendations to enhance teacher retention (Gladis, Lewis, Potter, & Meisels, 2005, p. 277). Irrespective of the outcome, this research will assess the impact of two staunchly different mentoring platforms; any research capable of guiding administrators in cost effective mentoring programs is research worthy of exploration.

Purpose of the Study

In an era of accountability, schools will not demonstrate significant gains if the staff is in constant flux due to high teacher attrition rates. These rates continue to plague schools and the communities they are privileged to serve. In addition to underserving students, “Teacher turnover also impacts the quality of teachers, especially if the most able teachers are the most likely to leave” (Murnane & Olsen, 1990, p. 120). While recruiting and hiring new quality teachers is one approach to high retention rates, Ingersoll (2001) clearly determined that schools must start to “...address the organizational sources of low retention” (p.501) as recruitment programs are unable to solve staffing shortcomings. This recommendation parallels Wong (2004) who found that solving the teacher shortage issue requires training and support through a quality mentor program (p. 55).

The purpose of this quantitative study was to assess the effect of two mentor models on teacher attrition in a local education agency (LEA). The State Department of Education requires non-tenured teachers to be mentored; however, the specifics of the mentoring programs are vague and open to LEA interpretation. The district studied employed a system-wide mentor model for the years 2007-2012. In 2012, the district made strides to enhance the mentoring of all teachers and through the re-definition of existing positions hired school-based mentors. This study will assess the impact of the two mentoring models on teacher attrition to determine if either model had an impact on teacher retention across the school system.

Research Questions

The primary question of this study was: Did teacher attrition rates vary based on the type of mentoring program provided to teachers within a school system?

Supplementary Questions:

1. Did the teacher attrition rates vary from Urban to Non-Urban school settings?
2. Did the teacher attrition rates vary based on the Socioeconomic Status of the students as measured by the Free and Reduced Meals (FARM) rate?
3. Did the teacher attrition rates vary according to the grade levels of the school?

Study Approach

This is a quantitative study that analyzed the attrition rates of a local education agency (LEA) to determine if teacher attrition was impacted by two different mentor models. The first mentor model (2007-2012) employed numerous teachers as non-school based mentors who operated out of a central office servicing identified teachers at multiple schools. The second mentor model (2012-2014) employed school-based teachers at each school to mentor identified teachers at their respective schools.

This study used multilevel modeling to determine if the mentoring model impacted the attrition rate of teachers based on the school's free and reduced meals rate (FARM), setting (urban or rural), or the level (elementary, middle, and high). Multilevel modeling can be applied to numerous variables nested within a specific data point and to "...longitudinal data where the primary interest is in modeling the structure and predictors of change over time" (Luke, 2004, p. 63). Chapter II includes more detailed information regarding the methodology used for this study.

Key Terms:

COMAR: An acronym stand for The Code of Maryland Regulations and is the "...official compilation of all administrative regulations issued by agencies of the state of Maryland." (University of Maryland, 2014).

Induction Programs vary greatly, but are a structured program to support new educators into their new position.

Local Education Agency (LEA): A school system supported by a public board of education to facilitate elementary and secondary education (US Department of Education). In this study it refers to a county-system of schools that operate under one board of education.

Maryland Teacher Professional Development Standards are standards recommended for all educators that provide structure and guidance to maximizing professional development.

Leavers or Movers are teachers who depart their current education setting for employment in another educational setting. In this study they could transfer from school to school within the LEA or leave the system to other LEA's.

Mentoring Teachers are teachers who support and facilitate the growth of other professional teachers through guided reflective practices.

Negotiated Agreement is a binding agreement between the teachers' association (union) and the local board of education.

Professional Learning Community is a culture of an educational community founded on collaboration and reflection with a commitment to continuous professional growth for all stakeholders.

Tenure is a status provided to an employee after a probationary that indicates the person's position or employment is permanent.

Chapter II
Methodology

Conceptual Framework

This study used a two level multilevel model design as illustrated in Figure 3.1. There were two levels to the model: Level 1 corresponds to the percent of teacher attrition per school over time; and Level 2 corresponds to the level of the school (elementary, middle, or high), percent of students on free and reduced lunch (FARM rate), and the school’s location in an urban or rural setting.

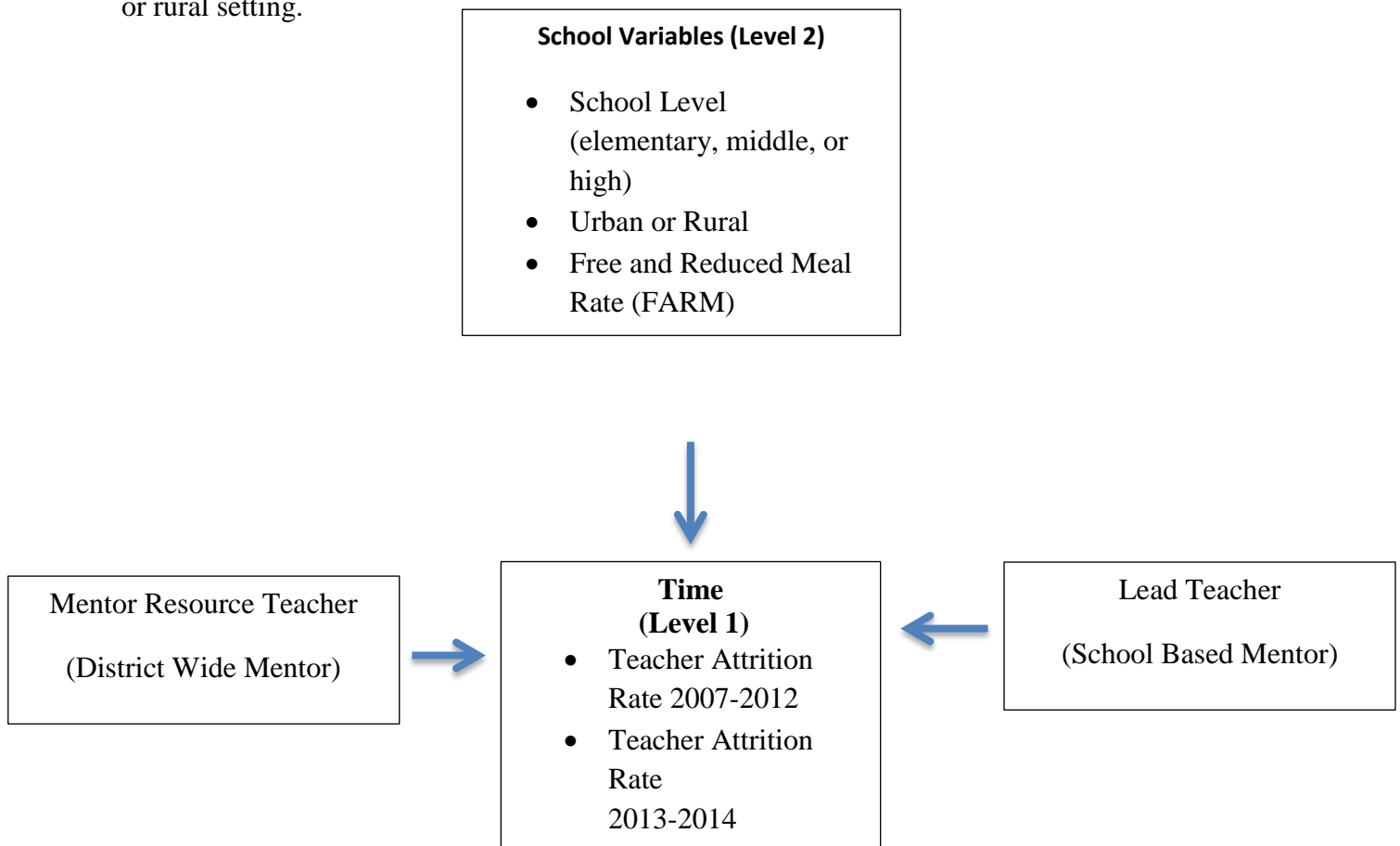


Figure 2.1: Conceptual Framework- The model above demonstrates a conceptual model that correlates mentoring to teacher attrition. This also illustrates that Teacher Attrition is influenced by the poverty rate, level of the school, and the setting of the school.

Teacher Mentoring Programs 2007-2012 and 2012-2014

The state of Maryland supports mentoring in the Code of Maryland Regulation (COMAR) by requiring a “Comprehensive Teacher Induction Program.” In COMAR 13A.07.01 regulation districts must maintain a comprehensive induction program, require all teachers to participate until tenured, and establish a mentoring program to coach newly acquired teachers (2014). While there are also recommendations such as a ratio of one mentor for every 15 teachers, the location (site based or district-wide) and number of the mentors is determined by the local school system.

