

UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

**THE IMPACT OF THE FOUR-DAY SCHOOL WEEK, DISTRICT FINANCIAL
DECISIONS, AND CHARACTERISTICS ON TEACHER RETENTION**

A DISSERTATION

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the

DEGREE OF

DOCTOR OF PHILOSOPHY

By

CHANNA BYERLY

NORMAN, OK

2019

**THE IMPACT OF THE FOUR-DAY SCHOOL WEEK, DISTRICT FINANCIAL
DECISIONS, AND CHARACTERISTICS ON TEACHER RETENTION**

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

BY

Dr. Jeffrey Maiden, Chair

Dr. Howard Crowson

Dr. Gregg Garn

Dr. John Jones

Dr. Gracie Branch

**© Copyright by CHANNA BYERLY 2019
All Rights Reserved**

ACKNOWLEDGEMENTS

There are so many people to thank that have helped me during this process. I could never thank each person enough that had a part in this journey, but know you share in this accomplishment.

I would like to first thank my committee. There are not enough words to express my gratitude towards each one of them; Dr. Jeffrey Maiden, Dr. Howard Crowson, Dr. Gregg Garn, Dr. Gracie Branch, and Dr. John Jones. Each one of you provided time, knowledge, and great insight into my research. Dr. Crowson, thank you for your guidance, patience, and knowledge on performing an HLM. I am forever grateful to my committee chair, Dr. Maiden. He went above and beyond through this whole process to assist me. Without your guidance, I would not have accomplished this goal. I would also like to thank Patty Kirk for so patiently working with me through this process.

I began this journey in a cohort with many great educators. They have provided me with excellent support, endurance, encouragement, and many laughs throughout my educational endeavors. I have been a part of a strong group of women from Duncan that were pursuing the same dream. We are all in this together and we will all finish. Also, a big thank you to my friends and colleagues at Duncan Public Schools. You have been patient and supportive through this whole process. I would also like to thank Tammie Reynolds, “my twin” as Dr. Maiden refers to us, I would not have survived the last year without you pushing me and encouraging me to finish!

Thank you to my parents and extended family for the many prayers and support along this journey. You instilled in me that I am capable of accomplishing anything I set my mind to and for that I am forever grateful.

Some of my biggest supporters have been my boys. Cord and Keeton, this degree is for you. Your encouraging letters and spoken words of love and support every step of the way have motivated me to finish. I owe so much to both of you. I hope one day you will realize that through sacrifice and determination any goal you set can be accomplished.

Finally, to my husband, Matt, thank you for your love, continual understanding, and always finding ways to make me a better person. This degree is just as much yours as it is mine. You have helped in more ways than I can mention. I love you for your constant support during these last few years and always.

TABLE OF CONTENTS

CHAPTER ONE: INTRODUCTION.....	1
Purpose Statement.....	1
Background of the Problem	1
Statement of the Problem.....	3
Problem in Context	3
Research Questions	7
Significance of the Study	7
Assumptions.....	8
Limitations	8
Definitions	9
Summary.....	12
CHAPTER TWO: LITERATURE REVIEW.....	14
The Importance of Teachers	14
Teacher Retention	17
Teacher Salaries.....	21
Extra Duty Pay	28
Instructional and Support Resources.....	29
Administrative Per-Pupil Expenditures	31
Class Size.....	32
Proximity	33
Rural.....	33
Four-Day Week	36

Summary.....	40
CHAPTER THREE: DESIGN OF THE STUDY	40
Research Questions	42
Target Population and Sample	46
Description of Variables.....	46
Data Collection.....	50
Data Analysis	51
Summary.....	54
CHAPTER FOUR: RESULTS	55
Research Question 1:.....	65
Research Question 2:.....	66
Research Question 3:.....	70
Summary.....	71
CHAPTER FIVE: FINDINGS, CONCLUSIONS, & RECOMMENDATIONS.....	73
Summary of the Study Findings	76
Research Question 1 Findings Summary.....	76
Research Question 2 Findings Summary.....	78
Research Question 3 Findings Summary.....	82
Conclusions.....	83
Recommendations for Future Research.....	85
Implication for Policy and Practice.....	86
Summary.....	87
REFERENCES	89

LIST OF TABLES

TABLE 3.1 VARIABLE TYPES AND LOCATION OF DATA	51
TABLE 4.1 UNSTANDARDIZED REGRESSION COEFFICIENTS, VARIANCE COMPONENTS, AND MODEL FIT SUMMARIES FOR HLM MODELS	60
TABLE 4.2 MODEL DIMENSION	62
TABLE 4.3 ESTIMATES OF COVARIANCE PARAMETERS	63
TABLE 4.4 INFORMATION CRITERIA	64
TABLE 4.5 ESTIMATES OF FIXED EFFECTS LEVEL 1- FOURDAY	65
TABLE 4.6 ESTIMATES OF FIXED EFFECTS, LEVEL 1, FOUR-DAY MEAN	65
TABLE 4.7 ESTIMATES OF FIXED EFFECTS, LEVEL 2, FOUR-DAY MEAN	66
TABLE 4.8 ESTIMATES OF FIXED EFFECTS, LEVEL 1, TIME-VARYING VARIABLES	67
TABLE 4.9 ESTIMATES OF COVARIANCE PARAMETERS	67
TABLE 4.10 ESTIMATES OF FIXED EFFECTS, LEVEL 1, TIME-VARYING VARIABLES MEAN	69
TABLE 4.11 ESTIMATES OF FIXED EFFECTS, LEVEL 2, TIME-VARYING VARIABLES MEAN	70
TABLE 4.12 ESTIMATES OF FIXED EFFECTS, LEVEL 2, TIME-INVARIANT VARIABLES	71

ABSTRACT

This study is a non-experimental quantitative design exploring teacher retention in Oklahoma by looking at variables including district level decisions and characteristics. The population in the study included 521 public school districts. This study has been broken into two distinct data analysis phases using hierarchical linear modeling to measure the relationship between the study predictive variables and teacher retention. The first analysis was conducted using time-varying variables at the district-level. The second phase of the analysis was conducted using time-invariant variables. Data were collected over a five-year time period, 2013-2017. This study found statistically significant relationships between higher teacher salaries, instructional and support resources, and proximity of the district to teacher retention. In addition, the study indicated a four-day workweek, administrative expenditures, and percent of economically disadvantaged students were significantly and inversely related to teacher retention.

Keywords: Teacher Retention, Turnover, Oklahoma Teachers, Four-Day Work Week, Teacher Salaries, Class Size, Administrative Per-Pupil Expenditures, Instructional and Support Per-Pupil Expenditures, Economically Disadvantaged Students

CHAPTER ONE

INTRODUCTION

Purpose Statement

One of the primary purposes of school districts is to ensure learning for all children, and having high-quality teachers in every classroom is necessary for this to happen. The overall goal of a school district is to not only recruit quality teachers but retain those same quality teachers while being fiscally responsible. The purpose of the current study will be to examine district fiscal decisions, particularly the four-day instructional week that may increase the likelihood of teacher retention. Districts could use the current study when considering fiscal decisions that relate to staffing and supporting their teachers. Although this is a problem across the nation, the focus of this study is Oklahoma, which provides a pressing case for this work due to the increasing severity of the teacher shortage (Oklahoma Policy Institute, 2017).

Background of the Problem

One of the most critical policy issues in education today is the attraction and retention of good teachers (Hanushek & Rivkin, 2006). In 2005, a study including over twenty-five countries listed concerns about retaining effective teachers:

- Some countries experience high rates of teacher attrition, especially among new teachers;
- Teachers express concerns about the effects of high workloads, stress, and poor working environments on job satisfaction and teaching effectiveness;
- There are only limited means in most countries to recognize and reward teachers work;
- Processes for responding to ineffective teaching are often cumbersome and slow

Many countries face the same issues of higher expectations and demands but resources not able to keep up. Declining teacher's salaries remains one issue that stays consistent across the countries (OECD, p. 4, 2005).

In 2017, more than 100,000 classrooms across the United States were staffed by teachers who were unqualified to teach (Carver-Thomas & Darling-Hammond, 2017). This number does not include the thousands of districts who cannot find teachers to fill the other vacant positions. This costly problem continues to drain school districts' public tax dollars, compounding overall funding issues. The lack of adequate educational funding is a significant problem across the United States (Leachman, Albares, Masterson, & Wallace, 2016). Low per-pupil spending often translates into larger class sizes, fewer available resources, and less money for professional development. Teachers in these districts often feel unable to perform with the lack of adequate resources (Pogodzinski, 2014). Many districts that are strapped for available funding also have fewer human resources to provide sufficient support for teachers in the profession.

Over 26,000 schools exist in rural areas in the United States, and these schools educate almost ten million students (Rural schools, 2007). The reality for most of these rural districts is not only the struggle to find teachers, but making do with a less than qualified teacher (Amazake & Reschovsky, 2003; Monk, 2007). One reason, rural school districts struggle with teacher recruitment is teacher salaries traditionally are behind the salaries in most urban and suburban school districts (Bundt & Leland, 2001). These districts are faced with many challenges, including limited budgets due to modest tax bases. The deficits related to these budgets include limited revenue from business and retail sources; higher transportation cost; a lack of taxable property base; limited support for schools (bonds) through local tax increases; and limited employment opportunities within the community (Dayton 2003; Mathis, 2003). This creates

even more massive recruitment and retention problem for rural school districts. In an attempt to recruit and retain teachers, many districts across the nation have attempted several different strategies. Varying district level financial decisions could affect teacher retention.

Statement of the Problem

The underlying focus of any organization is to recruit, retain, and motivate the workforce. If school districts are to guarantee every student graduates college and career ready, they must change the way we look at recruiting and retaining teachers. Teacher turnover is a national ongoing concern and creates multiple problems for school districts (Darling-Hammond, 2003). High teacher turnover rates in schools have been shown to impact student achievement negatively for all students in a school; disrupt the quality and stability of the school community, and cause significant financial deficit (Adnot, Dee, Katz, & Wyckoff, 2017; Darling-Hammond, 2018; Hanusheck, 2010; Ingersoll, 2001; National Commission on Teaching and America's Future, 2016; Monk, 2007; Ronfeldt, Loeb, & Wyckoff, 2012;). In addition, the leading causes of dissatisfaction for teachers who leave a district or the profession are low salaries, lack of administrative support, and training (Ingersoll, 2001; Watson, 2001).

Problem in Context

The state of Oklahoma is facing numerous funding challenges in education, and these challenges extend to retaining qualified teachers. The state currently has 525 school districts. Over 70 percent of these districts are considered rural. Since 2008, state aid funding has fallen by \$213 million, while public school enrollment has increased by nearly 40,000 students (Oklahoma State Department of Education, 2018). Growing enrollment topped with decreased funding has caused the state per-pupil expenditure to drop to \$8,075 in 2018 and ranks Oklahoma 49th in the nation and last in the region. With increasing enrollment, the state has experienced growth in

different student populations. Since 2009, economically disadvantaged student numbers have increased by 88,665, bilingual students by 31,948 and special education by 14,208. Studies have shown that these areas are the most difficult positions to fill and keep and they require additional funding to provide adequate support for learning (Oklahoma State Department of Education, 2018).

Since 2008, per-pupil funding for K-12 education in the state has been cut by 24.2% and alarmingly continues to decrease (Oklahoma Policy Institute, 2016). These devastating cuts over the past couple of years tied to the ongoing lack of adequate funding for the past ten years have left the state's education system in a state of crisis. The state not only fails to adequately fund education it is also ranked 49th in the nation for teacher compensation (National Education Association, 2017), and Oklahoma ranks last in regional pay. The low pay is the reason many educators are exiting the state to teach in surrounding states. Compared to other states, Oklahoma teachers are paid 15% less per year (Lepine, 2015). Since 2010, the average teacher salary has dropped more than \$7,500 (Oklahoma Policy Institute, 2016). The teacher pay scale has not increased since 2008.

In 2016 State Superintendent of Public Instruction, Joy Hofmeister stated, "The teacher shortage is at a point of crisis. Emergency certifications continue to skyrocket, and class sizes continue to increase. Until we can attract and retain teachers in our state, education will suffer." Hendricks (2016) found: Oklahoma teacher pay is falling further behind; Oklahoma is seeing increased teacher attrition and declining teacher experience; low-income students are most affected by the teacher shortage; teacher experience matters for student achievement; and paying teachers more will help recruit and retain teachers. Hendricks further discovered that "among new teachers in Oklahoma, about 35% exit their school after the first year on the job. About 29%

of new teachers exit their district and about 17% exit the Oklahoma public school system altogether after their first year on the job” (p.6).

The state has reached crisis status. The State Department of Education released a few alarming statistics: (1) 11 out of 100 teachers leave the state or the profession every year, (2) 17 percent of new teachers leave the state or the profession every year, and (3) 10 percent of Oklahoma teachers with a decade of experience leave the state or the profession every year (Oklahoma State Department of Education, 2018). In 2019, the State Department of Education has approved 2,852 emergency certifications for individuals who do not have a degree in teaching or any experience in a classroom (Oklahoma State Department of Education, 2018). In the midst of a teacher shortage, schools are turning to teacher’s assistants and paraprofessionals to help fill the gap with a 13 percent increase since the fiscal year 2011 (Oklahoma Budget Hearing Presentation, 2018).

Due to the poor educational fiscal climate in Oklahoma, many schools cannot offer monetary incentives to their teachers; and therefore, are compelled to be more fiscally creative. Some school districts in the state of Oklahoma are shifting to a four-day work week as a recruitment tool for teachers, even after the State Superintendent of Education has taken such a strong stance against this practice (Oklahoma Policy Institute, 2015). Historically, small, rural schools switch to a four-day work schedule for the purpose of saving money (Plucker, Cierniak, & Chamberlin, 2012). Rural schools are particularly attracted to a four-day schedule because, during times of financial crisis, their budgets are typically reduced significantly. Rural districts usually offer lower salaries than urban districts creating difficulty in recruiting high-quality teachers (Jimerson, 2005). “The real reason why so many school districts are resorting to a

shortened calendar is that it is the only true perk they can offer to poorly paid teachers” (Reuters, 2017).

One Oklahoma Superintendent summarized the belief among many other district leaders by claiming that implementing, a four-day week is “really an experiment in recruiting and retaining teachers.” She mentioned when teacher pay is substandard, “being able to give someone an increase for the work that they do, you have to find other ways to make the job worthwhile” (Wender, 2015). In Oklahoma, 47 counties have a district with a four-day school week, which equals 20% of all school districts (Oklahoma State Department of Education, 2018). A four-day work week in districts means one day of the week the school is closed. There is some argument the use of a four-day week may be harmful to the education of children; yet there is minimum research over four-day work weeks and the impact it has on student achievement (Donis-Keller & Silvernail, 2009). One study suggests there is little evidence a four-day week compromises student academic achievement compared to a traditional five-day week (Anderson & Walker, 2015). There is even less research to determine if utilizing a four-day work week affects recruitment and retention of teachers in that district.

Teacher turnover has been shown to be higher in rural school districts, and these districts have additional difficulty in hiring highly qualified teachers (Rees, 1991; Monk, 2007). This creates a bigger problem for the state of Oklahoma, given 70 percent of Oklahoma school districts are considered rural. Over forty-five percent of all teachers in the state of Oklahoma are classified as unqualified, new teachers or inexperienced with three or fewer years of classroom experience (Oklahoma Equity Plan, 2018). In a state where budgets have been cut and student enrollment is continuing to increase the concern for losing teachers is even more magnified.

Districts in Oklahoma are continuously looking at ways to retain teachers when they are limited with their resources.

Anecdotally and intuitively, the use of the four-day instructional week is attractive to some educators, and therefore may lead to higher levels of teacher retention. Yet the link between the use of the four-day week and retention has not been examined empirically.

Research Questions

This study would answer the following overarching research question: To what extent if any do varying district-level fiscal decisions and demographic characteristics affect teacher retention?

1. Is there a relationship between district teacher retention and the adoption of a four-day instructional week?
2. Are there relationships between district teacher retention and district fiscal decisions and characteristics (including instructional and support expenditures per pupil, administrative expenditures per pupil, average teacher salaries, extra duty pay, including percent economically disadvantaged students, and average district class size)?
3. Are there relationships between a district's teacher retention and its district characteristics (whether a district is rural or nonrural, its proximity to a bordering state, and whether charter or noncharter)?

Significance of the Study

Over the past ten years, Oklahoma has lost substantial funding to education. The severe financial times that have fallen on the state have negatively affected school districts and have contributed to a shortage of teachers in the state (Oklahoma Policy Institute, 2017). In such difficult financial times, districts must be intentional with every decision affecting student

achievement and fiscal responsibility. One way to accomplish both feats is by recruiting high-quality teachers and then retaining them. The outcomes of the current study could influence how districts make financial decisions regarding staffing and utilizing such funds to support and retain teachers. The current study seeks to determine which specific district decisions and characteristics have the highest impact on teacher turnover. The research could be beneficial for other school districts across the nation experiencing the same teacher loss. Given that many school districts around the U.S. are having to figure out ways to try to keep teachers and avoid the cost of teacher turnover, this dissertation will furnish empirical evidence of fiscal decisions that affect teacher retention and contribute to the limited body of current literature examining the effects of school district finance on teacher turnover in rural school contexts.