In 2012, the LEA redefined and renamed the district-wide mentoring teacher position. As illustrated in Table 2.1, the roles and responsibilities of the mentor shifted from a primary focus of mentoring non-tenured teachers from a district position to mentoring all teachers from a school-based position. In addition, there was also a shift from district level mentors engaging in dialogue regarding observational data to school based lead teachers modeling instructional practices, co-teaching lessons, and reviewing student assessment data. This change in responsibilities clearly promoted a more cooperative approach with an emphasis on the Lead Teacher being more embedded in the instructional process.

Table 2.1: Job Posting of District –Wide Mentor Compared to School-Based Mentor

Mentor Resource Teacher (2007-2012) District Position	Lead Teacher (2012-2014) School-Based Position
Minimum Requirements	
<ul style="list-style-type: none"> • Five years successful classroom teaching • Effective human relations skills; ability to communicate effectively verbally and in writing 	<ul style="list-style-type: none"> • Five years of successful teaching and an Advanced Professional Certificate • Leadership skills in working with adults in a positive and collegial manner

Table 2.1: Job Posting of District –Wide Mentor Compared to School-Based Mentor (Continued)

Mentor Resource Teacher (2007-2012) District Position	Lead Teacher (2012-2014) School-Based Position
Coaching and Mentor Responsibilities	
<ul style="list-style-type: none"> • Assist non-tenured teachers to improve instruction to increase student achievement • Provide direct support to non-tenured teachers in: curriculum, planning, assessment, classroom management, and related activities • Coordinate support services to tenured teachers, as requested • Provide feedback regarding instructional effectiveness based on classroom visits and reflective dialogue 	<ul style="list-style-type: none"> • Act as a coach and collaborative partner with teachers in the development of strategies to increase student achievement • Provide direct support to all teachers in: curriculum, planning, assessment, and grading, and; • Direct assistance to all non-tenured teachers in classroom organization, classroom management and as requested with tenured teachers • Demonstrate effective instructional practices and model-specific lessons within classrooms • Provide periodic peer feedback to all teachers within the building focused on instructional effectiveness, classroom visits, and assessment data
Professional Development	
<ul style="list-style-type: none"> • Develop, plan, and conduct professional development activities for district staff 	<ul style="list-style-type: none"> • Develop, plan, and conduct district initiated, building-specific, and individual professional growth activities
Additional Expectations	
<ul style="list-style-type: none"> • No specifics aligned 	<ul style="list-style-type: none"> • On a weekly basis Lead Teachers will devote 75-80 percent of their time to directly supporting classroom teachers

Variables Examined

Schools. The schools identified for this study were all comprehensive schools that are part of one Local Education Agency (LEA). This LEA is defined as a county system and is one of twenty four counties in the state of Maryland.

Attrition. The attrition data was aggregated in conjunction with the LEA's Human Resource Department. The LEA provided the researcher with the total number of teachers in each school and the total number of teachers departing each school for every year of the study. Since the unit of measure was schools, the attrition data includes any teacher who departed the school during the specific year, irrespective of the rationale or reasons behind the departure. Therefore, the teacher attrition rate does include, and is not limited to, departure from the field of education, retirements, involuntary transfers, re-allocated positions, etc.

School level. To enhance consistency, this study categorized schools into three levels: elementary, middle, and high school. While the county has two primary schools (grades K-2), an alternative school, and several specialty schools (e.g. vocational schools), they were not included in this study as there would be minimal basis for comparison.

The levels of the schools were determined based on the grades of the students they serve. This study assessed the attrition rate of teachers at the following schools: 25 elementary schools that serve students kindergarten through fifth grade (except one serves first grade through fifth grade and one serves third grade through fifth grade), seven middle schools that serve sixth grade through eighth grade, and six high schools that serve ninth grade through twelfth grade. The attrition rate for each school is representative of the percentage of teachers that departed each facility from the fall of 2007 through the summer of 2014.

Poverty rate. This study analyzed the impact of poverty on the teacher attrition rate. Research continues to reflect that teacher attrition rates are significantly higher in schools that have high poverty rates (Ingersoll, 2001, p. 519). To determine the level of poverty for each school in the LEA this researcher identified each school's free and reduced meals (FARM) rate

for the years assessed in this study. The FARM rate is based on the family or household income. Students whose household incomes are at or below 130 percent of the poverty level are eligible for free meals; students whose household income is between 131 percent and 185 percent of the poverty level are eligible for reduced meals (Institute of Education Sciences, 2014). Schools that have a FARM rate below 25 percent are considered to be low poverty, while schools that have a FARM rate in excess of 75 percent are considered to be high poverty. Each school's FARM rate was obtained as public information accessed through the state's Department of Education website.

Urban vs. rural. This study determined if the teacher attrition rate varied based on whether the school setting is urban or rural. The definition of urban and rural differs greatly in research and across the global community. For the purpose of this study, this researcher defined these areas with proximity to the definitions provided and employed in the United States Census Bureau.

The Census Bureau defines urban, urban clusters, and rural in its assessment methods. These definitions are numerically defined based on population densities. Urban areas are defined as those with a population in excess of 50,000 people, urban clusters are areas with at least 2,500 people, and rural is any area with a population density below 2,500 people (United States Census Bureau, 2012)

The LEA used for this study is very diverse as it has one central urban area surrounded by many small rural communities. Understanding this dynamic, this study will only categorize schools as urban or rural based on the population densities as illustrated in Table 2.1. Urban schools will be the schools that are within or primarily serve Community D, which has a

population of approximately 40,612 people. Rural schools will be the schools that primarily serve the other five communities, which host populations significantly below 50,000 people. To ensure accuracy for blended schools that serve Community D and outlying areas of the other communities, this researcher consulted the Senior Project Manager and Planning Supervisor of the LEA to assess which community the school primarily serves; these schools were categorized as urban or rural based on the residency of the majority of the students assigned to each school.

Table 2.2: Population Densities in the Local Education Agency (United States Census Bureau, 2015)

Communities in LEA	Population Densities (people)	Classification
Community A	3,336	Rural
Community B	358	Rural
Community C	1,562	Rural
Community D	40,612	Urban
Community E	2,975	Rural
Community F	2,137	Rural

Demographic Data

The following tables are representative of all the variables and data analyzed in this study. As reflected, this research assessed multiple data points within an LEA. The LEA selected is a county system that served approximately 21,200 students at the start of the study in 2007 and currently serves in excess of 22,100 students. The researcher provided all schools with pseudo-names to maintain anonymity. The system is comprised of 38 comprehensive schools: 25 elementary, seven middle schools, and six high schools. It should be noted that in the first year of the study *Elementary N* was in construction and began serving students in the academic school year 2008-2009. For the specifics of grade levels served for each school refer to Chapter 2 *Variables/Schools*.

Teachers per school. Table 2.3 illustrates the number of teachers that served each school for the years of the study. The *Total Teachers* is inclusive of all staff in each building classified as a teacher in salary and by the local negotiated agreement. While the number is primarily comprised of classroom teachers, it may also include and is not limited to Lead Teachers, Media Specialists, Special Education Case Managers, Counselors, and Special Education Teachers. As reflected in the Table 2.3, in 2007 the system had 711 elementary teachers, 334 middle school teachers, and 384 high school teachers for a sum of 1,429 teachers. While the number of students went up over the years of this study by approximately 1,000 students, the data also reflects that the number of teachers stayed relatively stagnant; in 2013 the system employed 705 elementary teachers, 337 middle school teachers, and 374 high school teachers for a sum of 1,416 teachers.

Table 2.3: Total Number of Teachers at Each School in the LEA

	2007- 2008	2008- 2009	2009- 2010	2010- 2011	2011- 2012	2012- 2013	2013- 2014
	Total Teachers	Total Teachers	Total Teachers	Total Teachers	Total Teachers	Total Teachers	Total Teachers
Elementary Schools							
Elementary A	39	36	43	46	39	35	40
Elementary B	27	43	42	46	41	40	41
Elementary C	23	21	23	23	20	20	19
Elementary D	25	27	25	25	22	21	22
Elementary E	17	20	19	21	17	19	20
Elementary F	45	46	50	53	55	57	55
Elementary G	24	26	27	23	20	15	14
Elementary H	34	23	23	28	26	26	26
Elementary I	32	32	35	33	31	28	29
Elementary J	19	18	17	19	19	17	18
Elementary K	23	14	15	14	12	12	14
Elementary L	27	25	27	23	22	19	19
Elementary M	26	23	22	22	21	21	22
Elementary N	0	36	34	34	39	39	45
Elementary O	53	40	42	40	36	36	37

Table 2.3: Total Number of Teachers at Each School in the LEA (Continued)

	2007- 2008	2008- 2009	2009- 2010	2010- 2011	2011- 2012	2012- 2013	2013- 2014
	Total Teachers	Total Teachers	Total Teachers	Total Teachers	Total Teachers	Total Teachers	Total Teachers
Elementary P	41	47	54	50	50	51	49
Elementary Q	20	21	20	16	15	12	11
Elementary R	21	24	21	21	21	21	22
Elementary S	29	30	30	28	28	24	28
Elementary T	28	29	27	26	29	27	26
Elementary U	10	10	10	15	16	13	13
Elementary V	32	29	33	33	37	35	38
Elementary W	41	40	40	33	37	35	34
Elementary X	28	29	33	30	27	25	23
Elementary Y	47	41	47	48	43	41	40
Middle Schools							
Middle A	51	51	45	51	51	53	52
Middle B	53	57	56	52	56	54	58
Middle C	45	45	42	45	44	42	40
Middle D	30	33	30	30	29	28	30
Middle E	53	53	57	59	59	54	56
Middle F	51	50	51	52	50	49	50
Middle G	51	56	55	57	56	54	51
High Schools							
High A	55	54	53	51	50	50	48
High B	83	88	90	84	82	81	83
High C	88	90	90	89	87	86	84
High D	37	40	41	40	35	37	37
High E	57	60	61	64	62	60	58
High F	64	67	66	64	62	60	64

Poverty level and community setting. Table 2.4 illustrates the FARM rate and the setting (rural or urban) for each school in the LEA. All the FARM data is public information maintained on the state sponsored Department of Education website entitled Maryland’s Report Card or www.mdreportcard.org. Paralleling the teacher attrition rate, the FARM rate also varied greatly across the level of the school and the setting of the school. The range of FARM rates for elementary schools was from 14.3% to 90.09%, for middle schools was from 18.1% to 69.2%, and for high schools was from 14.3% to 62.2%. The data in Table 2.6 also identifies each school as urban or rural as defined in *Chapter 2 Variables/Urban vs. Rural*. It is clear the FARM rates vary greatly based on the setting with the urban areas significantly more impoverished. The sixteen rural elementary schools had a FARM rate range from 14.5% to 73.8%, while the nine urban schools had a range from 36.3% to 90.9%. The four rural middle schools had a FARM rate range from 18.1% to 47.7%, while the three urban schools had a FARM rate from 39.2% to 69.2%. The high schools followed the same trend with four rural schools that had a FARM rate range from 14.3% to 41.4%, while the two urban schools had a FARMS rate of 34.8% to 62.2%.

Table 2.4: Free and Reduced Meal Rate and Setting for Each School in the LEA

	2007- 2008	2008- 2009	2009- 2010	2010- 2011	2011- 2012	2012- 2013	2013- 2014	Setting
Schools								
Elementary A	57	62.3	64.9	66.3	67.2	67	73.3	Urban
Elementary B	30.6	35	41	41.7	44.5	47.6	47.5	Rural
Elementary C	57.2	55.9	64.5	68.4	72.2	70.5	73.8	Rural
Elementary D	18.9	20.4	29	30.5	30.6	28.4	31.3	Rural
Elementary E	51.3	52.3	59.7	58.6	64.2	60.4	59.8	Rural
Elementary F	52.8	54	58.9	57.6	67.5	63.9	65.3	Urban
Elementary G	14.5	21.2	24	27.8	29.8	34	34.2	Rural
Elementary H	22.9	19.4	33	39.7	19.3	18.2	29.4	Rural
Elementary I	51.9	53.5	57.5	59.5	52.9	48.7	45.8	Urban
Elementary J	19.6	26.6	33.8	32.5	33.9	29.5	30.6	Rural

Table 2.4: Free and Reduced Meal Rate and Setting for Each School in the LEA (Continued)

	2007- 2008	2008- 2009	2009- 2010	2010- 2011	2011- 2012	2012- 2013	2013- 2014	Setting
Elementary K	27.1	27	31.6	35	37.8	30.3	26.2	Rural
Elementary L	45.5	46.1	45.8	50.1	45	43	38.1	Urban
Elementary M	36.3	49.3	59.8	60.3	60.5	59.5	55.4	Urban
Elementary N	N/A	25.5	30.9	25.2	30	24.8	27.5	Rural
Elementary O	55	59.5	61.9	63.4	69.2	64.4	64.1	Urban
Elementary P	67.8	71.1	73.2	73	76.3	72.6	77.1	Urban
Elementary Q	35.8	40.1	48	51.6	51.1	54	55.4	Rural
Elementary R	23.5	28.1	29.4	38.8	36.3	36.4	38.7	Rural
Elementary S	32.5	32.3	33.3	32.9	37	32.7	36.6	Rural
Elementary T	23.8	26.9	30.5	35.9	36.1	33.8	37.8	Rural
Elementary U	42.3	49.6	48.8	43.1	43.8	44.7	47.9	Rural
Elementary V	35.3	36.2	40.4	45.1	44.6	44.7	48.9	Rural
Elementary W	14.3	17.6	19.9	21	25.6	23.4	23.2	Rural
Elementary X	80.6	85.4	88.3	90.9	93	88.5	85.4	Urban
Elementary Y	77.4	84.1	86.1	87.8	88.9	82	81.5	Urban
Middle Schools								
Middle A	39.2	44.9	49.3	50.6	53	51.1	56.4	Urban
Middle B	50.7	53.4	52.1	58.1	57.1	55.3	57.1	Urban
Middle C	26.5	26.8	30.6	30.9	34.2	29.2	35.5	Rural
Middle D	27.4	32.9	33.6	37.9	38.2	38.6	36.7	Rural
Middle E	39.9	39.7	43.8	45.1	45.6	44.4	47.7	Rural
Middle F	18.1	19.7	23	26.1	26.9	23.3	26	Rural
Middle G	60.2	63.9	64.1	68.9	69.2	69	67.6	Urban
High Schools								
High A	18.2	20.8	27.1	28.4	31.6	29.3	32.2	Rural
High B	34.8	35.9	40.2	42.5	45.4	43.8	47.3	Urban
High C	47.4	51.6	59.6	61.3	62.2	61	61	Urban
High D	23.4	28.5	32.9	32.6	32.5	33	36.7	Rural
High E	29	32.2	38.3	41.4	43.9	38.8	41.2	Rural
High F	14.3	18.8	20.8	23	25.2	23.5	23.2	Rural

Table 2.5 illustrates the free and reduced meal (FARM) rate of all the schools in the LEA for each year of the study. The data table clearly reflects an increase of approximately ten percent over the course of the study. The mean FARM rate was at the lowest point the first year of the study in 2007/08 with 37.85% of students on free and reduced meals with a S.D. of 17.70 in comparison to the year 2011/12 which had a mean FARM rate of 47.96% with a S.D. of 18.25 and 2013/14 which had a mean FARM rate of 47.46 %with a S.D. of 17.27.

Table 2.5: The FARM Rate of All Schools by Year

Year	N	Minimum	Maximum	Mean	Std. Deviation
2007/08 FARM	37	14.3	80.6	37.85	17.70
2008/09 FARM	38	17.6	85.4	40.51	18.20
2009/10 FARM	38	19.9	88.3	44.99	17.57
2010/11 FARM	38	21.0	90.9	46.93	17.55
2011/12 FARM	38	19.3	93.0	47.96	18.25
2012/13 FARM	38	18.2	88.5	45.88	17.89
2013/14 FARM	38	23.2	85.4	47.46	17.27

Table 2.6 illustrates the FARM rate for all schools at elementary, middle, and high school for each year of the study. It is clear the county FARM rate significantly increased over the time of this study. The FARM rate for the elementary schools ranged from 40.46% with a S.D. of 19.21 in 2007/08 to 50.29% with a S.D. of 20.04 in 2011/12. The FARM rate for the middle schools ranged from 37.43% with a S.D. of 14.71 in 2007/08 to 46.71% with a S.D. of 14.69 in 2013/14. The FARM rate for the high schools ranged from 27.85% with a S.D. of 12.07 in 2007/08 to 40.27 with a S.D. of 13.03 in 2013/14.

The data clearly reflects a linear pattern in the FARM rate in the LEA over the period of this study. While this linear growth has minor fluctuations, it is prevalent in all three levels of school during this study. While it is not definitive, it is surprising as Chapter 1 clearly reflected how research has shown that when the poverty rate increases teacher attrition rates also increase. However, based on the descriptive statistics, the LEA shows a linear growth in poverty rate at the same time reflecting erratic non-linear patterns in teacher attrition.