Assumptions

The research could have considered more variables for this particular study, if more time and resources were available that could eliminate all doubt of validity and reliability. This study assumes that the teacher retention data reported through the Oklahoma State Department of Education's (OSDE) personnel department is accurate. It also assumes that the Oklahoma Cost Accounting System (OCAS) expenditure reports are statistically accurate. Both of these reports are self-reported by local district officials to the OSDE. The researcher will attempt to produce an unbiased result, assuming that coding errors are fairly and randomly distributed across the districts in such a way it is not going to affect the results.

Limitations

One limitation of the current study was the minima data available. This study was based on one state, and the findings from this study cannot be generalized to other school districts that are not in Oklahoma. Another limitation is the expenditure and teacher retention data used in

this study were limited to five fiscal years 2013-2017. The coding of expenditures and retention data by each district are a limitation to this study. The use of the OCAS system is dependent upon Oklahoma educational leaders understanding the coding system and coding expenditure data correctly. The personnel report is also dependent on school district leaders coding teacher turnover correctly for each school year. Another limitation is the study does not make a distinction between retention of teachers and retention of effective teachers.

Definitions

Administrator

"Administrator" means a duly certified person who devotes a majority of time to service as a superintendent, elementary superintendent, principal, supervisor, vice principal or in any other administrative or supervisory capacity in the school district (Oklahoma Statutes Title 70. Schools §70-6-101.3.)

Administrative Per- Pupil Expenditures

District expenditures that include the sum of administrative salaries for the district superintendent, the building level principals, and the support staff for those offices. This amount is calculated by taking all administrative expenditures and dividing it by the district's student enrollment.

Average Teacher Salary

The total salary amount for each teacher includes only regular duties and does not include extra duty stipends. Each district's total teacher salary divided by the total teacher FTE (full-time equivalent).

Proximity

Border districts are districts in a county that borders a surrounding state. These states include Kansas, Missouri, Arkansas, Texas, Colorado, and New Mexico.

Class Size

This number is determined by the student enrollment divided by the full-time equivalency of the instructional staff assigned to each grade level by site.

Economically Disadvantaged

The percentage of a districts economically disadvantaged students is calculated as the sum of the students coded as eligible for free or reduced-price lunch or eligible for other public assistance, divided by the total number of students in that school district.

Extra Duty Pay

Extra duty pay is supplemental compensation that is tied to additional responsibility taken on by teacher, or for the supervision of an extracurricular activity.

Four-Day Work Week

Districts that have its employees or students work or attend school over the course of four days rather than the traditional five days per week.

Instructional and Support Per-Pupil Expenditures

District expenditures that include all instructional expenses and expenses that include support for a classroom. This amount is calculated by taking all instructional and support expenditures and dividing it by the district's student enrollment.

Non-Rural

For the purpose of this study, nonrural school districts will be a combination of all other school districts NCES classify other than rural.

Per Pupil Expenditures

According to the law 70 O.S. 1971 § 1-124:

“Per-pupil expenditure" shall mean the aggregate current expenditures of school districts, from all funding sources including federal funds, state funds and local funds, plus the direct support aggregate current expenditures of the state for the day-to-day operations of schools and school districts from all funding sources including federal funds, divided by the aggregate student membership number for the same fiscal year for which the expenditures are determined. The aggregate student membership number shall be the count of students enrolled on October 1 or the school day closest to October 1 to whom school districts in the state provide a public education.”

Rural

For the purpose of this study Rural will combine the NCES classifications of Rural Fringe, Rural Distant, and Rural Remote.

Fringe: Census-defined rural territory that is less than or equal to 5 miles from an Urbanized Area, as well as rural territory that is less than or equal to 2.5 miles from an Urban Cluster.

Distant: Census-defined rural territory that is more than 5 miles but less than or equal to 25 miles from an Urbanized Area, as well as rural territory that is more than 2.5 miles but less than or equal to 10 miles from and Urban Cluster.

Remote: Census-defined rural territory that is more than 25 miles from an Urbanized Area and also more than 10 miles from an Urban Cluster (NCES, 2018).

Teacher

Teacher" means a duly certified person who is employed to serve as a counselor, librarian or school nurse or in any instructional capacity; an administrator shall be considered a teacher

only with regard to service in an instructional, non-administrative capacity. (Oklahoma Statutes Title 70. Schools §70-6-101.3.). In this study a teacher will encompass all avenues to be certified which include the traditional certification requirements, alternative certificate, and an emergency certificate.

Teacher Turnover

This is the total FTE of teachers that left and did not return to the same school district the following year, divided by the total FTE.

Summary

Public school districts across the nation, particularly in the state of Oklahoma, are facing a retention problem. There is a significant problem with not only retaining teachers but recruiting top quality candidates into a school district especially in rural areas. Districts with limited resources are looking for strategic ways to recruit and retain highly qualified teachers.

In the following chapter, relevant literature pertaining to the importance of teachers on student achievement will begin the discussion of why retention of teachers is critical to the success of a school district. The related topics of teacher salaries; extra-curricular pay; instructional and support resources; administrative resources; class size; proximity; rural schools; and a four-day work week contribute to understanding the impact these variables may have on teacher retention.

This study will utilize a hierarchical linear model. This type of study allows for flexibility to specify relations across multiple levels. This study was designed to explore relationships across time that each independent variable may have on the dependent variable.

Knowing if differing variables affect district wide retention could be very beneficial to school administrators and policy makers who establish the funding for all schools. This information could influence the financial decisions district administration make each year.

CHAPTER TWO

LITERATURE REVIEW

Many issues continue to influence teacher retention across the United States. District level characteristics are decided locally, but influenced by state funding. Striving to reduce teacher turnover, districts must evaluate not only how they recruit, but the efforts they make in retaining high-quality teachers. Research validated the importance of a quality teacher in the educational process (Hanushek & Rivkin, 2006). Therefore, the overall efforts by school districts to retain teachers are vitally important because of the significant impact it has on the success of each student. The literature review focuses primarily on issues related to teacher recruitment and retention. The current study looks at a macro view of district-level characteristics that compares retention data over five years. This includes a synthetic critical discussion about factors that might affect retention, including instructional and administrative resources, class size, proximity, and rural schools. In addition, the related topics available for a four-day school week are included to contribute to understanding the potential impact this type of schedule has on teacher retention. These variables could have a significant influence on teachers' decisions to stay in a school district based on how that district recruits and supports teachers.

The Importance of Teachers

Teachers play essential roles in the lives of many young people within the academic environment, and the quality of children's education depends greatly on the quality of its teacher (Gardner, 2006). A teacher's influence impacts student's well-being within social and learning environments producing advancement in achievement (Dufour, Dufour, Eaker, & Karhanek, 2010). Teachers can play a significant role in helping the students to understand how to apply

critical thinking processes within the social and learning environments. Additionally, teachers influence social awareness to improve students' social behavior and self-awareness (McGrath & Noble, 2010).

Marzano (2010) stated that students could have meaningful experiences when they can connect to teachers who stimulate their excitement and engage them academically. Studies note that teachers who show a genuine interest and concern for the most hard-to-reach students' wellbeing and academic success led such students to give their best effort for those teachers (Bundick, 2011; Richards & Huppert, 2011). Many students' perceptions of their teachers come from different points of views, based on their academic performances and behaviors within the learning environment (Craven, 2011). A teacher's relationship with a student as well as a teacher's viewpoint and classroom approaches concerning his or her students have a monumental influence on student achievement (Bundick & Tirri, 2014; Chisholm, 2009; Springer, 2009).

Numerous studies show teaching experience correlate statistically with student's overall achievement (Darling-Hammond, 2003; Boyd, Grossman, Lankford, Loeb, & Wyckoff, 2006; Kini & Podolsky, 2016; National Commission on Teaching and America's Future, 1996; Rockoff, 2004; Sanders & Rivers, 1996). Students who are assigned to several ineffective teachers in a row have significantly lower achievement gains than those who are assigned to several highly effective teachers in consecutive years (Sanders & Rivers, 1996; Rowan, Correnti, & Miller, 2002; Rivkin, Hanushek, & Kain, 2002). As policymakers and school educators continue to debate compensation, it becomes clear that the role the teacher plays in student academic growth is a top priority (Marzano, 2010). The New Teacher Project, argues that "No school factor has a more significant impact on student achievement than the effectiveness of the teacher at the front of the classroom. Sustainable improvement will be possible only when

struggling schools keep more of their best teachers and fewer of their lowest performers (2012, p. 22).

Ronfeldt and associates (2012) observed over 6,000 fourth and fifth-grade students in New York City school districts over five years and found that students in classrooms with high teacher turnover scored lower in both English language arts and mathematics classes. They also determined that the adverse effect was more substantial in schools with low performing and minority students. Historically, low performing schools have higher turnover rates. Studies find that teachers leave schools with high percentages of poverty more often (Guarion, Brow & Wyse, 2011; Hanushek, Kain & Rivkin, 2004; Imazeki, 2005; Ingersoll 2001; Loeb, Darling-Hammond, Luczak, 2013).

Research data indicate the most substantial occupation opportunities in the nation since World War II are in the field of education (Ingersoll, Merrill, & Stuckey, 2014). However, nationwide districts are facing a staffing problem due to increased teacher turnover. Federal programs such as Teach for America and Troops-to-Teach are a few programs that have been started to attract candidates who did not initially pursue a degree in education. Across the nation, the teacher shortage crisis has led many states to adopt policies that lower teacher qualifications to fill openings, which has resulted in less qualified individuals, entering the teacher pool (Darling-Hammond, 2003; Borman & Downing, 2008). States also offer alternative placement programs as well as emergency certification in the attempt to recruit more individuals to the profession. In 2012, one in every four teachers entering the profession was through an alternative certification program (Podolsky, Kimi, Bishop, & Darling-Hammond, 2016); Redding & Smith, 2016). The nation is experiencing teachers with limited experience, less educational pedagogy, and limited funds to offer them adequate professional development to enable them to be effective

classroom teachers (Ingersoll, 2003). Turnover is significantly higher with teachers holding an alternative certification as opposed to teachers with a traditional certification (Boyd, Lankford, Loeb, Ronfeldt, & Wyckoff, 2011). Recruitment woes have reached a crisis nationwide (Sutcher, Darling-Hammond, & Carver-Thomas, 2016).

A growing body of research concerning teacher quality has demonstrated that preparation, qualification, and teaching practice lead to student achievement (Darling-Hammond, 2000; Ferguson, 1991; Laczko-Kerr & Berliner, 2002; Stronge, 2002). Studies of teachers staffed with less than full preparation, with no teacher preparation or through alternative routes have more significant difficulties managing the classroom, planning curriculum, teaching and identifying student's needs (Darling-Hammond, 1992; Darling-Hammond, Hudson, & Kirby, 1989; Grady, Collins, & Grady, 1991; National Center for Research on Teacher Learning, 1992). Darling-Hammond (2008) reported that underprepared teachers are more likely to leave the profession. In order for alternatively certified, underprepared, and inexperienced teachers to be successful and not leave after the first couple of years, districts need to ensure teachers are being supported once they are in the classroom. If steps are being taken only to recruit new teachers and not to grow them once they enter districts, the overarching problem of attrition is not being addressed.

Teacher Retention

Teacher retention is critical to the success of school districts (Hasegawa, 2011; Ingersoll, 2001). Researchers characterize teacher turnover as teacher mobility, teachers moving from one district to another and teacher attrition: teachers leaving the profession altogether (Ingersoll, 2001). Recruiting and retaining good teachers is perhaps another one of the most vital policy issues in education today (Hanushek & Rivkin, 2006). Nationally, from 1988 to 2008, student

enrollment increased 23 percent (National Center for Education Statistics, 2010), while the teacher turnover rate increased from 13 percent to 16 percent (Keigher & Cross, 2010). The underlying focus of any organization is to recruit, retain, and motivate the workforce. Several studies have indicated that 50 percent of newly hired teachers leave before their fifth year in the classroom, which is causing teacher attrition to gain significant attention as a looming problem in education (Ado, 2013; Boyd, Grossman, Ing, Lankford, Loeb, & Wyckoff, 2011; Djonko-Moore, 2016; Ingersoll, 2003; Ingersoll & Smith, 2003; Murnane, Singer, Willet, Kemple & Olsen, 1991; Phillips, 2015). Ingersoll (2001) variously refers to teacher turnover as a “silent crisis” (p. 3) and a “revolving door” (p.2). These issues will continue to increase as long as the current rates of retirement and turnover continue (Ingersoll, 2004). A teacher follow-up study has estimated that one-third of America's teaching force of nearly 3,500,000 teachers turn over every year (Ingersoll, 2001; National Center for Educational Statistics (NCES), 2001; National Commission on Teaching & America’s Future (NCTAF), 2003). According to a study by Gray and Taie (2015) of public-school teacher attrition and mobility in the first five years of teaching,

The percentage of beginning teachers who continued to teach after their first year varied by their first-year salary level. For example, 97 percent of beginning teachers whose first-year base salary was \$40,000 or more were teaching in 2008-2009, whereas 87 percent of those with a first-year salary less than \$40,000 were teaching in 2008-2009. Also, 89 percent of beginning teachers whose first-year base was \$40,000 or more were teaching in 2011-2012, whereas 80 percent of those with a first-year salary less than \$40,000 were teaching in 2011-12. (p.3)

Even more alarming studies are finding that younger teachers are leaving the profession at a rate of 51% faster than experienced, older teachers (Ermeling & Graff-Emerling, 2016). The

normal attrition rate generally follows a U-shaped curve, with the highest attrition rate reflected within the early years of a teacher's career, dropping during the middle years, and rising toward the late part of a teacher's career (Borman & Dowling, 2008; Ingersoll, 2004; Rinke, 2008).

While Ingersoll (2001) points out that teacher shortages are not new and have been standard since the 1950s, his initial research found that shortages were due to student enrollment increasing and teachers retiring. In further research he discovered that retiring teachers made up only a small percentage of the shortage compared to total teachers leaving the profession altogether.

Ingersoll (2003) states that teacher attrition is the more significant underlying problem. He bases his study on two perspectives the contemporary education theory and an organizational perspective. The former arguing that increased enrollment and increased retirement lead to the teacher shortage, which in turn creates school staffing problems. The organizational perspective contends that adverse organizational conditions lead to teacher turnover and other staffing problems that lead to a decrease in school performance. Ingersoll examines issues of teacher supply, demand, and quality from the perspective of an organization. School districts tend to focus primarily on the recruitment process, the supply of teachers. Ingersoll suggests that there needs to be a shift in a school districts' understanding of the teacher shortage problem; they need to concern themselves not only with recruitment, but also retention. In essence, "recruiting more teachers will not solve staffing inadequacies if large numbers of teachers continue to leave" (Ingersoll, 2001, p. 525). Or, as Merrow (1999) states, "The teaching pool keeps losing water because no one is paying attention to the leak" (p. 38). There is a large body of literature that finds that teacher attrition is higher in schools with low salaries, inadequate support from school administration, student discipline problems, limited staff input into school decision-making, and

lack of training (Boyd, Grossman, Ing, Lankford, Loeb, & Wyckoff, 2011; Cancio, Albrecht, & Johns, 2013; Ian, 2015; Ingersoll, 2001; Kersaint, Lewis, Potter, & Meisels, 2005; Liu & Meyer, 2005; Macdonald, 1995; Madsen & Hancock, 2002; Stinebrickner, 2001; Tye & O'Brien, 2002; Watson, 2001).

There are connections between teacher quality, the achievement gap, and the shortage of teachers (Darling-Hammond, 2010; McKinsey, 2007; Tucker, 2011). What does it take to ensure there will be a quality teacher in every classroom? There is the assumption this is accomplished by recruiting a highly qualified individual. However, research now shows that quality recruitment is not enough. To retain a quality teacher, many variables must take place in an attempt to support this teacher. Ingersoll (2001) argues that some level of turnover can be looked at as beneficial. However, high levels of turnover can undermine schools' culture... crippling schools and continually diverting scarce resources to recruiting and hiring when these funds can be better used in other areas of need (Darling-Hammond, 2018; Ingersoll, 2001; Ingersoll, 2004; Monk, 2004; Perrachione, Rosser, & Peterson, 2008).

Recruitment is undoubtedly important, however, the success of not only the schools' overall culture but also student performance depends upon the teachers that remain in the classroom. Tompkins and Beuchamp (2006) reported data on recruitment and retention identifying four major areas for recruitment: "salary, bonuses, and other financial incentives; targeted recruiting using scholarship, alternative licensing, and increased probability options; ways to connect prospective candidates to districts; and other initiatives unique to particular states" (p. 34). The initiatives identified for retention included: "salaries, salary supplements, career and performance pay plans, pay for additional training, induction and mentoring

programs, recognition programs, improvement in standards for preparatory programs, better working conditions” (p. 35).