Table 2.6: The FARM Rate of Each School Level by Year

School Level	Year		N	Minimum	Maximum	Mean	Std. Deviation
Elementary	2007/08	FARM	24	14.3	80.6	40.467	19.2062
	2008/09	FARM	25	17.6	85.4	43.176	19.6121
	2009/10	FARM	25	19.9	88.3	47.768	18.9746
	2010/11	FARM	25	21.0	90.9	49.468	18.7768
	2011/12	FARM	25	19.3	93.0	50.292	20.0415
	2012/13	FARM	25	18.2	88.5	48.120	19.3616
	2013/14	FARM	25	23.2	85.4	49.392	18.8031
Middle	2007/08	FARM	7	18.1	60.2	37.429	14.7055
	2008/09	FARM	7	19.7	63.9	38.900	16.3907
	2009/10	FARM	7	23.0	64.1	42.357	14.1867
	2010/11	FARM	7	26.1	68.9	45.371	15.1639
	2011/12	FARM	7	26.9	69.2	46.314	14.5763
	2012/13	FARM	7	23.3	69.0	44.414	15.6990
	2013/14	FARM	7	26.0	67.6	46.714	14.6855
High	2007/08	FARM	6	14.3	47.4	27.850	12.0694
	2008/09	FARM	6	18.8	51.6	31.300	11.9029
	2009/10	FARM	6	20.8	59.6	36.483	13.4041
	2010/11	FARM	6	23.0	61.3	38.200	13.5704
	2011/12	FARM	6	25.2	62.2	40.133	13.2887
	2012/13	FARM	6	23.5	61.0	38.233	13.2204
	2013/14	FARM	6	23.2	61.0	40.267	13.0328

Research Question

The primary question of this study was: Did teacher attrition rates vary based on the type of mentoring program provided to teachers within a school system?

Supplementary Questions:

1. Did the teacher attrition rates vary from Urban to Non-Urban school settings?
2. Did the teacher attrition rates vary based on the Socioeconomic Status of the students as measured by the Free and Reduced Meals (FARM) rate?
3. Did the teacher attrition rates vary according to the grade levels of the school?

Hypothesis

The hypothesis for this study is that providing school-based mentors at individual schools will decrease teacher attrition irrespective of the socio-economic status or whether or not the school is rural or urban. This hypothesis is supported as studies have shown that teacher mentor programs are consistently the most successful approach to decreasing teacher attrition (Brill & McCartney, 2008, p. 766). In addition, it has also been determined that many well-intended mentor programs fail due to deficiencies associated with negligence in consistent meetings, observations, and dialogue between the mentor and teacher (Wynn, Carboni, & Patall, 2007, p. 220). Therefore it seems appropriate for this researcher to expect that a school-based model will privilege teachers and mentors to more consistent meetings and supports thereby increasing the success and satisfaction of the teacher; theoretically this success would promote a decline in the teacher attrition rate.

The null hypothesis for this study would reflect no change in teacher attrition across the schools in the local education agency when the role of mentoring was shifted to the school-based

mentors. It would also produce no significant difference in attrition based on the FARM rate, the setting (rural or urban), or the level of the school (elementary, middle, or high).

Design of Study

The sample population consisted of all the traditional schools within a local education agency in the state of Maryland. This district was selected as it provided a unique opportunity to assess the impact of two system-wide mentoring models, thereby, affording the researcher the opportunity to advance studies that may provide benefits to the educational community. As the third largest employer within the county, the school system is privileged to serve in excess of 22,000 students with approximately 2,500 staff. As a community, there are many struggles as the county ranks in the lowest eight counties for children entering school ready to learn and in the bottom four counties for stable and economically independent families; however, despite these challenging demographics, the school system has ranked in the top four counties (out of 24 in the state of Maryland) for children successful in school (Children's Cabinet and Governor's Office for Children, 2007, p. 31).

As the school system has progressed, the system has independently altered the induction and mentoring program for teachers. In excess of a decade, the system employed a county-wide mentoring system with the majority of focus and effort on non-tenured teachers. In 2012, the system reallocated and repurposed school-based positions in conjunction with the Human Resources Department to hire school-based mentors as reflected in Table 2.1. This transition afforded the researcher the rare opportunity to compare two vastly different models to determine if teacher attrition was impacted differently based on the model employed. As the literature review has reflected, numerous studies have assessed the impact of the addition of induction and mentoring programs to their educational communities with favorable results; however, this

researcher was unable to find one study that was a comparative analysis of mentoring models over a system of schools.

To determine the best design for this study it is important to emphasize the literature review has shown there are numerous reasons for teacher attrition. Relevant to this study, teacher attrition is affected differently by the level of the school (elementary, middle, or high), the setting of the school (urban or rural), and the poverty of the school as measured by the free and reduced meal rate. To consider these multiple variables, this study employed a Multilevel Model, which is often referred to as a hierarchical linear model.

This study employed the methodological guidelines of Dr. Douglas Luke who focuses on “...single equation, regression-style, two-or three-level modeling” (Luke, 2004, p. 5). While multilevel studies do not determine causality, “Compared with classical regression, multilevel modeling is almost an improvement, but to varying degrees; for prediction multilevel modeling can be essential, for data reduction it can be useful, and for causal inference it can be helpful” (Gelman, 2006, p. 432). Therefore, the study assessed the causal relationship of several variables to best determine the influence on teacher attrition.

As a basic two-level multilevel model, it is important to determine the system of equations representative of all of the predictors and dependent variables. While the data analysis assessed a series of models, it is important to define the systems of equations for the full model. The Level 1 models the effect of time on teacher attrition:

$$\text{ATTRITION}_{ij} = \beta_{0j} + \beta_{1j} (\text{MENTORIN})_{ij} + r_{ij}$$

Where ATTRITION is the dependent variable and represents the teacher attrition rate, this represents the percent of teachers departing school j at time i . The intercept, β_{0j} is the initial rate of the school j when all of the independent variables are zero. The coefficient β_{1j} is the

difference in attrition for school j during the years the Lead Teacher Model was in effect compared to previous years when the earlier mentor model was in place. (MENTORIN) is the value of the Level 1 predictor of change of attrition between mentor models 2007-2012 to Lead Teacher Model 2012-2014. Years with the earlier model were coded as “0,” while the years using the Lead Teacher Model were coded as “1.” The variable r_{ij} is the error of the prediction made by the equation and often referred to as an error term.

The Level 2 models consist of the building variables to include setting of school, the level of the school, and the poverty rate of the school. As the literature review has demonstrated, all of these variables can impact teacher attrition rates. The following are the level two equations:

$$\beta_{oj} = \gamma_{00} + \gamma_{01} (\text{LEVEL_M}) + \gamma_{02} (\text{TYPECODE_M})_j + \gamma_{03} (\text{\$FARMSAGG_M})_{ij} + u_{oj}$$

This equation represents the effect of the building to include level of the school, the setting, and the poverty rate on attrition, accounting for the Level 1 effects as applicable. Where β_{oj} is the intercept of Level 1 and γ_{00} is the intercept across all schools and the grand mean across all schools and all years. The γ_{01} is the effect of the level of school (elementary, secondary) on β_{oj} . The γ_{02} is the effect of the setting (urban or rural) on β_{oj} . The γ_{03} is the effect of poverty (FARM rate) on β_{oj} . The variable u_{oj} is random effect for each school or the error at the school level. To see if there would be any difference if school level was divided into three levels (elementary, middle, high), the same equations were used to except a dummy coding procedure was used replacing the variable LEVEL with MIDDLE (0=no, 1=yes) and HIGH (0=no, 1=yes), using elementary schools as the reference group.

Summary of Methodology

This quantitative study was employed to assess the impact of different mentoring models and building variables on teacher attrition. Through the use of these findings, the research can assess the impact of the mentoring model on schools based on the level, poverty rate, and setting. The research will use valid and reliable data provided by the local education agency's Human Resource Department to test the aforementioned hypothesis.

IRB, Human Subjects, and Confidentiality

The aggregated teacher attrition data was provided by the local education agency (LEA) Human Resources Department. The LEA took measures to preserve confidentiality; the department only provided the researcher with the name of the school, the total number of teachers, and the number of teachers departing for each year of the study. The names of those departing or the reasons for their departure were not disclosed.

The researcher submitted a detailed application regarding this study to Maryland University's Institutional Review Board (IRB). The researcher sought approval from the IRB before beginning the process of data analysis. The University of Maryland College Park (UMCP) IRB determined this project did not meet the definition of human subject research under the purview of the IRB according to federal regulations. The researcher did exclude the name of the LEA and the names of each school to enhance anonymity. As stated previously, the free and reduced meal data is public information.

Chapter III

Results

This quantitative study analyzed research questions through the use of descriptive statistics and multi-level modeling of change over time. The Statistical Package for the Social Sciences (SPSS) was employed to analyze and develop the descriptive statistics. The Hierarchical Linear Modeling (HLM) software was employed to perform analysis of change in teacher attrition over time within schools.

A descriptive analysis was completed in an effort to assess norms, possible outliers, and to support the HLM analysis. The descriptive statistics in this study assessed variables inclusive of teacher attrition, FARM rate, and level of the school from 2007 through 2013. The descriptive statistics include the range, mean, and standard deviation for each variable at each year of the study. Chapter II provides the data tables and specifics as to how the data was aggregated.

Table 3.1 illustrates the teacher attrition rate over time for each school in the LEA. As reflected in the data, the teacher attrition rates vary greatly from school to school and based on the level of the school. There are numerous schools that have some year(s) with zero percent attrition, while there are numerous schools that illustrate attrition rates consistently greater than twenty percent. The range for teacher attrition also varies greatly across the levels as the elementary school has a range from zero percent to 41.67%, the middle school has a range from zero percent to 30.77%, and the high school has a range from 2.44% to 23.86%. It is important to note the teacher attrition rate is based on the percent of teachers departing the building for each year of the study. This number may be inclusive of, but not limited to teachers departing the field, transferring to another LEA, internally transferring between schools within the LEA, leaving for promotions, or retiring.

Table 3.1: Teacher Attrition Rates for Each School in the LEA

Schools	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
Schools	Percent departing	Percent departing	Percent departing	Percent departing	Percent departing	Percent departing	Percent departing
Elementary							
Elementary A	12.82	22.22	11.63	13.04	46.15	31.43	0.00
Elementary B	11.11	2.33	9.52	8.70	21.95	12.50	7.32
Elementary C	21.74	14.29	13.04	8.70	15.00	25.00	5.26
Elementary D	32.00	7.41	16.00	12.00	4.55	4.76	9.09
Elementary E	29.41	25.00	21.05	4.76	35.29	10.53	0.00
Elementary F	17.78	6.52	10.00	9.43	9.09	8.77	9.09
Elementary G	12.50	15.38	14.81	13.04	5.00	20.00	21.43
Elementary H	23.53	17.39	13.04	25.00	15.38	0.00	11.54
Elementary I	15.63	21.88	2.86	18.18	6.45	10.71	13.79
Elementary J	26.32	27.78	35.29	5.26	5.26	5.88	0.00
Elementary K	30.4	7.14	20.00	21.43	41.67	33.33	21.43
Elementary L	3.70	8.00	0.00	17.39	4.55	5.26	5.26
Elementary M	19.23	4.35	9.09	0.00	14.29	23.81	13.64
Elementary N	N/A	11.11	8.82	11.76	12.82	5.13	2.22
Elementary O	28.30	15.00	14.29	12.50	33.33	16.67	2.70

Table 3.1: Teacher Attrition Rates for Each School in the LEA (continued)

Schools	2007- 2008	2008- 2009	2009- 2010	2010- 2011	2011- 2012	2012- 2013	2013- 2014
	Percent departing	Percent departing	Percent departing	Percent departing	Percent departing	Percent departing	Percent departing
Elementary P	21.95	8.51	9.26	14.00	16.00	1.96	8.16
Elementary Q	15.00	9.52	15.00	0.00	0.00	16.67	9.09
Elementary R	9.52	0.00	9.52	9.52	19.05	4.76	13.64
Elementary S	3.45	6.67	10.00	3.57	3.57	20.83	3.57
Elementary T	17.86	0.00	3.70	30.77	13.79	11.11	15.38
Elementary U	10.00	0.00	0.00	13.33	12.50	15.38	7.69
Elementary V	6.25	24.14	0.00	9.09	10.81	5.71	13.16
Elementary W	0.00	5.00	12.50	21.21	10.81	22.86	11.76
Elementary X	10.71	3.45	12.12	16.67	7.41	0.00	8.70
Elementary Y	14.89	14.63	10.64	12.50	9.30	9.76	7.50
Middle Schools							
Middle A	23.53	9.80	15.56	15.69	15.69	11.32	30.77
Middle B	11.32	12.28	7.14	15.38	7.14	12.96	5.17
Middle C	8.89	2.22	4.76	2.22	6.82	4.76	7.50
Middle D	16.67	6.06	13.33	3.33	17.24	17.86	0.00
Middle E	20.75	26.42	12.28	5.08	11.86	20.37	12.50
Middle F	3.92	10.00	3.92	3.85	6.00	8.16	2.00
Middle G	11.76	16.07	12.73	8.77	28.57	24.07	19.61
High Schools							
High A	9.09	11.11	15.09	9.80	22.00	18.00	20.83
High B	9.64	7.95	7.78	9.52	8.54	11.11	10.84
High C	23.86	13.33	10.00	13.48	12.64	15.12	16.67
High D	10.81	2.50	2.44	5.00	17.14	13.51	5.41
High E	21.05	11.67	11.48	10.94	14.52	23.33	17.24
High F	14.06	4.48	3.03	4.69	6.45	15.00	3.13

Table 3.2 illustrates the range, mean, and standard deviation of all the schools combined for each year of the study. As stated in Chapter 2, the N value is representative of only 37 schools in 2007/08 as construction was being completed at one elementary school. The attrition rate for the LEA fluctuated significantly year to year with a mean that ranged from 9.82% with a standard deviation (S.D.) of 7.13 in 2013/14 to 15.66% with an S.D. of 8.13 in 2007/08. While the highest two years of attrition are during the years of the county-wide mentor model (2007/08 and 2011/12) and the lowest year is during the lead teacher mentor model (2013/14), there is no obvious trend as the data is clearly erratic and non-linear.

Table 3.2: Teacher Attrition Rate for All Schools by Year

Year	Mentor	N	Minimum	Maximum	Mean	Std. Deviation
2007/08	County Mentor	37	.00	32.00	15.66	8.13
2008/09	County Mentor	38	.00	27.78	10.83	7.63
2009/10	County Mentor	38	.00	35.29	10.57	6.67
2010/11	County Mentor	38	.00	30.77	11.04	6.77
2011/12	County Mentor	38	.00	46.15	14.45	10.51
2012/13	Lead Teacher	38	.00	33.30	13.64	8.29
2013/14	Lead Teacher	38	.00	30.77	9.82	7.13

Graph 3.3 illustrates the attrition rate of each level of the schools combined for each year of the study. Mirroring the results illustrated in Table 3.2, the data shows there is no obvious trend and at times the teacher attrition is erratic. Each level of school has the highest and lowest attrition rate during at least one of the school years encompassed in this study. While the rates fluctuate based on the level of the school, the decrease and increase in attrition do show system-wide fluctuations; the attrition rates in 2007/08, 2010/11, and 2013/14 showed all levels collectively decreased or increased. These fluctuations did vary within the same mentoring model showing there was no clear trend or pattern with each model employed.