Districts must be able to provide services to teachers once they recruit them to their districts; the additional services must provide adequate support to emerge them in the school's culture and expectations. The success of not only the schools' overall culture but also student performance depends upon the teachers remain in the classroom. Recruiting the brightest and top candidates rely heavily on research-based preparation programs in addition to providing relevant opportunities for professional development (Darling-Hammond, 2010; Barber & Mourshed, 2007; Tucker, 2011). There is a difference between what teachers learn in their college preparatory programs compared to what they experience in an actual classroom. However, teachers who complete college preparatory programs have more knowledge of classroom management than alternatively certified or emergency certified teachers (Darling-Hammond, 2010). Recent studies have found teachers who hold alternative certifications are more likely to leave than teachers who complete college preparatory programs (Body et al., 2011). This continues the cycle of turnover when unprepared teachers step in a classroom and feel discouraged and leave. Districts must create support systems that will assist with training that covers classroom and time management. The departure of an experienced, effective teacher, from the perspective of a school district, reduces the school's ability to do its work. Regardless of where departing teachers go, they take with them a level of expertise and an accumulation of knowledge of students, their parents, the school's curriculum, and practices (Johnson, 2006).

Teacher Salaries

The issue of teacher salaries is pertinent in connection to the discussion of teacher attrition, teacher retention, and job satisfaction (Behrstock-Sherratt, 2016; Leachman, Masterson,

& Figueroa, 2017). The conversation around teacher compensation has been ongoing with differing opinions. However, considering the most influential factor in compensation is funding, school districts are still trying to figure out how best to compensate the teachers they have while appealing to outside teachers more. In the 1980s, “A Nation at Risk” (National Commission on Excellence in Educational, 1983) reviewed America's education standards and encouraged reflection about teachers’ pay stating the following:

Salaries for the teaching profession should be increased and should be professionally competitive, market-sensitive, and performance-based. Salary, promotion, tenure, and retention decisions should be tied to a valid evaluation system that included peer review so that superior teachers can be rewarded, average ones encouraged, and poor ones either improved or terminated (p.26).

In 2000 during his State of Education address, former Secretary of Education Richard Riley stated, “I have concluded that we will never really improve American education until we elevate the teaching profession and come to grips with the issue of teacher compensation.” A year later, under President Bush’s educational reform birthed the No Child Left Behind Act (NCLB). This Act introduced state accountability systems, and the administration’s focus was that every child could learn. President Bush states “If we have learned anything over the last generations, money alone does not make a good school,” but “it certainly helps.” NCLB reform required a teacher to be “highly qualified” and staffed in every school. While this administration intended to ensure every child had a highly qualified teacher in the classroom, the request lacked the provision for the recruitment of teachers. How to implement these programs that ensured alternatively certified teachers became highly qualified created a burden and an additional challenge for school districts (Ingersoll & Kralik, 2004).

Increased salaries have been shown to influence the recruitment of teachers to new districts. Murnane and associates (1991), in a study that included data from Michigan and North Carolina, found teachers who received \$2,000 per year more than the state average were half as likely to leave teaching after one year than those who received \$2,000 less the average. The results of a National Education Association study in 2008-2009 showed that teachers with starting salaries above \$40,000 were more likely to continue teaching than those with lower wages. Imazeki (2005) used a data set from Wisconsin and finds that teacher retention is higher when salaries are higher.

Ballou and Podgursky (1997) performed a study that found higher salaries meant more applicants were applying for positions and a more substantial applicant pool for school districts. Raising salaries also creates less of a demand for teachers resulting from less attrition in districts. They determined that an across-the-board raise does not benefit schools efficiently and that there was no evidence that it improved teacher's effectiveness because it was rewarding all teachers at the same level. When the demand for new teachers is low, it delays any improvement in the current workforce. Unfortunately for these states, losing valuable teachers is a high cost to their educational systems, and low salaries continue to discourage possible teaching candidates from enrolling in teaching programs. Furthermore, teachers hired to replace the teachers who have left often do not have the same experience and qualification as their counterparts they are replacing (Darling-Hammond,2003).

Hough and Loeb (2013) performed a study that evaluated the effect salary increases had on teacher recruitment, retention, and overall teacher quality in the San Francisco area. The Quality Teacher Education Act of 2008 (QTEA) introduced an overall salary increase of \$500-6,300, a \$2,000 bonus for teaching in a hard-to-staff school, and retention bonuses to this district.

The study confirmed that higher salaries increase the attractiveness of the district, which created an expanded applicant pool. However, they also reported challenges with staffing their high-poverty schools. They determined that higher salaries may recruit a teacher to a school district, but that does not mean that the teacher will stay especially in more challenging schools. The overall results of this study should encourage districts to hire the best candidate, but then work just as hard to retain those quality teachers.

Hendricks (2014) performed a study of Texas teachers and found that increasing teacher pay reduces teacher turnover. The results showed that increasing salary showed a significant positive relationship in less experienced teachers and slowly declined with the teacher with more experience. Hendricks also contended that higher teacher retention rates provide an increased opportunity to develop relationships and bonds between students and teachers; therefore, showing a positive trend in student academic achievement.

Imazeki (2005) suggests teachers choose to leave their current positions only if their expected benefit from staying is lower than their alternative option. Studies of teacher turnover consistently find that high ability teachers are more likely to leave teaching than teachers of lower ability (Murnane & Olsen, 1990). Murnane and colleagues found that the difference in starting pay is significantly more abundant in other markets compared to education causing more prominent and talented applicants to seek other career opportunities. Their research also assumes that teachers who are already high performing will be high performing in other work markets as well. Ballou and Podgursky (1997) compared teacher recruitment and retention in public and private school. They found that although private school starting pay was lower than those of public schools, private schools were more successful at retaining teachers. Ballou and Podgursky posit the reason for better retainment was partly due to greater flexibility in

structuring pay, more supervision and mentoring of new teachers, and freedom to dismiss teachers for poor performance. They concluded that the use of accountability tools such as performance pay and the ability to quickly dismiss ineffective teachers would significantly improve the quality of public schools (1997). The Scholastic and Gates Foundation (2012) reported that salary is a crucial element to retaining effective teachers according to seventy-five percent of teachers surveyed. However, only a third of that number believe that performance pay would have a tremendous impact on student achievement, and even smaller percentage of teachers believe it is an essential factor in the retention of good teachers (Scholastic and Bill & Melinda Gates Foundation, 2012). Incentive plans that have not factored in working conditions will likely be considered unsuccessful in teacher retention. It does still stand that differential recruitment, and retention of more productive employees can be as necessary as performance gains attributed to the motivational response among workers (Lazear, 2000; Podgursky & Springer, 2007).

The cost of innovative incentives to encourage more highly qualified individuals to teach is an additional cost to most districts, but it could represent an investment and possible savings to some schools. Not only is it challenging for districts to fill open positions, but also the additional costs that come with attrition also add up quickly. Districts accrue significant financial costs associated with exit interviews and training new hires due to high turnover (Ondrich et al., 2008). An underlying problem dealing with teacher turnover besides how it affects students, is the costly effect it has on districts overall budgets. In the United States, every year districts spend anywhere from 2.6 billion to 7.2 billion on teacher turnover (Alliance for Excellent Educators, 2005; Ingersoll & Smith, 2003; NCTAF, 2009). Teacher replacement costs, “including expenses related to separation, recruitment, hiring, and training, can range from an average of \$9,000 per

teacher in rural districts to more than \$20,000 in urban” (Darling-Hammond, Carver-Thomas, & Sutchter, 2017, p. 1). The additional costs that districts incur because of turnover are only one of the problems they face. Instead of districts pouring money into turnover expenditures, they could use it to incentivize highly qualified teachers to stay invested in the district. Schools will have a harder time competing for talent in the future unless they have compensation policies that are in step with the needs and preferences of 21st-century workers (Committee for Economic Development, 2009).

Traditional compensation policies for teachers are not structured to encourage the best and most talented individuals to enter the teaching profession. Even more, traditional compensation is not designed to continue to reward them for reliable performance. School districts operate in different labor markets and have different needs, which should be reflected in local pay plans. A popular teacher compensation system is not just one that appeals to individuals currently attracted to teaching but also to other talented individuals who may initially never consider the profession because of its limited opportunities for pay. Each district is different, and therefore a one-size-fits-all compensation policy will not work. Each policy should be specific to the needs of the districts (Committee for Economic Development, 2009; Johnson & Papay 2009; Shields & Education Resource Services, 2013). Prostik (1996) states “compensation... serves more than the simple purpose of paying people for their time and hard work. Compensation systems communicate organizational desires to the employee” (p. 266). Over the past hundred years, the change in expectations put on teachers and the shift in funding to education has been the reason for changes that have shifted the structure of teacher compensation (Odden, 2000). There is evidence to suggest that teachers respond to compensation when deciding to become or remain a teacher (Reed, Rueben, & Barbour, 2006;

Springer & Taylor 2009). “If we want more highly qualified educators, we need to pay them more. This will increase their supply” (Schargel, 2003, p. 120). One problem is that individuals who believe they are or could be highly effective teachers face a salary structure that promises them no rewards for that effectiveness (Prince, 2002). The highest quality workforce derives from an efficient teacher compensation structure that is designed to recruit, retain, and motivate (Podgursky & Springer, 2011).

The single salary schedule was implemented to ensure equity and professionalism. It also reduced unpredictability and uncertainty of future salary costs. The single salary is a salary structure where teachers pay is determined by years of experience and the degree obtained (Podgursky, 2002). The development of this schedule created transparency for all involved in education. It was a source of employee satisfaction across grade levels, districts, and disciplines (Odden, 1995; Odden & Kelley, 2002). The current salary schedule creates a significant lost opportunity because research shows that a teacher’s education level is a weak indicator of which teachers are most effective in improving student learning, primarily master’s degrees (Hanushek, 2003; Springer 2009; Podgursky & Springer, 2011; Shields and Education Resource Services, 2013). Research also shows that teachers who have advanced degrees do not necessarily perform at higher levels than their colleagues who only have a bachelor’s degree (Darling-Hammond, 2002). Many view this schedule as outdated and inadequate in regards to linking student success and high performance to a teacher’s experience and education (Sass, 2008). The traditional salary scale does not necessarily encourage teachers to improve in the profession, but to seek a higher degree (Prostik, 1996). One primary concern is that the single salary schedule also keeps the most prominent candidate from considering the teaching profession at all (Odden, 2000; Podgursky 2006; Springer, 2009).

Increasing overall salary from a national perspective is looked at as being inefficient with tax dollars. Simply paying everyone more still creates an issue that bad teachers are in the classroom. If studies show that there is a positive relationship between teacher retention rates and increases in salary, this should allow districts to shift their focus from having to rehire numerous positions each year to be able to build better quality teachers.

Extra Duty Pay

School districts can supplement salaries through extra duty compensation, additional income tied to either additional responsibility taken on by the teacher, or the supervision of students who participate in extracurricular activities. Unfortunately, significant budget cuts have forced school districts administration and school boards to make devastating decisions to cut extra-curricular activities altogether. Studies have shown that teachers who coach sports tend to have a desire to remain in the teaching profession longer than those who do not (Brown, 2012; Cauley, 2011). Several studies link student participation in extracurricular activities to higher grade point average and increased attendance in schools (Lipscomb, 2007; McNeely, Nonnemaker, & Blum, 2012).

Teacher job satisfaction is closely associated with teacher absenteeism and attrition (Huberman, 1993; Shaalvik & Shaalvik, 2011; Zembylas & Papanastasiou, 2006). Moran (2017) dissertation study explored whether teachers involved in extracurricular activities had increased job satisfaction. The study suggested that teachers who were involved with extracurricular activities revealed a positive impact on job satisfaction. This dissertation work coincided with Thompson (2013) findings that teachers develop a stronger relationship when they connect with a student not only in the classroom but also in an extracurricular activity and teachers experience a high level of satisfaction when they can influence student success and growth. Gonsalves

(2015) performed a dissertation study of perceptions and experiences of school staff to determine how the multiple roles of teaching or supervising extracurricular activity increase teacher retention. This study found that teachers who supervise extracurricular activities bring added value to school districts. It also identified stipends as one of the most popular forms of support provided. The extra money that teachers can make can minimize the impact of low salaries and can be enough to retain that teacher. Districts set their dollar amount for extra duty stipends. Districts that can provide larger stipends could provide an advantage in recruiting and retaining teachers to their districts.

Instructional and Support Resources

Instructional and support resources include not only teacher salaries but also teacher aides, teacher assistants, and paraprofessionals salaries, plus any other resource that will be used for instructional purposes in a classroom. This includes such items as textbooks, technology, and instructional material. Resources that support instruction such as professional development, instructional coaches, campus counselors, diagnosticians, testing coordinators, nurses, and librarians are also included. The lack of resources can be tied to job stress and ultimately influences the decision for teachers to leave the profession altogether (Pogodzinski, 2014). If teachers have the needed instructional materials for their classrooms, they are more likely to feel that they can succeed in their profession. Teachers need adequate supplies and support to supplement instruction for their students.

Futernick (2007) reported a group of California teachers stated reasons for leaving the teaching profession consisted of inadequate time for planning and professional development, inadequate textbooks for their students, and unreliable assistance from the district office. Budget cuts over the last couple of years have affected such areas. In recent years, for all Oklahoma

school districts, textbook allocations and professional development funding have been either reduced or not funded at all for school districts (OSDE, 2017). Even more alarming, since 2008, state aid per-pupil funding for K-12 education in the state of Oklahoma has been cut by 26.9% and surprisingly continues to decrease (Oklahoma Policy Institute, 2016). School districts can contribute to the quality of instruction, teacher effectiveness, and job satisfaction provided through the allocation of resources (Hill, 2015).

In recent studies, teachers have stated dissatisfaction for their jobs has happened with a lack of support for their position and insufficient mentoring including professional development (Kersaint, Lewis, Potter, & Meisels, 2005; Kelley, 2004). Teachers who feel that they are prepared for their jobs feel a sense of satisfaction in their positions (Certo & Fox, 2002; Johnson & Birkland, 2003; Shaalvik & Shaalvik, 2011). One problem that many districts face is the last-minute hires of under-qualified teachers who are inadequately trained. Districts do not have the financial resources to train them once hired. Professional development opportunities and on the job training along with increased salaries and promotions contribute to increased retention in school districts (Echols, 2007). Inadequately trained teachers are detrimental to student learning because they have such an emotional and psychological effect on each child (Kersaint et al., 2005). Instructional coaches and teacher mentors are another huge help in supporting teachers. One thing, districts should recognize is there are already teachers in a school building who make an impact and who play a crucial role in recruitment and retention efforts (Danielson, 2006; Killion & Harrison, 2006). Mentors are an essential part of the beginning teacher learning process and should be a focus of public schools (Watson, 2015). Teachers with an assigned mentor are more likely to remain within a school district (Glennie, Mason, & Edmunds, 2016). Beginning teacher programs that provide adequate support and training help teachers perform

better classroom management, and also impact the teacher's job satisfaction, commitment, and retention within a school district (DeAngelis, Wallis, & Che, 2013). Districts that can provide adequate support for teachers especially newly hired teachers might have an even better opportunity to keep them in their district longer. According to Reschovsky and Imazeki (2003) when districts consider the quality of teachers they want in their district, their overall spending levels increase.

Administrative Per-Pupil Expenditures

Administration affects the instructional quality of schools through the recruitment, development, and retention of teachers (Harris, Rutledge, Ingle, & Thompson, 2010). Several case studies reveal that teachers will remain in a particular school system due to support from effective leaders and their involvement/interest in the teachers' classrooms (Loeb, Kalogrides, Beteille, 2012). School administration plays a particularly important role in teachers' career decisions. Lack of administrative support is one of the main reasons teachers leave a district or the profession altogether (Boyd, Grossman, Ing, Lankford, Loeb, & Wyckoff, 2011; Cancio, Albrecht, & Johns, 2013; Marshall, 2015; Ingersoll, 2001; Kersaint, Lewis, Potter, & Meisels, 2005; Liu & Meyer, 2005; Madsen & Hancock, 2002). Support from school administration for new teachers can strongly influence their willingness to remain within a particular school district (Glennie, Mason, & Edmunds, 2016).