Graph 3.3: Teacher Attrition Rate for Each Level of School by Year

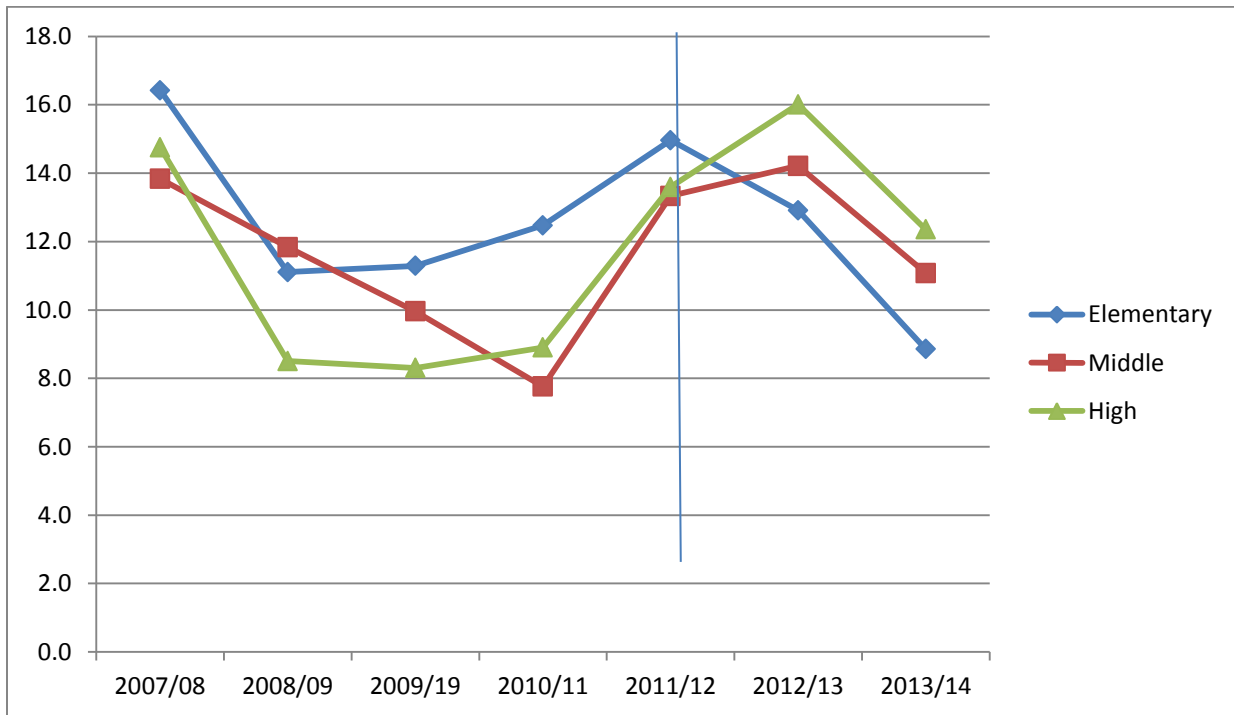


Table 3.4 illustrates the teacher attrition rate for all buildings categorized by level (elementary, middle, high school) for each year of the study. The data fluctuates significantly from level to level and year to year. In the elementary schools the mean teacher attrition rate ranges from 8.86% with a S.D. of 5.92 in 2013/14 to 16.42% with a S.D. of 8.98 in 2007/08. This data shows the highest attrition rate in the first year of the study with the lowest attrition rate in the last year of the study. However, the middle school reflects that the mean teacher attrition rate ranges from 7.76% with a S.D. of 5.70 in 2010/11 to 14.21% with a S.D. of 6.88 in 2012/13. This data shows the lowest attrition rate in the middle of the study while the highest attrition rate is near the end. The mean high school teacher attrition rate ranges from 8.30% with a S.D. of 4.93 in 2009/10 to 16.01% with a S.D. of 4.23 in 2012/13. This data mirrors the middle school attrition data in that the lowest attrition rate is in the middle of the study and the highest attrition rate is near the end.

While the data is exclusive of some of the other variables measured in this study, it clearly illustrates there is no linear pattern in the teacher attrition rate in the LEA over the period of this study. The ranges of the attrition vary greatly irrespective of the level of school or the year of school. One would anticipate the rate would be more consistent and patterned over time if the mentoring model significantly impacted teacher attrition.

Table 3.4: Teacher Attrition Rate for Each School Level by Year

School Level	Year		N	Minimum	Maximum	Mean	Std. Deviation
Elementary	2007/08	Attrition	24	.00	32.00	16.4221	8.97861
	2008/09	Attrition	25	.00	27.78	11.1088	8.30064
	2009/10	Attrition	25	.00	35.29	11.2872	7.49721
	2010/11	Attrition	25	.00	30.77	12.4740	7.32263
	2011/12	Attrition	25	.00	46.15	14.9608	12.09377
	2012/13	Attrition	25	.00	33.30	12.9116	9.39296
	2013/14	Attrition	25	.00	21.43	8.8568	5.91716
Middle	2007/08	Attrition	7	3.92	23.53	13.8343	6.87069
	2008/09	Attrition	7	2.22	26.42	11.8357	7.79062
	2009/10	Attrition	7	3.92	15.56	9.9600	4.60518
	2010/11	Attrition	7	2.22	15.69	7.7600	5.69732
	2011/12	Attrition	7	6.00	28.57	13.3314	8.05917
	2012/13	Attrition	7	4.76	24.07	14.2143	6.88364
	2013/14	Attrition	7	.00	30.77	11.0786	10.91964
High	2007/08	Attrition	6	9.09	23.86	14.7517	6.27422
	2008/09	Attrition	6	2.50	13.33	8.5067	4.30471
	2009/10	Attrition	6	2.44	15.09	8.3033	4.92929
	2010/11	Attrition	6	4.69	13.48	8.9050	3.44286
	2011/12	Attrition	6	6.45	22.00	13.5933	5.71961
	2012/13	Attrition	6	11.11	23.33	16.0117	4.23355
	2013/14	Attrition	6	3.13	20.83	12.3533	7.07018

Analytical Approach

This study employed Hierarchical Linear Modeling (HLM) software, an analysis that represents an extension of multiple regressions. HLM is a form of “... regression that is used to analyze variance in the outcome variables when the predictor variables are at varying hierarchical levels” (Woltman, Feldstain, MacKay, & Rocchi, 2012, p. 52). This study followed a basic two-level multilevel model in which level one is the teacher attrition rate per school over time and level two corresponds to the buildings inclusive of the level of the school (elementary, middle, or high), percent of students on free and reduced lunch (FARM rate), and whether it serves an urban or rural setting. Employing the two levels, the HLM software assessed longitudinal data to determine if there is a predictor over time.

When conducting an HLM analysis it is important to select an error covariance structure. There are three covariance structures to consider: unrestricted, homogenous, and heterogeneous (also referred to as autoregressive). According to Luke (2004), the unrestricted structure “...allows for any pattern of correlated errors across occasions,” the homogeneous error is more restrictive assuming “...there is a single value for all correlations between time points,” and the heterogeneous error “assumes that error terms are correlated across first-order lags” (p. 71). Following these recommendations, three different error covariance structures were run with the HLM software; Table 3.5 shows the summary of the model when it was completed for Level 1 variables. As reflected in the table, the Deviance statistic is the lowest in the Unrestricted Model and since Model 1 vs. Model 2 and Model 1 vs. Model 3 are both statistically significant, the Unrestricted Model is the best fit. It is important to note that in all cases the unrestricted structure provided the best fit and was used to address the research questions.

Table 3.5: Summary of Model Fit for Level 1 Variables

Model	Number of Parameters	Deviance	
1. Unrestricted	31	1795.10992	
2. Homogeneous σ^2	5	1847.97368	
3. Heterogeneous σ^2	11	1836.12975	
Model Comparison	χ^2	<i>d.f.</i>	<i>p</i> -value
Model 1 vs Model 2	52.86376	26	0.002
Model 1 vs Model 3	41.01983	20	0.004
Model 2 vs Model 3	11.84394	6	0.065

Primary Research Question

The primary question of this study was: Did teacher attrition rates vary based on the type of mentoring program provided to teachers within a school system?

As illustrated in Table 3.6, the first analysis assessed the change in teacher attrition over time and absent of other variables to determine if the trend was linear. It was determined there is significant change in teacher attrition over the seven years of the study. The teacher attrition intercept was significantly different from zero ($\beta_{00} = 14.50$, d.f.=37, $p < 0.001$). This means teacher attrition had a mean of 14.50 when all other variables are zero. The significant coefficient for YEARSQ also illustrates that if there is a relationship between time in years and attrition it is not linear.

Table 3.6: Final Estimation of Fixed Effects

Fixed Effect	Coefficient	Standard error	t-ratio	Approx d.f.	p-value
For INTRCPT1, π_0					
INTRCPT2, β_{00}	14.499458	1.100658	13.173	37	<0.001
For YEAR slope, π_1					
INTRCPT2, β_{10}	-1.980675	0.604913	-3.274	37	0.002
For YEARSQ slope, π_2					
INTRCPT2, β_{20}	0.225377	0.091540	2.462	37	0.019

Note. YEAR is the school year, 2007/08=0; YEARSQ is the squared value of the YEAR.

The results of the analysis of the two mentoring models are in Table 3.7. As evidenced in the table, the teacher attrition intercept was significantly different from zero ($\beta_{00} = 11.19$, (df=37), $p < 0.001$). This means the average teacher attrition rate for all schools was 11.20%. The Mentor Model coefficient for the change in attrition rate was not significant ($\beta_{10} = 0.02$, (df=37), $p < 0.985$). This means the attrition rate for teachers was only 0.02 % higher with Lead Teachers as mentors, which was not a significant difference in attrition. Therefore, it cannot be concluded that the Mentor Model made a difference when the LEA switched from a county-wide mentor to a lead teacher.

Table 3.7: Final Estimation of Fixed Effects in Mentoring Model

Fixed Effect	Coefficient	Standard error	t-ratio	Approx d.f.	p-value
For INTRCPT1, π_0					
INTRCPT2, β_{00}	11.189282	0.671598	16.661	37	<0.001
For MENTORIN slope, π_1					
INTRCPT2, β_{10}	0.018708	0.996953	0.019	37	0.985

Note. MENTORIN was entered into the model uncentered.

Supplementary Questions

1. Did the teacher attrition rates vary from Urban to Non-Urban school settings?
2. Did the teacher attrition rates vary based on the Socioeconomic Status of the students as measured by the Free and Reduced Meals (FARM) rate?
3. Did the teacher attrition rates vary according to the grade levels of the school?