The administrative stability of a school along with the school's culture is associated with student outcomes, which may also impact a teacher's decision to remain with a district (Grubbs, 2009). In one study, teachers were asked what was more influential in their decision to stay in the profession, significantly higher salaries or strong administrative support, and seventy-seven percent chose strong administrative support (Coggshall, Ott, Behrstock, & Lasagna (2010). In a

2009 study performed to estimate the relationship between teachers and school characteristics and teacher retention decisions, Boyd, Grossman, Ing, Lankford, & Wyckoff found that the support of administration emerges as a particularly important factor in retention decisions. Over forty percent of teachers surveyed identified dissatisfaction with the administration as the most critical factor. Ladd (2009) finds that teacher's perceptions of school leadership are most predictive of their intentions to remain in the school or find alternative jobs. Administrative support tends to be a strong predictor on a teacher's decision to leave a district. Arguably, districts could see higher retention rates with increased administrative expenditures for the year.

Class Size

Administrators and teachers alike indicated that class size is the single most influential factor-impacting student learning (Warr, 2013) and can negatively impact student outcomes (Schanzenbach, 2014). Factors considered by teachers in determining job satisfaction in the classroom include limited resources, class size, and challenging classes (Harrell, Leavell, VanTassel & McKee, 2004; Ingersoll 2003; Larrivee, 2012). Loeb, Darling-Hammond, and Luczak (2005), using data from California found that, although schools' racial compositions and proportions of low-income students predict teacher turnover, another determinant was working conditions that include large class size. Ryan (2009) stated that even though smaller class sizes are a very appealing idea, it is also one of the most expensive. In districts with limited budgets, many classes have increased in size. One problem Oklahoma faces is not only a limited budget; but also, the fact that school districts are unable to find teachers to fill all of their classroom needs, resulting in increased class size, or the loss of programs and classes altogether.

Proximity

There is a national disparity between the salary schedules for teachers from state to state — creating issues for states that border other higher paying states. Teachers can drive across state lines to earn more money teaching the same subject areas. Oklahoma is surrounded by six states that all pay teachers more than what many Oklahoma school districts can provide.

Teachers living in Oklahoma continue to drive across the state line to work for school districts in surrounding states. During this economic downturn in the state, many schools' lost teachers to other states because of how much compensation they were able to provide. Being ranked last regionally and in the nation provides surrounding states an excellent opportunity to recruit Oklahoma teachers. It is not uncommon for other states to attend teacher job fairs at neighboring state universities to attempt to persuade graduating students to relocate to another state. In Oklahoma, it does not take much persuasion. This can create a more significant obstacle for districts in bordering counties to retain educators.

Rural

Nationally fifty-three percent of all public-school districts are considered rural (American Association of School Administrators, 2017), and forty-eight percent of the students who attend a rural school district live in poverty (Wang, 2014). One in five students attends a rural school, and more than half of all school districts and one-third of all public schools are in rural areas. Ayers (2011) reports that “Rural student enrollment grew 15 percent between 2002 and 2005, an increase of 1.3 million students” (p. 1). Seventy percent of Oklahoma school districts are considered rural (Oklahoma State Department of Education, 2017). Rural education specifically has policymakers concerned, as research has indicated that teacher shortages in rural areas stem from the higher levels of poverty and lack of available resources (Gallo & Beckman, 2016).

Small rural schools face even greater hiring and retention challenges than their urban and suburban peers (Behrstock-Sherratt, 2016; Burton, Brown, & Johnson, 2013; Ingersoll, 2001; Monk, 2007).

In addition to the increased class sizes, inadequate facilities, and lack of quality learning materials directly correlate to the quality of teacher's rural school districts can attract (Gallo & Beckman, 2016). Ayers (2011) has identified that rural school demographics have become increasingly diverse, resulting in achievement gaps. Therefore, highly qualified, experienced teachers are especially needed in rural schools to respond to these achievement gaps. One-way rural school districts can positively impact student achievement is by improving recruitment and increasing the retention of highly qualified teachers (Aaronson, Barrow, & Sander, 2007; Hanushek, 2002). However, the two most difficult challenges for rural schools on teacher recruitment are "trying to attract teachers to high needs, low amenity areas while being unable to pay salaries competitive with suburban and urban schools" (p. 8).

Moreover, rural schools were faced with a shortage of highly qualified, effective teachers are "often forced to take drastic measures to overcome teacher shortages including consolidating classes, employing out-of-field teachers, and decreasing course offerings" (Williams, 2010, p. 8). Effective teacher recruitment strategies for rural and geographically isolated areas differed from effective teacher recruitment strategies in urban areas (Fowles, Butler, Cowen, Streams, & Toma, 2013). Monk (2007) noted that rural school districts face many of the same challenges that urban districts do high mobility rates, high poverty percentages, increasing percentages of students with limited English language proficiency and special needs, as well as few students who attend college.

Unfortunately, for most rural schools, they do not have the luxury to increase salary or provide a bonus to recruit. During times of statewide revenue failures, they tend to experience the hardest cuts to their budgets. The deficits experienced by rural schools are attributed to several variables, including the area's overall limited employment opportunities, a lack of taxable property base, limited community support to pass bonds for schools, and higher transportation costs (Dayton, 2003; Mathis, 2003). The geographic location of a district can also influence a district's salary scale if teachers perceive the district to be more or less pleasant than another district competing for qualified teachers (Fowler & Monk, 2001).

In some studies, another unattractive characteristic of some rural school districts is that students have lower performances on standardized tests, higher dropout rates, lower graduation rates when compared with students in metropolitan schools (Rosignano & Crowley, 2001). Both rural and urban schools may have high concentrations of poor students, and urban schools often have high minority populations (Rosignano, 2006). However, when Ayala (2017) interviewed rural school administrators, they indicated that teachers reported that when they leave, they leave for money. The majority of teachers who stay in a rural school district usually have personal ties to the area (Wood, Finch, & Mirecki, 2013).

Nonetheless, one advantage has been found in several studies for teaching in a rural school district. Teachers have reported more satisfaction with their work environment and felt they have greater autonomy, more influence on school policy, and fewer discipline problems (Monk, 2007). Imazeki and Reschavsky (2003) did a study that found that "Many teachers are attracted to the small size, pleasant environment and relatively low cost of living that characterizes many rural school districts. While these characteristics may make hiring teachers easier and cheaper for some rural school districts, the isolated and poverty-stricken nature of

other rural districts makes attracting qualified teachers difficult unless they are willing to pay a substantial salary premium” (p. 138).

Four-Day Week

The first documented school district to transition to a four-day school week was recorded in 1931 in Madison, South Dakota (Hewitt & Denny, 2011; Ryan, 2009). The next mention of school districts adjusting their school calendars to a four-day week does not occur until the 1970s. The biggest push for a change during that time came from small, rural schools and was due to the dramatic increase in fuel costs. Schools found they could reduce transportation and utility expenses by adding time to the other four days of the week (Anderson & Walker, 2012; Chamberlain & Plucker, 2003; Donis-Keller & Silverman, 2009; Gaines, 2008; Hedtke, 2014; Ryan, 2009). In 1997, the state of Arkansas was the first state to pass legislation allowing local boards to establish a four-day school week without first having to obtain approval from the State Department of Education (Johnston, 1997).

In the early 2000s, the nation experienced a significant economic downturn, leading to declines in per-pupil funding in many states, and creating a nationwide panic for many educators. Many state legislatures during this economic downturn granted states flexibility in constructing school calendars and major decision-making in finance and other school programs (Dixon, 2011; Woods, 2015). This flexibility increased the push for some schools to move toward the four-day school week and away from the traditional five-day week (Leiseth, 2008). Since the original interest in a four-day school week was due to funding the probability was that, when the funding turned around, so would the schedule. This was not the case, according to a study performed in 2013-2014 over state funding across the United States reported at least 31 states provided less per-pupil funding than before the recession of 2008 (Leachman, Albares, Masterson, & Wallace,

2016). Some states, Oklahoma, in particular, lost 24.2% per-pupil funding since 2008 (Oklahoma Policy Institute, 2016). The overall state aid funding has fallen by \$213 million, while public school enrollment has increased by nearly 40,000 students (Oklahoma State Department of Education, 2018). This funding gap has created a significant crisis in some school districts.

Bergen (2011) interviewed superintendents who stated that after so many years of budget cuts, recreating a school calendar to only four days a week is a better solution to cutting programs or worse reducing staff. Across the nation, some school districts initially cite financial savings as an advantage of shifting to a four-day school week, reporting savings within 13 to 20 percent in transportation costs alone, but other cost savings related to child nutrition, and overhead costs (Chmelynski, 2003). Schools also reported a 20 percent savings in food service. This reduction came from fewer meals served, requiring fewer staff, and reduced facility use (Chowning, 2013). However, these anticipated savings are usually lower than initially projected (Hewitt & Denny, 2011; Plucker, Ciermick, & Chamberlin, 2012). These costs are a small percentage of a district's overall budget. Salaries and benefits make up at least seventy-five percent of a district's budget; therefore, if not reducing salaries other cost savings is minimal. During significant financial hardships even, minimal savings can make a big difference.

For some school districts, a significant advantage of the four-day week is a decrease in teacher absences (Miles, 2012; Johnson, 2013). Teachers can make doctor appointments, run errands or schedule beneficial family time on the extra day off. Districts have observed an overall increase in both student and staff morale leading towards increases in job satisfaction (Turner, Finch, & Ximena, 2018). The presence of teachers also means fewer substitute costs (Johnston, 1997). Griffith (2011) found that school districts reported a twenty percent savings in

substitute teacher pay. The increase in classroom time translates into more face time for students with a highly qualified teacher in front of them, allowing more time on a topic, which leads to an overall increase in student achievement (Michel & Michel, 2015; Johnston, 1997; Richburg & Sjogren, 1983). Another advantage reported from a four-day school week is a decrease in student discipline (Beesley & Anderson, 2007). Many districts that have moved to a four-day work schedule have been mostly rural school districts (Monk, 2007). The majority of schools that have changed their schedules have adapted well. Anderson and Walker (2015) did a study that indicated a positive relationship between reading and mathematics and a four-day week, suggesting little evidence that a four-day week compromises student achievement. While some school districts after implementing the four-day school week have not realized an increase in student achievement, several scholars still hold steady to the idea it does not harm student achievement either (Hewitt & Denny, 2011; Yarbrough & Gilman, 2006).

The growing trend of moving to a four-day workweek still makes some question whether it is a move for students or teachers. Surely attracting better teachers and keeping them in the classroom is good for both teachers and students. Newman, Pavolva, and Luna, 2016 interviewed school administration in Missouri regarding the four-day school week. One administrator noted receiving twice as many teacher applications as in previous years. Turner and colleagues (2017) found that staff morale improved and “91 percent of the participants preferred to work in schools with a four-day work week”. An interesting finding of the study is that both certified and support staff strongly supported the shift to this calendar, regardless of the loss of salary it created for hourly employees (Turner, Finch, & Ximen 2017). Can a four-day workweek then be looked at as a way to attract teachers to a district and then retain them for the long haul? Koki (1992) asserted that rural Hawaiian districts employ the four-day school week as a teacher

retention enhancement. Every district in the state of Hawaii has a four-day school week. This was mandated initially as a statewide cost-cutting measure (Johnston, 1997).

Marion's (2018) dissertation study explored the perceptions of teachers, counselors, building level administration, and superintendents on how a four-day workweek impacted retention. Rural administrators noted that two of the three school districts interviewed experienced an increase in retention. The rural district that did not notice an increase was in a remote part of the state. Therefore, the results of the study indicate the remoteness of the district had more influence on teacher candidates than a four-day schedule. The majority of all candidates interviewed expressed the benefits of increased family time and work-life balance with such a schedule. Eighty-three percent found this type of schedule to increase teacher morale and job satisfaction. The overall findings of the study indicated the four-day workweek has a positive impact on the retention of teachers especially in rural schools.

There is limited research on four-day weeks, and much of the information available is from surveys of stakeholders, such as teachers, administrators, students and parents (Gaines, 2008). There is even less research that evaluates the relationship between a four-day workweek and retention. Plucker and associates (2012) identified a few benefits to a four-day workweek and linked these advantages to teachers staying within the district. One of the benefits of the extra days off is the ability for the districts to utilize this day to offer professional development, grade-level meetings, group planning, and collaboration. The ability to intentionally schedule professional development and training for teachers provides adequate support to equip teachers to have the time to develop their teaching skills. Research has linked sufficient support and training to teacher retention (Ingersoll & Kralik, 2004). In addition to providing professional development the additional day provides time for families and employees to schedule

appointments, which has shown to reduce both teacher and student absenteeism across the district (2012).

Districts that realize only minimal cost savings with a four-day week now consider the advantage of this type of schedule as an incentive to teachers. In Oklahoma, this type of schedule for some administrators is viewed as a tool to recruit and retain teachers. School districts that cannot compete with districts that provide additional monetary incentives look at the four-day workweek as the only real perk they can offer to poorly paid teachers (The Economist, 2017).

Summary

In Chapter Two, the academic discussion of teacher recruitment and retention illuminated the difficulty in attracting and specifically retaining teachers across the nation. The literature also pointed out the difficulties rural school districts have in recruiting and retaining. However, there was limited information on the four-day workweek as it influences teacher recruitment and retention. The limited research on the four-day workweek emphasizes the potential significance of this study for school leaders. As the state of Oklahoma's education continues to change due to state funding, changes in student enrollment and demographics, districts must be intentional with every decision made. Therefore, understanding how to recruit and retain high-quality teachers is critical for the student's success.

CHAPTER THREE

DESIGN OF THE STUDY

This study is an attempt to provide a better understanding of the affects that a four-day work week, district level financial resources, and district demographic characteristics might have on teacher retention in school districts. The state of Oklahoma has continued to experience high levels of teacher turnover over the past decade putting them above the national attrition percentage (OSDE, 2018). Therefore, school districts in the state of Oklahoma were selected as the source of data for this quantitative study.

The primary purpose of this study was to determine if one of the ten variables used for this study has an impact on a district's teacher retention. If so, there is a possibility this study could provide valuable information about how to increase teacher retention that could enhance better financial decisions making by districts and state leaders. A quantitative methodology is most appropriate for this study because it allows for the examination of relationships between factors (Johnson & Christensen, 2012). In accordance with the data collected and the data analysis technique chosen, a hierarchical linear model (HLM) analysis was conducted that allowed for longitudinal data where repeated observations are nested within individuals. The advantages of using this particular type of study are for its extreme flexibility which allows the researcher to specify relations across multiple levels (Anderson, 2012). Particularly in various longitudinal studies, it allows the researcher to identify a suitable covariance structure at level 1 that captures the nature of the observed relationships between the repeated measures of Y regardless of the groups being compared and the time-trend patterns (Heck, Thomas, & Tabata, 2014). In longitudinal data analysis, HLM can be used to fit the longitudinal data when measurement of time is defined at level 1 and subjects at level 2 (Bryk & Raudenbush, 1987;

Goldstein, 1994; Raudenbush & Bryk, 2002; Singer & Willet, 2003). Hierarchical linear modeling was initially developed in the field of educational research where it allows researchers to access the effects of the student, teacher, and school characteristics (Bryk & Raudenbush, 1992; Gavin & Hofmann, 2002). Hierarchical linear modeling allows the data to be structured in at least two levels. For Longitudinal design, the first level is repeated measures nested when the second level, which in this study includes fixed district-level data. The advantages of using this type of procedure allow the researchers to estimate individual changes over time with fewer assumptions needing to be met (Raudenbush & Bryk, 2002). The goal of this type of analysis is not to predict causation but to determine a relationship. Through this study a determination of how district-level decisions, fiscal characteristics, district demographic characteristics could be applied as predictors of teacher retention. If so, there is a possibility to provide data to educational leaders that might aid in their attempts to retain teachers. This quantitative study examines retention data as the continuous dependent variable in school districts across the state of Oklahoma. This study will offer great insight into a state that is losing teachers at a rapid pace.

Research Questions

This study would answer the following overarching research question: To what extent if any do varying district-level fiscal decisions and demographic characteristics affect teacher retention?

1. Is there a relationship between district teacher retention and the adoption of a four-day instructional week?
2. Are there relationships between district teacher retention and district fiscal decisions and characteristics (including instructional and support expenditures per pupil, administrative

expenditures per pupil, average teacher salaries, extra duty pay, including percent economically disadvantaged students, and average district class size)?

3. Are there relationships between a district's teacher retention and its district characteristics (whether a district is rural or nonrural, its proximity to a bordering state, and whether charter or noncharter)?

Contextual Overview of Oklahoma Teacher Turnover and Funding

In 2018, there were 41,047 employed school teachers across the state (Oklahoma State Department of Education, 2019). Of this total, 7 percent are emergency certified individuals (Oklahoma State Department of Education, 2019). Another disturbing statistic is that Oklahoma teachers only stay six years, and more than forty-six percent of teachers have five or fewer years of experience (Oklahoma Policy Institute, 2018). The Oklahoma State Department of Education recently released the Oklahoma Education Supply and Demand Report (2018). A report that looked at the district's teacher retention and student enrollment data from 2012-2013 through 2017-2018. The statistics pulled from this report are alarming. Although the percentage of "movers" those educators who either move to another school district or a new position has slightly decreased. The alarming statistic over the past six years is the percentage of "leavers," an accumulated total of 30,000 educators over the past six years have exited the profession altogether. The total number broke down averages to Oklahoma losing more than 5,000 educators per year. The loss of that many educators is a devastating blow to the profession of Education. In 2013, Oklahoma was above the National attrition rate at 9.8 percent, and keeping with that trend in 2017 the rate increased to 11.3 percent. Combining both percentages of "movers" and "leavers" for the state, an overall percentage of 23.6 hurts the Education in the

state of Oklahoma. That large of a percentage is detrimental for school districts. In addition to the high percentage of leavers, another hard hit for education is knowing that the percentage of people graduating with a degree in education has drastically decreased over the past six years. Meaning the supply pool for educators in the state is on a scary downward trend, while the demand for educators for the state of Oklahoma based on enrollment is increasing (Alcala, 2018).