The results of the sub questions and the effect of the Level 2 variables are in Table 3.8. In this table, the levels of the school are explored as dichotomous elementary and secondary; the researcher assessed the levels of the school in the dichotomous manner and with all three levels (elementary, middle, and high) to determine if either approach yielded a statistical difference in teacher attrition and the mentor model employed. As evidenced in the table, the teacher attrition intercept was significantly different from zero ($\beta_{00} = 11.23$, (df=37), $p < 0.001$). This means the average initial teacher attrition rate for all schools was 11.20%. The level coefficient of the school ($\beta_{01} = -1.68$, (df=34), $p < 0.202$), the setting ($\beta_{02} = 1.39$, (df=34), $p < 0.451$), and the FARM rate ($\beta_{03} = -0.03$, (df=34), $p < 0.638$) were all found to be non-significant. Since the p-values were greater than 0.05 there is no level of significance. This indicates there were no effects in the teacher attrition due to the mentoring model based on the level of the school (elementary or secondary, the setting of the school (urban or rural), or the FARM rate of the schools.

Table 3.8: Final Estimation of Fixed Effects Level 2 Variables with Dichotomous Level (elementary and secondary)

Fixed Effect	Coefficient	Standard error	t-ratio	Approx <i>d.f.</i>	<i>p</i> -value
For INTRCPT1, π_0					
INTRCPT2, β_{00}	11.234019	0.952151	11.799	34	<0.001
LEVEL2, β_{01}	-1.677141	1.288462	-1.302	34	0.202
TYPECODE, β_{02}	1.385728	1.817744	0.762	34	0.451
FARMSAGG, β_{03}	-0.024598	0.051778	-0.475	34	0.638
For MENTORIN slope, π_1					
INTRCPT2, β_{10}	0.018220	0.996957	0.018	37	0.986

Note. MENTORIN, LEVEL2, and TYPECODE were entered uncentered; FARMSAGG was entered grand-mean centered.

In support of the previous findings, the researcher also completed the analysis looking at the school levels as elementary, middle, and high. While the majority of the findings in Table 3.9 mirror Table 3.8, it also assessed the impact of the teacher attrition at the middle and high school level. As reflected in Table 3.9, the middle school coefficient ($\beta_{02} = -1.63$, (df=33), $p < 0.305$) and the high school coefficient ($\beta_{03} = -1.74$, (df = 33), $p < 0.316$) did not significantly impact teacher attrition based on the mentoring model employed.

Table 3.9: Final Estimation of Fixed Effects Level 2 Variables with Elementary, Middle, and High.

Fixed Effect	Coefficient	Standard error	t-ratio	Approx d.f.	p-value
For INTRCPT1, π_0					
INTRCPT2, β_{00}	11.229520	0.952158	11.794	33	<0.001
TYPECODE, β_{01}	1.390134	1.819924	0.764	33	0.450
MIDDLE, β_{02}	-1.628933	1.561714	-1.043	33	0.305
HIGH, β_{03}	-1.741819	1.712212	-1.017	33	0.316
FARMSAGG, β_{04}	-0.024941	0.052135	-0.478	33	0.636
For MENTORIN slope, π_1					
INTRCPT2, β_{10}	0.018033	0.996958	0.018	37	0.986

Note. MENTORIN, MIDDLE, HIGH, and TYPECODE were entered uncentered; FARMSAGG was entered grand-mean centered.

Data Analysis Summary

This data analysis did not support the hypothesis that a change in mentor model would lead to a lower teacher attrition rate. While there was a decrease in teacher attrition across all three school levels and all schools combined in the LEA during the last year of the study, the decreases were not significant when compared to previous years with the county-wide mentor model in place. Therefore, the study reflected no change in teacher attrition across the schools in the LEA when the role of mentoring was shifted to the school-based mentors. It would also support there was no significant difference in attrition based on the FARM rate, the setting (rural or urban), or the level of the school (elementary, middle, or high).

Chapter IV Discussion

Primary Research Question

School systems are seeking any practices or efforts that will enhance teacher retention and minimize the “revolving door” of teacher attrition. In an effort to address this ongoing national problem, this study focused on the impact of a county-wide mentor model (2007-2012) and a site-based mentor model (2012-2013) to determine if teacher attrition was impacted within a LEA. Teacher attrition was defined as teachers who departed the individual school buildings over time; this included teachers who were leavers (departing the district, profession, or retiring, etc.) or teachers who were movers (transferring to another school within the LEA). The study revealed no significant change in teacher attrition when the two models were employed.

To assess the findings it is important to review the longitudinal data of leavers within the LEA. As the research clearly reflected in prior chapters, there are numerous reasons for teacher attrition as it varies from person to person and school to school. These fluctuations were obvious as the aggregate data was charted in Graph 3.3. The impact of confounding variables is evident as it is clear to see attrition rates varied greatly, often times almost erratic even when supported with the same mentoring model. This data supports why it would be difficult to determine a significant impact from the mentoring model on teacher attrition.

In addition to the fluctuations in data, it is also important to recognize this study was assessing teacher attrition in a system that already had an established mentor program. In comparison, this system was already significantly below the national attrition rate that is currently in excess of 15% annually (Institute of Education Science, 2014, p. 6). In the state of Maryland, the LEA studied ranked tenth out of twenty four systems with a teacher attrition rate approximately five percent in 2010-2011 (Education, 2012, p. 31); unlike the aggregated data in

this study, this five percent does not include teachers who transfer from school to school within the LEA.

The internal transfers in the aggregated data is an extremely important variable. For example, when the aforementioned five percent teacher attrition rate is subtracted from the determined 11.04% teacher attrition for the corresponding year in the LEA, it means an excess of six percent of the attrition was due to teachers who transferred schools within the same LEA. As referenced in Table 1.2, Maryland Staffing Reports do not actively monitor movers that are internal transfers within a district or within the state, providing substance to the perception that internal transfers or district transfers are preferred over teachers departing the field. However, Chapter I clearly reflects teachers departing from schools have significant implications on the cohesiveness of the school, the climate, and professional development efforts. Understanding there are many large school systems with fluid internal transfer processes, this data truly encourages LEA's to assess their practices to determine the impact of internal transfers in their district.

While the data may have shown there was no significant impact from each mentor model on teacher attrition, it was still very informative. In addition to providing insights regarding fluctuations and the impact of internal transfers, the data also showed a significant decline at all three levels in teacher attrition the last year of the study. Understanding a limitation of the study was the limited data (two years) for the lead teacher mentor model suggests the plausibility of this limitation impacting the results prior to a definitive outcome regarding the two mentor models. Further studies should be conducted prior to any final determinations regarding the impact of site-based mentoring as it clearly did not negatively impact teacher attrition either.

Supplementary Questions

The related questions were developed to determine if teacher attrition varied across the two mentor models based on building variables inclusive of the level of the school (elementary, middle, or high), the poverty rate of the school (based on the FARM rate), or the setting (urban or rural). As established in prior chapters and current research, teacher attrition rates are typically elevated in elementary schools, urban schools, and schools with higher poverty rates (Borman & Dowling, 2008, p. 396). While this study showed there was no significant difference due to these variables across either mentor model, the research did reflect some interesting anomalies or points rationalizing further exploration.

The level of the school was explored in a dichotomous manner with elementary and secondary and also with three levels (elementary, middle, high schools). As reflected in Chapter III, the level of the school did not impact the different mentoring models irrespective of how the levels were analyzed; however, the level of the school did reflect some specific findings. As previously stated, elementary schools typically have higher attrition rates and Graph 3.3 supports that finding for the first years of study, specifically under the county-wide mentoring model as elementary schools showed higher attrition rates when compared to the middle and high school levels. As the study progressed and specifically for the last two years, elementary schools deviated from the norm and had the lowest attrition rate, ending the study with an average of 8.86% attrition (Table 3.2). Another unexpected finding was the consistent fluctuations across all levels in teacher attrition. For example, Graph 4.1 shows teacher attrition dropped significantly across all three levels from 2007/08 to 2008/09 and from 2012/13 to 2013/14, but significantly rose across all three levels 2010/11 to 2011/12. This consistency across all three levels would tend to support there are specific factors that have the capacity to have system wide

effects and would extend most research supporting teacher attrition is primarily "...influenced by various personal and professional factors that change across teachers' career paths" (Borman & Dowling, 2008, p. 367). Instead, this data would indicate there were system-wide events or decisions that were directly influencing teacher attrition; unfortunately, the data does not support the system-wide variable was the type of mentoring employed.