The student enrollment across the state has been increasing at a 1% rate over the last ten years, and the current student enrollment is 681,848. Oklahoma school districts all consist of varying enrollments; the smallest school district has an enrollment of 41 students to the largest having 45,034 students. Of the total student population, 62 percent are considered economically disadvantaged; this average has remained consistent over the last six years (Oklahoma State Department of Education, 2019). Although this percentage has remained consistent, the number implies that economically disadvantaged students is increasing with the overall student enrollment. The increasing enrollment across the state is making the funding that has decreased nearly 180 million over the past ten years an even larger problem. Compared to a decade ago, the school districts in Oklahoma have seen education funding decrease twenty-eight percent per student, compared to neighboring states Oklahoma expends \$1700 less per student (Oklahoma Policy Institute, 2018).

The state of Oklahoma utilizes a minimum salary schedule that each district must meet the minimum requirement. Oklahoma passed its first teacher pay raise in fifteen years. Even with this raise, it is too soon to see if it is enough to keep educators in the profession. Each school district has a unique budget consisting of local and state funding, contributing to what they can expend on their teachers. The state of Oklahoma uses a funding formula which has

consistently been found equitable and the revenue distributed through the formula is also considered equitable (Deering & Maiden, 1999; Hime & Maiden, 2017; Maiden, 1998; Maiden & Stearns, 2007). Therefore, the problem in the state of Oklahoma is not how districts are getting revenue distributed but the dollar amount that is being allocated into the state's education budget. The amount of sustainable funding for each school district is the most significant contributing factor to what schools can offer in salary and financial support.

Class size is another important factor connected to funding or the lack of funding in the state of Oklahoma. In 1990, the legislature passed statutes concerning class size mandates. The Oklahoma Policy Institute (2019) reported that by 2002 common education funds were 158 million dollars below budget, and by the middle of that same fiscal year thirty-five percent of schools were exempt from the class size mandate. Following this trend, in 2019, all school districts in the state of Oklahoma are exempt from this mandate meaning class sizes are at an all-time high (Oklahoma Policy Institute, 2019). Higher class size is not only a result of reduced funding but the inability for districts to find enough teachers to fill the classroom. The inability to staff each classroom continues to create a major concern for Oklahoma educators.

If districts are out of options to recruit and retain teachers another option is to offer a different calendar schedule. There are currently 92 school districts that have transitioned to a four-day work week. The four-day work week initially began in small rural schools across the state, but are now found in mid-size school districts in rural and suburban areas. Eighteen percent of Oklahoma school district utilize this type of work week (OSDE, 2018). School districts in the state of Oklahoma are required by law 70 OK Stat § 70-1-109 (2014) to attend school for 180 days or 1,080 hours. Each district's Board of Education has to approve the district's schedule, and then it must be submitted to the State Department of Education. For those

districts who are operating their school calendar under the 1,080 hours can shift to a four-day week. There are many opinions over whether schools should be allowed to operate a calendar only four days a week by utilizing the designated hour's method. Regardless of the argument, this four-day work schedule has become more appealing to school districts that are worried about budgets and wanting something additional to offer their teachers. A four-day workweek has created much controversy across the state.

Target Population and Sample

For the current study, the population used consisted of all public-school districts across the state of Oklahoma from fiscal year 2013 to 2017. According to the State Department of Education (2018), there are 512 traditional school districts and 13 charter school districts in the state. All districts across the state were utilized for this study. There are currently 525 school districts in Oklahoma, including both public school and charter school districts. Over the five years of data collected several districts have closed, in addition to several new charter districts being added. For this study, I will eliminate any district that does not have five years of data. This gives a total of 524 school districts over the five-year time frame, resulting in a data set of 2,620 school district observations. A total of 386 districts are located in rural areas of Oklahoma, 95 located in small towns, 24 in suburban, and 18 in urban areas of Oklahoma.

Description of Variables

Teacher Retention. The dependent variable used to address these questions is the percentage of teacher retention for each school district. The data included a spreadsheet that listed each teacher that left a district in the current year. The researcher did not give individual teacher information to protect confidentiality. This data ranges from the 2012-2013 to 2016-2017 school year. For each of the five years of data collected, the districts overall retention numbers for each year were

averaged. In the personnel report, there are two drop-down options when reporting an employee leaving. The first selection is the “Reason for Leaving.” A district utilizes this tab for any reason an employee is hired for a specific year but fails to complete that specific year. There are 14 options a school district can select for an employee as a reason to leave the district. They are as follows: (0) no reason given, (1) retiring, (2) other school, (3) out of state, (4) other employment, (5) health reasons, (6) marriage, (7) personal reasons, (8) deceased, (9) leave of absence, (10) moving due to spouse, (11) maternity/childbirth, (12) reduction in force, (13) displaced due to consolidation; (14) termination. For the current study, three reasons listed will be removed from retention percentages for the study are (1) retiring, (5) health reasons, and (8) deceased.

The teacher retention variable, TEACHRETENTION, was coded as a continuous percentage. The district average retention rate will be calculated by taking the total full-time equivalent number of teachers (FTE) and subtracting from it the number of teachers who left the school district (excluding teachers coded to retired, health reasons, and deceased) and take that number. This number was then divided by the total FTE to obtain an average for each district. Therefore, each school district will have five years of average retention data represented.

There were independent variables for this hierarchical linear modeling (HLM). Customarily, in a two-level repeated measures HLM time variant data are measured at level 1, while time fixed variables are measured at level 2.

Four Day Work Week. The first independent variable was a four-day work week, dichotomous categorical variable. This variable is entered at level 1 because it varies each year

Average Teacher Compensation. The second independent variable was the average teacher salary, measured on a continuous scale. This variable was based only on teachers with a bachelor's degree. The bachelor's minimum salary scale the state uses is the lowest paid scale for education. More teachers across the state only have a bachelor's degree, therefore, these teachers are targeted for turnover. The data collected were in excel spreadsheets listing every teacher in a school district's total compensation. This included base salary and all fringe benefits the district provided to the employee. Therefore, the average district compensation will be derived from adding each teacher's total compensation in a school district and dividing it by the number of the districts total number of FTE teachers. This is a level 1 variable because the average teacher compensation will vary each year based off the minimum step increase or if a district has the ability to increase overall pay.

Average Extra Duty Compensation. The third independent variable was the average extra duty compensation, also continuously scaled. Each school district is able to set extra duty compensation at their own discretion. The average extra duty compensation will be obtained by adding all extra duty and dividing it by the number of the districts total number of FTE teachers. This is a level 1 variable because of its possible variance over the years.

Instructional Per-Pupil Expenditures. The fourth independent variable was instructional per-pupil expenditures, continuously scaled. These expenditures include teacher salary, teacher assistant salary, and paraprofessional's salary, but also the activities dealing directly with the interaction between teacher and student (OCAS, 2018). Any expense that assists in the instructional process including any instructional material that is utilized for student instruction. This also includes expenditures for schools associated with the activities designed to support and improve the well-being of students and to assist the instructional staff with providing positive

learning experiences for students in addition to supplementing the teaching process (OCAS, 2018). The Oklahoma Cost Accounting System (OCAS) codes associated with these variables for this study are 1000, 2100, and 2200 series Instructional per pupil expenditures are based on each district's total expenditures coded to function 1000 and then divided by the districts average daily membership (ADM) which is the average of days of membership divided by instructional days. Instructional expenses encompass all expenditures district expend related to student instruction. This is a level 1 variable because it varies over time.

Administrative Per-Pupil Expenditures. The fifth independent variable was Administrative per Pupil Expenditures, another continuously scaled variable. The administrative expenditures looked at both district and school administration. All expenses that involved activities that supported operating the entire school district as well as the overall administrative responsibilities for a single school (OCAS, 2018). These expenditures were coded using function 2300 and 2400 series in OCAS. These expenditures are based on each district's total dollar amount expended on the salaries and support of the Superintendent, Assistant Superintendent, Directors, Principals, and Assistant Principals. Administrative per pupil expenditures are based on these total expenditures divided by the district's average daily membership ADM. This is a level 1 variable because it varies over time.

Economically Disadvantaged. The sixth independent variable was the percent of Students considered economically disadvantaged, continuously scaled from 0 to 100. This percentage was based on the percentage of each district free and reduced application number. The number of students who qualify for this was divided by the total district's enrollment to obtain the district average. This is a level 1 variable because the average district enrollment or number of students that qualify can fluctuate.

Class Size. The seventh independent variable was the districts average class size. Class size is determined by the average daily membership divided by the full-time equivalency of the instructional staff assigned to each grade level by site (§70-18-113.3). Class size varies each school year depending on enrollment and available teachers because of this it is considered a level 1 variable.

District Locale. The eighth independent variable was the location of each school district, dichotomous categorical variable. This information is obtained from the National Center for Education Statistics. It utilizes ten different description variables. For the purpose of the current study, the vocabulary was simplified, to list either a district as rural or nonrural. Dichotomous levels were created for this variable, where {0 = Rural; 1 = NonRural}. This is a level 2 variable because this variable is stable and not changing over time.

Proximity. The ninth variable was a proximity variable. This variable indicates whether a district is within a county that borders another state. This is a level 2 variable because of the stability of it not changing over time.

Data Collection

Data for this study were collected from the Oklahoma State Department of Education (OSDE). The study will use 521 school districts in Oklahoma for the fiscal years 2013 through 2017. Each districts teacher retention data pulled from the OSDE personnel report were used for this study. Reports were obtained from the OSDE, of all districts calendars to reflect if a school district utilized a four-day work week or the traditional five-day week, along with each district's average class size. Each teacher's salary, instructional per-pupil expenditures, administrative

per-pupil expenditures, and support per-pupil expenditures were obtained from the Oklahoma State Department of Education Financial Services Division.

Table 3.1 *Variable Types and Location of Data*

Variables	Location of Data	Fiscal Years
Dependent Variable		
Teacher Retention	Oklahoma State Department Personnel Report	2013-2017
Independent Variables		
Four-Day Work Week	OSDE	2013-2017
Teacher Salary	OSDE- OCAS data	2013-2017
Extra Duty Pay	OSDE-OCAS data	2013-2017
Instructional & Support Per-Pupil Expenditures	OSDE- OCAS data	2013-2017
Administrative Per-Pupil Expenditures	OSDE- OCAS data	2013-2017
Class Size	OSDE	2013-2017
Economically Disadvantaged	OSDE	2013-2017
District Location	National Center for Education Statistics	2017
Proximity		2017
Charter School	OSDE	2013-2017

Data Analysis

The primary purpose of this quantitative study was to examine the extent that eight different independent variables predict teacher retention: a four-day work week, district level financial characteristics such as teacher salaries, instructional, support, administrative per pupil expenditures, and demographic characteristics such as percentage of economically disadvantaged

students, class size, and district locale labeled as rural, town, suburban, and urban. A longitudinal hierarchical model was conducted with level 1 repeated measurement predicted year to year and level 2 would be district variables. The current study included one dependent variable (DV) and multiple independent variables (IV). The purpose of the current study was to determine relationships between a four-day work week, district level financial characteristics, and district demographic characteristics to the dependent variable of teacher retention.

Research Question 1:

1. Is there a relationship between district teacher retention and the adoption of a four-day instructional week?

Hypothesis 1: There is variation across years in the relationship between implementation of the four-day week and teacher retention at the district level.

Research Question 2:

2. Are there relationships between district teacher retention and district fiscal decisions and characteristics (including instructional and support expenditures per pupil, administrative expenditures per pupil, average teacher salaries, extra duty pay, including percent economically disadvantaged students, and average district class size)?

Hypothesis 2: There is variation across years in the relationship between district fiscal decisions and district characteristics and teacher retention at the district level.

- Hypothesis 2a: Higher years of instructional and support expenditures are more likely to be related to retention at the district level.
- Hypothesis 2b: Higher years of administrative expenditures are more likely to be related to retention at the district level.

- Hypothesis 2c: Higher years of teacher salaries are more likely to be related to retention at the district level.
- Hypothesis 2d: Higher years of extra duty pay are more likely to be related to retention at the district level.
- Hypothesis 2e: Higher years of an increased percent of economically disadvantaged students are more likely to be related to lower retention at the district level.
- Hypothesis 2f: Higher years of increased class size are more likely to be related to lower retention at the district level.

Research Question 3:

3. Are there relationships between district teacher retention and the district characteristics (whether a district is rural, the proximity of a school district to a bordering state, and whether a district is charter)?

Hypothesis 3: There is variation across years in the relationship between district demographic characteristics including whether a district is rural, the proximity of a school district to a bordering state, and whether a district is charter and teacher retention at the district level.

- Hypothesis 3a: District location measured as rural or not rural is a predictor of teacher turnover.
- Hypothesis 3b: The proximity of a district to a bordering state is a predictor of teacher turnover.
- Hypothesis 3c: District defined as a charter or non-charter is a predictor of teacher turnover.

This study conducted a two-level HLM analysis with teacher retention data and time being one unit of analysis and district characteristics being the other unit of analysis. The predictors in the level 1 analysis include data collected for teacher retention over the fiscal years 2013-2017. At level 1, a quadratic component is used to take into consideration that the growth rates for teacher retention in each district may accelerate or decelerate over time (Heck, Thomas, & Tabata, 2012).

Summary

Chapter three provides an overview of the rationale for the study. The chapter also provided teacher retention statistics for the school districts in the state of Oklahoma providing a solid background on why Oklahoma was chosen for this study. Through longitudinal Hierarchical linear modeling (HLM), this study provides a more in-depth examination into the relationships between a four-day work week, district level financial characteristics including average teacher salary, instructional and support per-pupil expenditures, administrative per-pupil expenditures, and district level demographic characteristics including, the percent of economically disadvantaged students, class size, district locale, proximity, if the district is considered a charter and teacher retention. Ultimately, it is trying to determine whether retention can be predicted based on each independent variable. A study of each one of the different variables can provide information to educational leaders regarding the impact that these variables have on teacher retention in the state of Oklahoma. It can further assist in administrative efforts to increase teacher retention. The research could be beneficial for other school districts across the nation experiencing the same teacher loss.

CHAPTER FOUR

RESULTS

Chapter three provided an overview of the design of the study and the impact each of the variables had on district's teacher retention. Chapter four begins with a review of the methodology used in the study and an in-depth discussion of the results of the data analysis.

As Ingersoll (2001) suggests, the lack of data is one of the main challenges to obtaining more precise estimates of both the causes and effects of teacher turnover. This study focuses on the entire state of Oklahoma, including data from 521 school districts, collected longitudinally over five years, allowing for the study of teacher retention for all teachers in all schools. The purpose of this study was to examine district fiscal decisions, such as average teacher salary, instructional and support resources, administrative per-pupil expenditures, and extra duty pay, class size, and particularly the four-day work week as they relate to staffing and supporting their teachers. Additionally, the study looked at whether the district was a charter or noncharter school, rural or nonrural, or located in a county that bordered a surrounding state and if these variables impacted teacher retention. Although teacher retention is a problem across the nation, the focus of this study is Oklahoma, due to the increasing severity of the teacher shortage (Oklahoma Policy Institute, 2017). Considering all of these variables, this study seeks to answer the following overarching research question: To what extent, if any, do varying district-level decisions and demographic characteristics affect teacher retention?

Research Question 1:

1. Is there a relationship between district teacher retention and the adoption of a four-day instructional week?

Hypothesis 1: There is variation across years in the relationship between implementation of the four-day week and teacher retention at the district level.

Research Question 2:

2. Are there relationships between district teacher retention and district fiscal decisions and characteristics (including instructional and support expenditures per pupil, administrative expenditures per pupil, average teacher salaries, extra duty pay, including percent economically disadvantaged students, and average district class size)?

Hypothesis 2: There is variation across years in the relationship between district fiscal decisions and district characteristics and teacher retention at the district level.

- Hypothesis 2a: Higher years of instructional and support expenditures are more likely to be related to retention at the district level.
- Hypothesis 2b: Higher years of administrative expenditures are more likely to be related to retention at the district level.
- Hypothesis 2c: Higher years of teacher salaries are more likely to be related to retention at the district level.
- Hypothesis 2d: Higher years of extra duty pay are more likely to be related to retention at the district level.
- Hypothesis 2e: Higher years of an increased percent of economically disadvantaged students are more likely to be related to lower retention at the district level.
- Hypothesis 2f: Higher years of increased class size are more likely to be related to lower retention at the district level.

Research Question 3:

3. Are there relationships between district teacher retention and the district characteristics (whether a district is rural, the proximity of a school district to a bordering state, and whether a district is charter)?

Hypothesis 3: There is variation across years in the relationship between district demographic characteristics including whether a district is rural, the proximity of a school district to a bordering state, and whether a district is charter and teacher retention at the district level.

- Hypothesis 3a: District location measured as rural or not rural is a predictor of teacher turnover.
- Hypothesis 3b: The proximity of a district to a bordering state is a predictor of teacher turnover.
- Hypothesis 3c: District defined as a charter or non-charter is a predictor of teacher turnover.

The following data were used for this study:

- Districts retention rate. These data were collected from districts reporting through the Oklahoma State Department of Education personnel report. The percentage was obtained by subtracting the number of teachers who left the district by the full-time equivalent (FTE) number of teachers employed and dividing that number from the total (FTE) of teachers. Teachers who left for retirement, medical reasons, or death were removed from this equation.
- Four-day workweek. These data were pulled off of the Oklahoma State Department of Education website on each district's calendars.

- Average teacher's bachelor's salary. These data were collected from districts reporting Oklahoma Cost Accounting System (OCAS) function total 1000 and job code 210 and retrieved from the Oklahoma State Department of Education website.
- Average total extra duty pay. These data were collected from districts reporting Oklahoma Cost Accounting System (OCAS) object total 192 and retrieved from the Oklahoma State Department of Education website.
- Instructional and support resources. These data were collected from districts reporting Oklahoma Cost Accounting System (OCAS) function total 1000, 2100, and 2200 and retrieved from the Oklahoma State Department of Education website.
- Administrative per-pupil expenditures. These data were collected from districts reporting Oklahoma Cost Accounting System (OCAS) function total 2300 and 2400, and retrieved from the Oklahoma State Department of Education website.
- Class size. Taking the total district enrollment and dividing it by the districts FTE configured these data. These data were retrieved from the Oklahoma State Department of Education website.
- Percent of Economically Disadvantaged Students. These data were collected from the Oklahoma State Department of Education website.
- District Locale. These data were collected from the National Center for Educational Statistics, and compiled into two categories: rural or nonrural.
- Proximity. A map of Oklahoma listing the districts that bordered a surrounding state collected these data.
- Charter. These data were collected from the Oklahoma State Department of Education website.

Study procedures included the use of hierarchical linear modeling (HLM) to address all study research questions. To determine what factors, contribute to teacher retention rates, a two-step hierarchical model was utilized. Hierarchical linear modeling is the correct analytic choice in this study because the variables studied are nested in levels. This study has been broken into two distinct data analysis phases using HLM to measure the relationship between the study predictive variables and teacher retention. The first analysis was conducted using time-varying variables at the district level. The second phase of the analysis was conducted using time-invariant variables. Hierarchical linear models can help assess each of the relevant contextual influences on teacher retention. Using SPSS, the data were analyzed using multilevel regression. Hierarchical linear models were constructed and tested to determine the effects district level characteristics have on teacher retention. This type of model offers a more precise analysis of data collected at more than one level of analysis. Table 4.1 represents each of the HLM models and includes the unstandardized regression coefficients, variance components, and the model fit summaries.

Table 4.1 *Unstandardized regression coefficients, variance components, and model fit summaries for HLM models*

	Model Unconditional	Model 1	Model 2	Model 3
Time-Varying L1 predictors				
FourDay		-.012 (p=.127)	.0095 (p=.353)	.0098 (p=.338)
Salary		1.782886E-6 (p=.217)	1.525322E-6 (p=.291)	1.580536E-6 (p=.274)
Instruct & Support PPE		1.611685E-6 (p=.744)	3.514673E-6 (p=.476)	2.543659E-6 (p=.608)
Admin PPE		-9.688578E-6 (p=.402)	-1.031514E-5 (p=.372)	-1.028343E-5 (p=.373)
Free & Reduced		.0121, (p=.726)	.004005, (p=.907)	.0029, (p=.932)
Class Size		.0037, (p=.098)	.0039, (p=.083)	.0035, (p=.121)
Extra Duty Pay		3.813457E-8 (p=.986)	-1.961369E-7 (p=.929)	-1.765932E-7 (p=.936)
Compositional variables at L2				
FourDay_mean			-.028, (p=.070)	-.0306, (p=.048)
Salary_mean			4.727197E-6 (p=.001)	4.657869E-6 (p=.001)
Instruct & Support PPE_mean			1.081105E-5 (p=.017)	1.290019E-5 (p=.006)
Admin PPE_mean			-7.575254E-5 (p<.001)	-7.767836E-5 (p<.001)
Free & Reduced_mean			-.0441, (p=.011)	-.0475, (p=.006)
Class Size_mean			-.0008, (p=.697)	-.0014, (p=.497)
Extra Duty Pay_mean			2.837445E-6 (p=.100)	2.335065E-6 (p=.174)
Time-Invariant L2 predictors				
Charter				-.0511, (p=.176)
Rural				-.0081, (p=.191)
Proximity				-.0171, (p=.002)
AR1 diagonal	.007928	.007643	.007608	
AR1 rho	.077165	.088553	.083570	
Variance σ^2	$\sigma^2=.002, p<.001$	$\sigma^2=.002, p<.001$	$\sigma^2=.002, p<.001$	

Table 4.1 (continued).

-2LL	-4770.033	-4768.756	-4862.412	-4875.245
AIC	-4762.033	-4746.756	-4826.412	-4833.245
BIC	-4738.572	-4682.517	-4721.294	-4710.607
ΔX^2		$\Delta X^2(7)=1.277, p=.008$	$\Delta X^2(7)=93.7, p<.001$	$\Delta X^2(3)=12.8, p=.005$

The sample that was used in these analyses included 521 school districts over a five-year period (2013-2017). The first model created in the HML analysis begins with the null model, which is the random intercept model with no predictors at level 1 or level 2. This model is commonly called an unconditional model or a one-way ANOVA with random effects. This model was tested in order to determine if there was significant variation in district-level intercepts. This approach partitions the variance of district teacher retention rates across the span of time by indicating how much variability lies within and between teacher retention/districts (Raudenbush & Bryk, 2002). This model addressed the question, “Do districts vary significantly in average retention rates?”

The results reflected in Table 4.2 display the outcomes from the ANOVA analysis. The findings indicate that the variance estimate ($\sigma^2=.0027$) for the intercept was statistically significant ($p<.001$). This indicated between district differences in the rate to which teachers are retained, regardless of years tested. As a result of these significant district variations in retention rates, variables were entered at Level 1 and Level 2.

Table 4.2 *Model Dimension*

Parameters		Estimate	Std. Error	Wald Z	Sig	Lower Bound	Upper Bound
Repeated Measures	Var:(TimeVar=0)	.007883	.00056	14.045	.000	.0068	.0090
	Var:(TimeVar=1)	.006742	.00049	13.673	.000	.0058	.0077
	Var:(TimeVar=2)	.006767	.00049	13.717	.000	.0058	.0078
	Var:(TimeVar=3)	.007872	.00055	14.089	.000	.0068	.0090
	Var:(TimeVar=4)	.009095	.00063	14.360	.000	.0079	.0104
Intercept	Variance	.002714	.00026	10.173	.000	.0022	.0032

The Level 1 outcome was based on using the percentage of district-level teacher retention over these five years (2013-2017), based on repeated measurements. There were seven time-varying Level 1 predictors of yearly retention rates. These predictors included (1) bachelor level average teacher salary, (2) average amount of extra duty pay, (3) instructional and support per-pupil expenditures, (4) administrative per-pupil expenditures, (5) average class size, (6) percentage of economically disadvantaged students, (7) whether or not a district was on a four-day work week. The four-day workweek was a dichotomous categorical variable (coded 0=no, 1=yes).

In model 1 district financial characteristics were added to the unconditional model to determine if there was a decrease in the variance. The results in table 4.3 suggest that the variance estimates ($\sigma^2 = .002463$) for the intercept were still statistically significant ($p < .001$), indicating there was still between district differences in the rate to which teachers are retained, regardless of the five years tested.

Table 4.3 *Estimates of Covariance Parameters*

Parameter		Estimate	Std. Error	Wald Z	Sig	Lower Bound	Upper Bound
Repeated Measures	AR1	.007928	.000276	28.726	.000	.007405	.008488
	diagonal						
	AR1 rho	.077165	.030097	2.564	.010	.017975	.135816
Intercept	Variance	.002463	.000288	8.544	.000	.001958	.003098

The results indicate none of the time-varying covariates were statistically significant in this model. There were no variation across the five years in the relationship between district level 1 predictors and teacher retention.

To account for possible variation in retention rates produced from stable, time invariant between difference in the predictors, level 1 variables were also introduced into the model as compositional variables at Level 2. Furthermore, the yearly data at Level 1 were aggregated to create the mean for each variable. Level 2 predictors included in this analysis were dummy-coded variables such as whether a district was a charter-school (0=no, 1=yes), rural variable (0=no, 1=yes), and proximity variable (coded 0=not close to border, 1=close to border). Finally, the third step involved adding in the compositional variables at Level 2, allowing for a test of whether the role of between-district characteristics significantly predict variation in between-district variation in average retention rates. This step involved adding in the final three Level 2 predictors. Correlated residuals at Level 1 were accounted for by using an autoregressive structure. All of the predictor variables at Level 1, except for the dummy-coded four-day workweek variable, were centered at the cluster mean (Enders & Tofighi, 2007). This strategy is utilized given the result indicating no relationship that was time related. One significant advantage to centering within context is that centering can produce orthogonality within and between coefficients, which improve interpretation and decrease collinearity in random models

(Raudenbush,1989). Brinks et al. (2017), noted that “pure level-specific effects” results in lower level variables that are uncorrelated with upper-level variables when evaluated through this strategy (p. 158). This strategy appeared more reasonable than using grand-mean centering, given that the emphasis in this study was to evaluate the distinctive effects of time-varying (level 1) and time-invariant (level 2) predictors. This judgment was informed by evidence of high levels of collinearity between the uncentered or grand-mean centered Level 1 variables and their Level 2 composites.

There is evidence of an improvement in fit over the previous model after adding in the compositional variables at Level 2, as reflected in Table 4.3. The previous model including only the Level 1 predictors was less favorable then the current model specifically, the -2LL, AIC, and BIC values. This improvement was statistically significant as revealed by the chi-squared difference test, $\chi^2(7) = 93.657, p < .001$.

Table 4.4 *Information Criteria*

Level 1 predictors only		Level 2 Compositional variables	
-2 Log Likelihood	-4768.756	-2 Log Likelihood	-4862.412
Akaike’s Information Criterion (AIC)	-4746.756	Akaike’s Information’s Criterion (AIC)	-4746.756
Hurvich and Tsai’s Criterion (AICC)	-4746.651	Hurvich and Tsai’s Criterion (AICC)	-4826.141
Bozdogan’s Criterion (CAIC)	-4671.517	Bozdogan’s Criterion (CAIC)	-4703.294
Schwarz’s Bayesian Criterion (BIC)	-4682.517	Schwarz’s Bayesian Criterion (BIC)	-4721.294

Research Question 1: Is there a relationship between district teacher retention and adoption of a four-day instructional week? The first question’s hypotheses stated that there is no variation across years in the relationship between implementation of the four-day week and teacher retention at the district level.

After the ANOVA was run and showed that the intercept was significant Level 1 variables were entered into the analysis. For the first model, each of the time variant factors was entered together into the HLM Level 1 multilevel model. Table 4.5 reflects the results for the Four-Day variable was negative ($b = -.011991$) and nonsignificant ($p = .127$).

Table 4.5 *Estimates of Fixed Effects Level 1- FourDay*

Parameter	Estimate	Std. Err	df	T	Sig.	Lower Bound	Upper Bound
FourDay_	-.011991	.007864	1862.708	-1.525	.127	-.027414	.003433

Subsequently, the mean of each of the variables at Level 1 was created through aggregation of the yearly data and centered at the cluster mean. These variables were then run at Level 2. In Table 4.6, this variable reflects the proportion of years a district was operating on a four-day schedule. The results still reflect the variable mean as negative ($b = -.02808$) and nonsignificant ($p = .070$), resulting in a four-day workweek having no relationship to the districts teacher retention rates.

Table 4.6 *Estimates of Fixed Effects, Level 1, Four-Day Mean*

Parameter	Estimate	Std. Err	df	t	Sig.	Lower Bound	Upper Bound
FourDay_Mean	-.02808	.015515	1353.285	-1.810	.070	-.0585	.0023

After the Level 2 variables were added table 4.7 reflects the new results. The results will vary after adding Level 2 variables because the researcher is controlling for additional variables

and at this point, all are in the analysis. The Four-day mean variable again was negative (b= -.03056), but this time significant (p=.048). These results indicate that districts with a higher proportion of years during which they had gone to a four-day workweek were associated with lower teacher retention rates.

Table 4.7 *Estimates of Fixed Effects, Level 2, Four-Day Mean*

Parameter	Estimate	Std. Err	df	t	Sig.	Lower Bound	Upper Bound
FourDay_Mean	-.03056	.015475	1363.51	-1.975	.048	-.0609	-.0002

Research Question 2: Are there relationships between district teacher retention and district fiscal decisions and characteristics (including instructional and support expenditures per pupil, administrative expenditures per pupil, average teacher salaries, extra duty pay, including percent economically disadvantaged students, and average district class size)? The second question’s hypotheses stated that there is no variation across years in the relationship between district fiscal decisions and district characteristics and teacher retention at the district level.

The initial analysis showed that all time varying predictors of yearly retention rates had no effect on teacher retention rates, as reflected in Table 4.8. These variables all came back nonsignificant through the Level 1 analysis.

Table 4.8 *Estimates of Fixed Effects, Level 1, Time-Varying Variables*

Parameter	Estimate	Std. Err	df	t	Sig.	Lower Bound	Upper Bound
Fourday	-.01199	.00786	1862.71	-1.525	.127	-.02741	.003433
Salary	1.782E-6	1.4443	1832.54	1.234	.217	-1.0499	54.6156
Total_extra_duty	3.81345	2.19845	1748.51	.017	.986	-4.2737	4.3500
Instruct	1.611E-6	4.9418	1880.47	.326	.744	-8.0804	1.13037
Admin	-9.68E-6	1.1559	2022.89	-.838	.402	-3.2358	1.29813
FandR	-.012068	.034413	1893.85	3.51	.726	-.05542	-.07955
Classsize	.00371	.00224	1862.70	1.655	.098	-.00068	.008118

However, Table 4.9 shows the variance estimate ($\sigma^2 = .00224$, $p < .001$) for the intercept was statistically significant, indicating significant between district variation in retention rate. Once again regardless of year there were still between district differences in the rate to which teachers are retained.

Table 4.9 *Estimates of Covariance Parameters*

Parameter		Estimate	Std. Err	Wald Z	Sig.	Lower Bound	Upper Bound
Repeated Measures	AR1 diagonal	.007643	.00027	27.745	.000	.007122	.008203
	AR1 rho	.088553	.031413	2.819	.005	.026723	.149707
Intercept	variance	.002240	.000283	7.921	.000	.001749	.002868

The Level 1 variables at this time were introduced into the model as compositional variables at level 2. Means on these variables were created through aggregation of the yearly data and were centered at the cluster mean (Enders & Tofighi, 2007). The new results are reflected in table 4.10. The results show that the district salary mean ($b=4.727$) was a positive and

significant ($p < .001$) Level 1 predictor. It appears that teachers over the five-year time frame are more likely to stay in a district if that district pays more salary than other districts.

Extra-duty pay difference, by contrast, were found to be nonsignificant. The results also show that the district total extra-duty mean was not a significant ($p = .100$) predictor of teacher retention. Districts across the five-year span that paid extra-duty pay to teachers did not predict teacher retention positively or negatively.

District instructional and support per pupil expenditures mean was a positive ($b = 1.0811$) and significant ($p = .017$) predictor of teacher retention. This implies that over the five-year time frame, districts that spent more money on instructional and support expenditures had higher retention rates than those that did not.

Administrative per-pupil expenditure mean was a negative ($b = -7.575$) but significant ($p < .001$) Level 1 predictor on teacher retention. Districts that paid more on administrative per-pupil expenses had lower retention rates over the five-year time frame.

A district's average free-and-reduced mean was a negative ($b = -.04416$) and significant ($p = .011$) predictor of a district's teacher retention. This indicates that districts that have a higher population of students who qualify for free-and-reduced lunches have lower retention rates than districts with lower populations of qualified students. Class size mean was negative ($b = -.00076$) but not significant indicator of teacher retention rates.