The study also assessed the impact of the mentoring model based on the schools' FARM rate and setting. The data deviated from norms as the teacher attrition rate did not seem to favorably or negatively respond to the poverty rate. Specifically, Table 3.3 illustrates the poverty rate/FARM rate increased 9.61% over the course of the study; this is a 25% increase in poverty from its lowest point at 37.85%. Deviating from prior studies, the teacher attrition rate was at one of its lowest points when the FARM rate was at one of its highest points in the last year of the study 2013/14. Perhaps these findings deviated due to the unique setting of the LEA. As referenced in Chapter II, this LEA is one urban area surrounded by several rural districts, and as previously illustrated the internal transfers exceeded the attrition rate of the LEA. In this district, internal tenured teachers are assured an interview for any internal teacher opening they wish to consider for transferring. While this study did not differentiate the type of leavers, it is plausible that teachers transfer from urban schools at a rate close to the retirement rate from the rural schools. Additional studies should disaggregate the teacher "leaver" data to include retirees and teachers who depart the local LEA to better assess the impact of the FARM rate on movers and leavers.

The HLM analysis showed there was no significant relationship between teacher attrition and the Level 2 variables of level, poverty rate, and setting. The descriptive data did show some significant trends that deviate from prior research and findings. In addition to the attrition data

consistently changing across all levels, the poverty rate and setting seem to have little to no effect on teacher attrition across the system. This data definitely supports the findings of Ingersoll (2001) who consistently recommended continued research on teacher attrition at organizational levels to develop pro-active measures that can enhance teacher retention. It seems plausible the variables influence teacher attrition not only vary teacher to teacher, school to school, but also LEA to LEA.

Limitations

This study was limited to analyzing the teacher attrition rate of one local education agency (LEA) with two mentor models. It did not assess the attrition rates of other LEAs or compare the mentoring models to other districts in the state of Maryland. Furthermore, the external mentor model was assessed for five years, while due to the recent transition the internal mentor model was only assessed for two years.

Due to the design of this study, the research does not prove absolute causal relationship between the mentoring model and teacher attrition. While this is a longitudinal study, there are many variables that impact teacher attrition. Since the unit is schools, this study only reviewed three other variables: the socio-economic status of the school as measure by the free and reduced meal rate, the setting of the school (urban or rural), and the level of the school (elementary, middle, and high). Anyone employing this study to make generalizations should consider other factors such as the turnover in leadership, new initiatives, legislation, and the intricacies of the mentor program.

There are numerous confounding variables to consider with this study. During the course of this study, this system underwent many changes that could affect teacher attrition. For example, in the past seven years the system adopted new student information systems,

implemented new grading systems, adopted the new Common Core Curriculum, employed the Charlotte Danielson Framework for Teaching evaluation system, and adopted a new evaluation system inclusive of Student Learning Outcomes and student achievement data. Each of these said processes have the capacity to transform teacher practices and thereby have the potential to influence teacher attrition. These numerous variables were not considered in the longitudinal data that was analyzed in the multilevel model.

In addition to the confounding variables, the internal transfer of teachers was aggregated with all teacher attrition data. As an LEA that is a countywide system, tenured teachers and non-tenured teachers are afforded the opportunity to voluntarily transfer to posted teaching vacancies for the upcoming school year as agreed upon in the local Negotiated Agreement. While their reassignment must be supported by receiving principal and human resources, transfers within this school's system are an anticipated norm and quite prevalent.

This study defines the attrition rate as all teachers who depart the school prior to the next academic school year. The rationale behind the individual departure is not assessed or analyzed. It is rational to believe some staff may depart irrespective of favorable interventions such as mentoring and quality professional development. While the multilevel modeling should minimize the impact of these departures, staff departing for reasons such as promotional opportunities, family obligations, or relocations are part of the study and should not carry negative implications with regard to teacher attrition.

Implications for Future Research and Recommendations for Practice

As with the majority of research, this study accentuates the need for further research about the two models of mentoring. The two most significant limitations were the study being limited to one LEA and the lead teacher mentor model only having two years of implementation. While the data did not show the mentoring model had an effect on teacher attrition, the last year of the study definitely invokes the need for further research as all three levels of schools reflected a noticeable decline in teacher attrition. Since the lead teacher model did reflect a decline in an LEA that already hosted a very low attrition rate, it would be worthwhile to analyze the lead teacher model in a comparative study on a district with no mentoring program for an extended period of time. Other studies focused on school-based mentors should also seek to assess the impact of the mentor model on teacher attrition with more points in time.

In addition to an extended study, deeper research could focus on the implementation of the two models of mentoring. As a principal in the system studied, the researcher is cognizant that no formal training was provided to guide principals with the school-based mentor model. There is also a concern that since the school-based mentors were hired as a redefined position, the mentors were being tasked for prior non-related efforts. The concern of ill-prepared principals and school-based mentors being tasked with irrelevant “duties as assigned,” is why some experts recommend a full-time central deployment to ensure mentor time is safeguarded and consistent with the goal of the position (Moir, Barlin, Gless, & Miles, 2009, p. 110). Any future study would benefit greatly by taking time to assess the definition of the mentor position, the training of those guiding the mentors, and how the mentor time is formally scheduled and safeguarded.

This study also reinforced the findings of Ingersoll (2003) who promoted further research in pro-active system-wide efforts to support teacher attrition. The consistent decreases and increases in teacher attrition across all levels in specific years truly provide hope there are additional steps systems can employ to enhance teacher attrition. Future research could explore attrition trends across LEAs to determine the variables that were system-wide during acceleration or deceleration points in attrition. This research would be of great benefit in guiding systems how to implement changes or adjust to variables that may significantly impact teacher attrition.

As with the majority of prior research, this study showed that in this LEA an excess of fifty percent of attrition in one year was due to internal transfers within the LEA. This is consistent with Table 1.1, as the ongoing trend has been approximately 50% of teachers are leavers and 50% of teachers are movers. Based on the findings in this study, it could be argued that many policies or Negotiated Agreements are fueling or indirectly promoting teacher attrition within the LEA. This practice could be rationalized as a way to provide teachers more internal options in lieu of them choosing to leave the system; however, opening up an internal transfer process to every employee every year could also host negative effects and be counter-productive at the school level. Further research could explore how larger districts are supporting the internal transfer process while at the same time creating policy and practices to minimize teacher attrition.

Another recommendation for future study is to better assess the role of the principal in conjunction with the mentor in the mentoring process. Research continues to emphasize that support in the form of collaborative teacher opportunities and principal guidance is the most influential factors to a novice teacher (Kapadia, Coca, & Easton, 2007, p. 38). In addition to principals being ill-prepared, they must be engaged in the mentoring process as the evaluators

and instructional leaders of the building. Assessing the impact of the principal in the mentoring role would provide building leaders direction as to how they can best support new teachers. After all, teachers and principals must both attain success if student achievement is to be maximized in any educational community.

Researchers considering replicating this study should more deeply disaggregate movers and leavers to promote a better understanding of the Level II building interactions. This study would have benefitted by clearly disaggregating the teacher attrition data to determine the percent of internal teacher transfers, teachers departing the local LEA, and teachers retiring. Additionally, it would be helpful to analyze interactions between the building-level characteristics and the dimension of change over time. This data would extend the implications of teacher attrition based on the level of the school, the setting, and the FARMS rate. Approaching the study in this manner would provide better trend data to inform LEAs of the impact of teacher attrition in conjunction with retirements and the internal teacher transfer processes; all of these processes have shown to significantly impact teacher attrition.

Summary

This study illustrated there was no significant effect on teacher attrition when an LEA employed a county-wide mentor and a school-based lead teacher mentor. The study did rationalize the need for additional research as time with the lead teacher model was a limitation and there was a substantial decline in teacher attrition the last year of the model. The research also determined that teacher attrition in each mentoring model was not significantly impacted based on the level of the school, the setting of the school, or the poverty level. While these variables did not have a significant impact, they did produce some anomalies when compared to prior research. This included the poverty rate for the county growing in excess of 25% over the

course of the seven year study; however, teacher attrition was at its lowest points often when the poverty rate was highest. The data also showed consistent accelerations and decelerations in teacher attrition during specific school years. Unlike prior research, this would give support to the belief that systemic variables greatly impact teacher attrition and perhaps at a higher rate than previously perceived.

It is important to note the district assessed already had a well-established mentoring program, and teacher attrition was not only well below national averages, but was also one of the lower rates in the state of Maryland. Understanding the attrition rates as measured by this study reflect internal transfers or movement from school to school within the LEA, when these and retirements are removed, the attrition rate of this district is quite an accomplishment. It is this researcher's hope that further studies will explore mentoring as recommended in *Future Research* and districts, especially larger systems, will assess their current internal transfer process to determine best-practices to minimize school-level teacher attrition for the betterment of student attainment and the advancement of the educational community.

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