Table 4.10 *Estimates of Fixed Effects, Level 1, Time-Varying Variables Mean*

Parameter	Estimate	Std. Err	df	t	Sig.	Lower Bound	Upper Bound
Salary_Mean	4.722E-6	1.451	535.69	3.258	.001	1.8770	7.57738
Total_extra_duty_mean	2.837E-6	1.7202	514.47	1.649	.100	-5.4211	6.2170
Instruct_Mean	1.081E-5	4.5293	525.86	2.387	.017	1.9131	1.9709
Admin_Mean	-7.57E-5	1.1823	510.85	-6.407	.000	-9.8981	-5.2523
FandR_mean	-.044167	.017286	509.26	-2.555	.011	-.07812	-.01027
Classsize_mean	.000769	.001976	542.239	-.389	.697	-.00465	.003113

After the Level 2 variables were entered the results remained relatively constant with only a slight variation in the numbers, which are reflected in Table 4.11. Again, the reason these numbers vary is that additional controlling variables were added to the total mix of variables. The district-level average salary ($b= 4.657$, $p=. 001$) and average instructional per-pupil expenditures ($b= 1.290$, $p=. 006$) were still positive and significant predictors of teacher retention. Administrative per-pupil expenditures ($b=-7.767$, $p<.001$) were still negative and a significant predictor of teacher retention. Finally, total extra duty pay mean was still found not to be a significant predictor of teacher retention in districts. A districts free-and-reduced mean remained a significant negative predictor of retention rates ($b= -.031$, $p=.48$). A districts class size still remained nonsignificant predictor of retention rates ($b=.0014$, $p=.497$).

Table 4.11 *Estimates of Fixed Effects, Level 2, Time-Varying Variables Mean*

Parameter	Estimate	Std. Err	df	t	Sig.	Lower Bound	Upper Bound
Salary_Mean	4.657E-6	1.4444	5358.39	3.225	.001	1.8203	7.4953
Total_extra_duty_mean	2.335E-6	1.7142	513.114	1.362	.174	-1.0326	5.7027
Instruct_Mean	1.290E-5	4.6482	507.187	2.775	.006	3.7680	2.2032
Admin_Mean	-7.76E-5	1.1899	513.709	-6.528	.000	-.0001	-5.4299
FandR_mean	-.0474	.01723	509.38	-2.754	.006	-.0813	-.0135
Classsize_mean	.0014	.0021	517.19	.679	.497	-.0027	.0055

Research Question 3: Are there relationships between a district’s teacher retention and its district characteristics (whether a district is rural or nonrural, its proximity to a bordering state, and whether charter or noncharter)? The third question’s hypotheses stated that there is no variation across years in the relationship between district demographic characteristics including whether a district is rural, the proximity of a school district to a bordering state, and whether a district is charter and teacher retention at the district level.

To answer this research question Level 2 variables were added to the analysis. Table 4.12 reflects these results. Time-invariant characteristics can be examined using least squares regression of the time-invariant variables and the time-varying variables aggregated to the variable mean. Thus, each time varying variable will be representative of the average of the variable at each district. Through regression, it is possible to examine which variables have predictive value for teacher retention. Of the Level 2 variables, only proximity emerged as a significant ($b=.0171$, $p=.002$) predictor of district teacher retention rates. This implies that districts that are in a county that borders a neighboring state have higher retention rates. This finding is counter intuitive to the hypotheses. Each state that surrounds Oklahoma pays higher

salaries to their teachers. It would be assumed that teachers who are close enough to drive would consider this a better option and leave Oklahoma school districts. This would imply that districts close to these bordering states would have lower retention rates. Whether a district was rural or nonrural was not found to be a significant predictors of teacher retention rates. Also, districts that were known as a charter district were not found to have significantly higher or lower teacher retention rates.

Table 4.12 *Estimates of Fixed Effects, Level 2, Time-Invariant Variables*

Parameter	Estimate	Std. Err	df	t	Sig.	Lower Bound	Upper Bound
Proximity	.01712	.0055	538.83	3.066	.002	.00615	.02809
Rural	.00812	.00621	561.37	1.308	.191	-.00407	.02032
Charter	-.0511	.3780	936.03	-1.354	.176	-1.2535	.0230

Summary

The purpose of this study was to examine the possible predictive relationships of various district-level decisions and characteristic variables in relation to district teacher retention rates. Using an HLM multinomial logistic model to examine the predictive relationships at the district level. I found that overall the time-varying predictors did not have a relationship with teacher retention. However, the district average of some of these variables did predict teacher retention rates. The study found that five of the seven time-varying variable means were significant as well as one out of the four time-invariant variables. Several of the variables results were nonsignificant. They simply did not significantly affect teacher retention. The Level 1 time-varying variables that were found to have no significance on teacher retention were class size and total extra duty pay. Whether a district was rural or nonrural was not found to be a

significant predictor of teacher retention rates as well as districts that were known as a charter district.

The Level 1 compositional variables that were added at Level 2 that were a positive significant predictor were salary and per-pupil instructional and support expenditures. This implies that the more money a district pays on salary and instruction the higher the retention rate will be for the district. The only time-invariant variable at Level 2 that was found to be significant was proximity. These findings indicated that the closer a district was to a bordering state the higher retention rate for teachers was found.

Finally, the results indicated that several variables were significantly and inversely related to retention. The percent of free-and-reduced students and administrative per-pupil expenditures were found to be significant predictors, but had a negative effect on teacher retention. This meant that the more money that a district spent on administrative cost, the lower the districts retention rate was over the five years studied. The same was noted about the percent of free-and-reduced students; the higher this number was, the lower retention rates were for the district. Lastly, average proportion of years a district went to a four-day work week emerged as a significant negative predictor of retention rates. These results indicate that districts with a greater proportion of years where they had gone to a four-day work week was associated with lower teacher retention rates. These findings provide functional results when discussing potential reasons for districts to increase retention rates. In addition, these results provide some necessary information not only to policymakers, but to school administrators as well.

CHAPTER FIVE

FINDINGS, CONCLUSIONS, & RECOMMENDATIONS

This study began as an exploratory approach to testing district-level decisions and characteristic variables that are related to district teacher retention rates and has been broken into two distinct data analyses. The first of these used time-varying variables at level one while the second phase used time-invariant variables at level two. The analysis included hierarchical linear modeling to predict values of district-level decision and characteristic variables and their effect on district retention rates. Chapter Four provided a review of the methodology used in the study followed by a presentation of the data analysis results for each research question. Chapter Five summarizes the major results of this study, including the interpretation and implications of the findings, beginning with an overview of the study design and variables used to assess the impact of varying district-level decisions and characteristics on the districts teacher retention. This information has both programmatic and policy implications. After, examining the variables that reflect a significant relationship at the district level, results reveal that the amount of influence and control districts have over teacher retention is great.

Quality teaching is the most substantial link to student achievement (Hanushek, 2010). However, unless school districts can retain good teachers and thereby give them opportunities to develop their pedagogical skills, schools– and, more importantly, the students themselves cannot benefit from such quality teaching. Sadly, in what has become a nationwide problem, teachers leave the field of education faster than the members of other professions (Ingersoll, 2001). As a result, districts across the United States must divert valuable resources to dealing with teacher turnover issues such as recruiting and training new teachers. The objective of this study was to determine if average teacher salaries, extra duty pay, instructional and support PPE,

administrative PPE, class size, percent of economically disadvantaged students, district location, charter vs. noncharter status, and the proximity of the districts to a surrounding state were predictors of teacher retention. With an understanding of the effect of such variables on teacher retention, there is a possibility that school administrators and policymakers could make more informed decisions about funding. This quantitative study used a two-level hierarchical linear model to examine teacher retention data nested within districts that evaluated the distinctive effects of time-varying (level 1) and time-invariant (level 2) predictors. The study examined 521 school districts across the state of Oklahoma over a five-year (2013-2017) time span. This study looked at district-level decisions and characteristics using the following district-level variables:

- District's retention rate. These data were collected from districts reporting through the Oklahoma State Department of Education personnel report. The percentage was obtained by subtracting the number of teachers who left the district by the full-time equivalent (FTE) number of teachers employed and dividing that number from the total (FTE) of teachers. Teachers who left for retirement, medical reasons, or death were removed from this equation.
- Four-day workweek. These data were pulled off of the Oklahoma State Department of Education website. The information was obtained from each district's calendar.
- Average teacher's bachelor's salary. These data were collected from districts reporting Oklahoma Cost Accounting System (OCAS) function total 1000 and job code 210 and retrieved from the Oklahoma State Department of Education website.
- Average total extra duty pay. These data were collected from districts reporting Oklahoma Cost Accounting System (OCAS) object total 192 and retrieved from the Oklahoma State Department of Education website.

- Instructional and support resources. These data were collected from districts reporting Oklahoma Cost Accounting System (OCAS) function total 1000, 2100, and 2200 and retrieved from the Oklahoma State Department of Education website.
- Administrative per-pupil expenditures. These data were collected from districts reporting Oklahoma Cost Accounting System (OCAS) function total 2300 and 2400, and retrieved from the Oklahoma State Department of Education website.
- Class size. Taking the total district enrollment and dividing it by the districts FTE configured these data. These data were retrieved from the Oklahoma State Department of Education website.
- Percent of Economically Disadvantaged Students. These data were collected from the Oklahoma State Department of Education website.
- District Locale. These data were collected from the National Center for Educational Statistics, and compiled into two categories: rural or nonrural.
- Charter. These data were collected from the Oklahoma State Department of Education website.
- Proximity. A map of Oklahoma listing the districts that bordered a surrounding state collected these data.

Research Question 1: Is there a relationship between district teacher retention and adoption of a four-day instructional week? The following variables were utilized in this analysis:

- Teacher retention rates
- Four-day workweek

Research Question 2: Are there relationships between district teacher retention and district fiscal decisions and characteristics (including instructional and support expenditures per pupil,

administrative expenditures per pupil, average teacher salaries, extra duty pay, including percent economically disadvantaged students, and average district class size)? The following variables were utilized in this analysis:

- Teacher retention rates
- Average teacher salaries
- Total extra-curricular pay
- Instructional and support per pupil expenditures
- Administrative per pupil expenditures
- Percent of economically disadvantaged students
- Class Size

Research Question 3: Are there relationships between district teacher retention and the district characteristics (whether a district is rural, the proximity of a school district to a bordering state, and whether a district is charter)? The following variables were utilized in this analysis:

- Teacher retention rates
- Charter or noncharter school classification
- Rural or nonrural
- Proximity to a bordering state

Summary of the Study Findings

Research Question 1 Findings Summary

Research Question 1 asked, is there a relationship between district teacher retention and adoption of a four-day instructional week?

Hypothesis 1: There is variation across years in the relationship between implementation of the four-day week and teacher retention at the district level. The first step was to run an

unconditional model or a one-way ANOVA with random effects. This model was tested in order to determine if there was significant variation in district-level intercepts. A multilevel model analysis was used to answer research question 1. The level 1 outcome was based on repeated measurements over a five-year time span (2013-2017). These level 1 variables were also introduced into the model as compositional variables at Level 2. This was done to assess the possibility that stable, time in-variant between district differences might also account for variation in district retention rates.

At the first level, there was no significant relationship between those districts that converted to a four-day week and their district retention rates. However, at the second level of analysis, the findings reported an inverse statistically significant relationship. So, the districts with a greater proportion of years where they had been operating on a four-day instructional week were associated with lower retention rates. There is limited research that explores whether a four-day workweek influences teacher retention. However, some studies have related a positive relationship between the two. Plucker and associates (2012) identified a few benefits to a four-day workweek and linked these advantages to teachers staying within the district. Marion's (2018) dissertation study explored the perceptions of school personnel on how a four-day workweek impacted retention. The overall findings of the study indicated the four-day workweek has a positive impact on the retention of teachers, especially in rural schools. For many school districts, a four-day workweek is the only way they can compete with other districts that can offer teachers more incentives (The Economist, 2017).

Most research that has been conducted over the four-day workweek implies that the decision made in order to adopt this type of schedule is due to anticipated financial savings. In 2009, the Oklahoma legislature voted to allow school districts the flexibility to utilize hours

instead of days to construct their school calendars, allowing for the adoption of a four-day schedule. Over the last ten years, the number of districts has grown, resulting in 97 districts in 2017 converting to this type of schedule. The final year in the study reflected that the number of districts that transitioned to a four-day nearly doubled compared to the initial years being evaluated. Therefore, considering larger schools did not transition until 2017, the majority of the districts that utilized a four-day schedule longer were smaller, rural school districts. The results indicate that these school districts had lower retention rates over the five years analyzed. The schedule could in fact initially appeal to teachers; however, the findings indicate it does not assist in retaining them. The study's findings can contribute to research exploring the role that a four-day workweek contributes to school districts.

Research Question 2 Findings Summary

Research Question 2 asked, whether there are relationships between a district's teacher retention and its expenditures for instructional and support, administrative costs, teacher salaries, and extra duty pay, as well as, its percentage of economically disadvantaged students and average class size, and hypothesized that there would be no variation at the district level across years in the relationship between the district's fiscal decisions and characteristics and its teacher retention rate.

While a few of the variables including class size and extra duty pay were not significantly related to teacher retention, certain other variables (including instruction and support expenditures, administration expenditures, teacher pay, and percent of economically disadvantaged students) were significantly related to retention. Specifically, districts that spend more money on instructional and support resources had higher retention rates, and districts that spend more money on administration expenditures— including superintendents, assistant

superintendents, directors, building level principals, and assistant principals– retained teachers at a lower rate. Furthermore, districts that pay more in total compensation at the bachelor’s level had higher retention rates over the five-year time span.

Hypothesis 2a: Higher years of instructional and support expenditures are more likely to be related to retention at the district level. The same trend followed instructional and support per pupil expenditures. The analysis indicated there was a positive statistically significant relationship, indicating districts that spent more money on instructional and support resources had higher retention rates. This finding is consistent with the literature that indicates that teachers who feel that they have adequate resources, mentoring, and training to be successful in the classroom are more likely to stay then leave a district (Cancio, Albrecht, & Johns, 2013; Hill, 2015; Ian, 2015; Ingersoll 2001; Kersaint, Lewis, Potter, & Meisels, 2005; Kelly, 2004). These findings are significant, especially in the state of Oklahoma where per-pupil funding has been cut by 26.9% over the last ten years (Oklahoma Policy Institute, 2016). The study’s findings indicate the importance of funding to school districts. In years of decreased funding, districts that utilized more money towards instructional and support resources were able to retain teachers over a five-year period. Therefore, allowing districts to save in turnover costs and reinvest those funds in the classroom.

Hypothesis 2b: Higher years of administrative expenditures are more likely to be related to retention at the district level. An interesting outcome that emerged in the findings was that administrative per-pupil expenditures were significantly and inversely related to teacher retention rate. Districts that spent more money on administration including superintendents, assistant superintendents, directors, building level principals, and assistant principals reflected lower retention rates over the five years. The literature reflects that lack of administrative support is

one of the main reason teachers leave a district or the profession altogether (Boyd, Grossman, Ing, Lankford, Loeb, & Wyckoff, 2011; Cancio, Albrecht, & Johns, 2013; Marshall, 2015; Ingersoll, 2001; Kersaint, Lewis, potter, & Meisels, 2005; Liu & Meyer, 2005; Madsen & Hancock, 2002). However, in this study, it only evaluates actual dollar amounts districts spend, not the quality of administrators employed. This could imply that the amount of money expended does not necessarily equate to more administrative support for teachers. However, one observation could be made that the more administrative per pupil expenditures a district has indicates more actual administrative positions the district has. The more administrative positions a district has possibly could relate to more initiatives that are being implemented causing teachers to feel overwhelmed. Finally, the more money that a district spends on administration could be less money the district is spending on instructional and support resources for the classroom.

Hypothesis 2c: Higher years of teacher salaries are more likely to be related to retention at the district level. The results reflected that the district salary mean were positive and significant predictor of teacher retention. This implies that districts that pay more in total compensation at the bachelor's level have higher retention rates over the five-year time span. These results align with evidence from the literature that teachers respond to higher compensation when deciding to become or stay in the profession (Boyd, Grossman, Ing, Lankford, Loeb, & Wyckoff, 2011; Djonko-Moore, 2016; Ingersoll, 2001, 2003; Ingersoll & Smith, 2003; Reed, Rueben & Barbour, 2006; Springer & Taylor, 2009). The study's findings yielded districts that are willing to invest more money into teacher's salaries are saving on overall costs associated with teacher turnover. Higher teacher salaries align parallel with

increased instructional and support resources, and indicate that the more money districts expend on teachers, does in fact predict whether a teacher remains in a school district.

Hypothesis 2d: Higher years of extra duty pay are more likely to be related to retention at the district level. A districts' total extra pay did not yield a statistically significant contribution to predicting teacher retention in districts. This held constant when both Level 1 and Level 2 variables were added to the analysis. However, extra duty pay does not affect every teacher in a school district. Therefore, the results imply that extracurricular duty pay has no relationship with teacher retention rates within the five years analyzed, regardless of the amount paid.

Hypothesis 2e: Higher years of an increased percent of economically disadvantaged students are more likely to be related to lower retention at the district level. The number of economically disadvantaged students represented a critical factor that predicted lower teacher retention rates. A district's percent of free-and-reduced students mean were significantly and inversely related to teacher retention when entered as compositional variables during the second analysis ($b=-.04416$, $p=.011$) and once again after adding in the Level 2 variables ($b=-.0474$, $p=.006$). These results were consistent with the literature, specifically that districts with higher economically disadvantaged students encounter more difficulty not only recruiting teachers, but also retaining them (Allensworth, Ponisciak, & Mazzeo, 2009; Hanushek, Kain & Rivkin, 2004; Ingersoll, 2001; Ingersoll, 2004). The results from this study indicate that districts who had a higher percentage of students who qualify for free and reduced meals had lower teacher retention rates across the time frame. In Oklahoma, one in five children are considered economically disadvantaged these totals to over 60% across the state and ranks the state higher than the national average (Oklahoma Policy Institute, 2018). This characteristic not only impacts lower

teacher retention rates, but a district's financial and instructional resource allocations to provide adequate services to these students.

Hypothesis 2f: Higher years of increased class size are more likely to be related to lower retention at the district level. During the first analysis where Level 1 variables were entered, class size was not a significant predictor of teacher retention. The second analysis when Level 2 variables were entered, and the Level 1 variables were entered as compositional variables; class size once again was found not to be a significant predictor of teacher retention. This was not consistent with the literature. In previous research, class size has been an indicator that led to increased teacher turnover (Gallo & Beckman, 2016; Harrell, Leavell, VanTassel & McKee, 2004; Ingersoll, 2003; Loeb, Darling-Hammond & Luczak, 2005; Larrivee, 2012). Interestingly, the findings indicated that class size was not a predictor of teacher retention. In Oklahoma, districts have not had a class size cap for several years due to decreased funding. Therefore, throughout years of downwardly spiraling budgets districts have dealt with larger class sizes across the state which could be an indicator of why it was found nonsignificant.

Research Question 3 Findings Summary

Research Question 3 asked, are there relationships between district teacher retention and the district characteristics (whether a district is rural, the proximity of a school district to a bordering state, and whether a district is charter)?

Hypothesis 3: District demographic characteristics including whether a district is rural, the proximity of a school district to a bordering state, and whether a district is charter are predictors of teacher retention. Only one demographic characteristic, proximity, was found to significantly affect teacher retention rates. The remaining two characteristics, rural or nonrural and charter or noncharter were not significant indicators.

Hypothesis 3a: District location measured as rural or nonrural is a predictor of teacher turnover. The analysis confirmed that a district that was considered rural or nonrural was not a significant predictor of teacher retention. According to research, rural schools face greater hiring and retention challenges than their urban and suburban peers (Behrstock-Sherratt, 2016; Burton, Brown, & Johnson, 2013; Ingersoll, 2001; Monk, 2007). The nonsignificant finding could be because in the state of Oklahoma over 70 percent of the districts are considered rural.

Hypothesis 3b: The proximity of a district to a bordering state is a predictor of teacher turnover. A district's proximity to a bordering state indicated a significant predictor of teacher retention. This implies that districts that are in a bordering county had higher teacher retention rates than those who were not. Perhaps this finding, because it was positive, was surprising considering Oklahoma was ranked last in regional teacher pay. It would be easy to recruit Oklahoma teachers to higher paying states especially if it is a short drive and they do not have to relocate. These findings could imply that these districts are able to recruit retired teachers from bordering states that remain in Oklahoma for multiple years to draw another retirement check.

Hypothesis 3c: District defined as a charter or non-charter is a predictor of teacher turnover. Districts that were considered charter versus those that were not were found not to be significant predictors of teacher retention. Charter schools in the state of Oklahoma are still limited in number but have been known to provide more salary for their teachers. Therefore, they may be able to recruit teachers, but are unable to retain them.

Conclusions

The first research question asked if there was a relationship between district teacher retention and adoption of a four-day instructional week? The current HLM analysis indicates that when the variables mean was created through aggregation of the yearly data a significant

and inverse relationship to retention emerged, indicating that districts that had adopted the four-day instructional week earlier witnessed lower retention rates. There is a gap in research that evaluates the four-day workweek and its relationship to teacher retention. More studies about this are warranted. In Oklahoma, there was a tremendous increase of districts that adopted the four-day instructional week in 2017. The number of districts doubled from the previous years studied to 97, generating a unique source of data as to whether this strategy might result in significant teacher retention changes.

The second research question asked if there are relationships between district teacher retention and district fiscal decisions and characteristics. The results indicated that districts who spent more money on teacher compensation and instructional and support resources had higher retention rates, reflecting teachers are willing to stay in districts where they make more money and also have enough classroom materials and instructional support. Teachers, however, were more likely to leave districts that spent more money on administration. This is just a macro view at the district level. There could be several reasons for teachers leaving a district that have higher administrative expenditures: too many initiatives being implemented, feeling micromanaged while in a classroom, or just receiving less money for classroom supplies. Consistent with the literature, the percentage of students in the district who are economically disadvantaged were significantly and inversely related to teacher retention throughout the five-year data analyzed. Two variables emerged as nonsignificant from this question: extra-duty pay and class size.

The third research question asked whether district characteristics influenced teacher retention. Seventy percent of the school districts in Oklahoma are considered rural. This might explain why the location of a district was a nonsignificant predictor of teacher retention.

District's that were classified as charter schools were also found statistically nonsignificant. Finally, the proximity variable was surprising as it was a significant positive predictor of teacher retention, meaning those districts that were located in a county that bordered a neighboring state had higher retention rates across the period.

Recommendations for Future Research

Possible Future Research

- The current study examined a five-year time span from 2013-2017. The majority of districts in Oklahoma converted to a four-day workweek in 2017. A follow-up study that includes proceeding years would be beneficial to the study of its relationship with retention.
- In addition, a study that evaluates districts with a four-day work week in relationship to student growth would be beneficial for both school administrators and policymakers.
- Certainly, a study is warranted that investigates the reasons why teachers leave a district that expends higher amounts on administrative per pupil expenditures. A more in-depth evaluation of how teachers feel supported by the administration needs to be conducted as well.
- A study that examines teacher characteristics such as certification, subject taught, degree level, years of experience, ethnicity, and gender could be beneficial when looking at teacher retention.
- A study is warranted that explores the relationship between higher administrative expenditures and lower expenditures for teacher pay and instructional support is warranted.

- The current study only looked at a macro view from district characteristics as predictors of teacher retention. Future researchers are encouraged to conduct a qualitative study to gain teacher and administrative input to explore lived experiences that both teachers and administrators believe are the reasons for teachers exiting a district.

Future studies might examine more deeply other variables such as teacher characteristics that could influence teacher retention.

Implication for Policy and Practice

Obviously, the lack of state funding creates issues for school districts as pertains to financial decisions on how and where they allocate their budgets. The lack of adequate funding from the state over the last decade has created an ongoing problem for district leaders in the ability to retain teachers. The study findings indicate that districts who pay teachers a higher salary and spend more money on instructional and support resources have higher retention rates. The results of this study conclude that with more money allocated to districts to spend on teachers and their classrooms, such support could or at least lessen high rates of turnover. Therefore, preventing districts from diverting large amounts of money to turnover costs but instead keeping those dollars in the classroom is more beneficial. Districts should review their budgets annually to determine if teacher salaries can be increased. Salaries should be comparable to districts in the area. When analyzing the budget, districts, need to determine if funding towards instructional and support resources can be increased. Adequate classroom resources can look differently at each district. Overall, investing more dollars on teacher salaries and resources that are readily available for teachers may be what is needed to attract and retain quality teachers to these districts. Furthermore, districts that serve a more significant number of economically disadvantaged students, should consider more operation flexibility with salaries

and resources to ultimately retain quality teachers in these hard to staff school districts. Finally, district leadership should reevaluate district budgets to ensure that more dollars are being expended on classroom teachers, instructional material, and support resources.

Summary

One of the primary purposes of school districts is to ensure learning for all children, and having high-quality teachers in every classroom is necessary for this learning to happen. The overall goal of a school district is to not only recruit quality teachers, but to retain those same quality teachers while being fiscally responsible. School districts across the state of Oklahoma are struggling with teacher retention that is costing them not only fiscally, but more importantly in terms of student achievement in the classroom. This study was a step in determining if there are district-level decisions and characteristics that affect teacher retention. The current study concluded that three variables were found to be predictors of higher retention rates within school districts:

- Higher average teacher compensation
- Higher dollars expended on instructional and support resources
- Proximity to a bordering state.

This finding implies that districts who can allocate more money for teacher salaries and instructional and support resources are able to retain teachers longer. School districts that are able to retain teachers can spend less on turnover costs and put more money back in the classroom. It is also essential to know what variables inversely affected teacher retention. This study also concluded that three variables inversely affect teacher retention:

- Four-day work week
- Administrative expenditures per pupil

- Percent of economically disadvantaged students

These findings conclude, districts, with a greater proportion of years where they had gone to a four-day work was associated with lower teacher retention rates. Districts should consider this information if they are considering a transition to a shorter workweek. Districts that expend more money on administrative resources should also reevaluate these expenditures to determine if they are meeting teachers' needs. Finally, the fact that districts that have higher percentages of economically disadvantaged students are associated with lower retention rates is a factor that is out of the control of district leadership and should encourage exploration of alternative ways to retain teachers in high poverty areas. In conclusion, districts need to reevaluate the amount of money and support they are investing in teachers. If districts know what affects teacher retention, they will be ready to plan accordingly to increase retention rates in their schools.

REFERENCES

- Aaronson, D., Barrow, L., & Sander, W. (2007). Teachers and student achievement in the Chicago public high schools. *Journal of Labor Economics*, 25(1), 95-135.
- Adnot, M., Dee, T., Katz, V., & Wyckoff, J. (2017). Teacher turnover, teacher quality, and student achievement in DCPS. *Educational Evaluation and Policy Analysis*, 39(1), 54-76.
- Ado, K. (2013). Action research: Professional development to help support and retain early career teachers. *Educational Action Research*, 21(2), 131-146.
- Allensworth, E., Ponisciak, S., & Mazzeo, C. (2009). *The school's teachers leave: Teacher mobility in Chicago Public Schools*. Chicago: Consortium on Chicago School Research - University of Chicago.
- Alliance for Excellent Education. 2005. Teacher attrition: A costly loss to the nation and to the states. <http://www.all4ed.org/files/archive/publications/TeacherAttrition.pdf>.
- American Association of School Administrators. (2017). Retrieved from https://www.aasa.org/uploadedFiles/Equity/AASA_Rural_Equity_Report_FINAL.pdf
- Anderson, D., & Walker, M. (2012). Does shortening the school week impact student performance? Evidence from the Four-Day School Week. *SSRN Electronic Journal*. doi: 10.2139/ssrn.2008999
- Anderson, D., & Walker, M. (2015). Does Shortening the School Week Impact Student Performance? Evidence from the Four-Day School Week. *SSRN Electronic Journal*, 10(3), 314-349. <http://dx.doi.org/10.2139/ssrn.2008999>.
- Ayala, E. (2017). Texas' rural schools need help attracting teachers, and it's all about the pay. *Dallas News*. Retrieved from <https://www.dallasnews.com/news/education/2017/07/26/texas-rural-schools-need-help-attracting-teachers-pay>
- Ayers, J. (2011). Make Rural Schools a Priority: Considerations for Reauthorizing the Elementary and Secondary Education Act. *Center for American Progress*.
- Ballou, D., & Podgursky, M. (1997). Teacher pay and teacher quality. WE Upjohn Institute.
- Barber, M., & Mourshed, M. (2007). How the world's best performing school systems come out on top', McKinsey and Co.
- Beesley, A. & Anderson, C. (2007). The four-day school week: Information and Recommendations. *Rural Educator*, 29(1).

- Behrstock-Sherratt, E. (2016). Creating coherence in the teacher shortage debate: What policy leaders should know and do. *Education Policy Center at American Institutes for Research*.
- Bergen, A. (2011). Options for potential perham-dent school cuts revealed. *East Otter Tail Focus*. Retrieved from <http://www.eotfocus.com/event/article/id/17431>
- Borman, G. D., & Dowling, N. M. (2008). Teacher attrition and retention: A meta-analytic and narrative review of the research. *Review of educational research, 78*(3), 367-409.
- Borman, G., & Dowling, N. (2008). Teacher attrition and retention: A meta-analytic and narrative review of the research. *Review of Educational Research, 78*(3), 367-409. doi: 10.3102/0034654308321455
- Boyd, D., Grossman, P., Ing, M., Lankford, H., Loeb, S., & Wyckoff, J. (2011). The influence of school administrators on teacher retention decisions. *American Educational Research Journal, 48*(2), 303-333. doi: 10.3102/0002831210380788
- Boyd, D., Lankford, H., Loeb, S., & Wyckoff, J. (2005). Explaining the short careers of high-achieving teachers in schools with low-performing students. *American economic review, 95*(2), 166-171.
- Brown, A. (2012). *The occupational socialization of novice core content area teachers/athletic coaches* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database.
- Bryk, A. S., & Raudenbush, S. W. (1987). Application of hierarchical linear models to assessing change. *Psychological bulletin, 101*(1), 147.
- Bryk, A., & Raudenbush, S. (1992). *Hierarchical linear models*. Newbury Park: Sage Publ.
- Bundick, M. J. (2011). Extracurricular activities, positive youth development, and the role of meaningfulness of engagement. *The Journal of Positive Psychology, 6*(1), 57-74.
- Bundick, M. J., & Tirri, K. (2014). Student perceptions of teacher support and competencies for fostering youth purpose and positive youth development: Perspectives from two countries. *Applied Developmental Science, 18*(3), 148-162.
- Bundt, J., & Leland, S. (2001). Wealthy or poor: Who receives and who pays? A closer look at measures of equity in Iowa school finance. *Journal of Education Finance, 26*(4), 397-413.
- Burton, M., Brown, K., & Johnson, A. (2013). Storylines about rural teachers in the united states: A narrative analysis of the literature. *Journal of Research in Rural Education, 28*(12).

- Cancio, E., Albrecht, S., & Johns, B. (2013). Defining administrative support and its relationship to the attrition of teachers of students with emotional and behavioral disorders. *Education and Treatment of Children, 36*(4), 71-94. doi: 10.1353/etc.2013.0035
- Carver-Thomas, D. & Darling-Hammond, L. (2017). *Teacher turnover: Why it matters and what we can do about it*. Palo Alto, CA: Learning Policy Institute.
- Cauley, W. (2011). *Beginning teachers who coach high school athletics* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database.
- Certo, J. L., & Fox, J. E. (2002). Retaining quality teachers. *The High School Journal, 86*(1), 57-75.
- Chmelynski, C. (2003). Four-day school weeks? Only if they fit. *The Education Digest, 68*(5), 58.
- Chisholm, L. (2009). *An overview of research, policy and practice in teacher supply demand 1994-2008*. Cape Town: HSRC Press.
- Chowning, L. (2019). Pros and cons of 4-day school week discussed. Retrieved from http://www.ssentinel.com/index.php/school/article/pros_and_cons_of_4_day_school_week_discussed/
- Coggshall, J. G., Ott, A., Behrstock, E., & Lasagna, M. (2010). Retaining teacher talent: The view from generation y. *Public Agenda*.
- Committee for Economic, D. (2009). Teacher compensation and teacher quality. A Statement by the Policy and Impact Committee of the Committee for Economic Development.
- Craven, R. (2011). *Teaching Aboriginal Studies: A practical resource for primary and secondary teaching*. Allen & Unwin.
- Daly, J. L., & Richburg, R. W. (1984). Student Achievement in the Four-Day School Week.
- Danielson, C. (2006). *Teacher leadership that strengthens professional practice*. ASCD.
- Darling-Hammond, L. (2000a). Teacher quality and student achievement. *Education policy analysis archives, 8*, 1.
- Darling-Hammond, L. (2000b). *Solving the Dilemmas of Teacher Supply, Demand, and Standards: How We Can Ensure a Competent, Caring, and Qualified Teacher for Every Child*. National Commission on Teaching & America's Future, Kutztown Distribution Center, PO Box 326, Kutztown, PA 19530-0326.

- Darling-Hammond, L. (2003). Keeping good teachers: Why it matters, what leaders can do. *Educational leadership*, 60(8), 6-13.
- Darling-Hammond, L. (2008). Teacher learning that supports student learning. *Teaching for intelligence*, 2(1), 91-100.
- Darling-Hammond, L. (2010). The flat world and education. *New York: Teachers College Press*.
- Darling-Hammond, L. (2016). Research on teaching and teacher education and its influences on policy and practice. *Educational Researcher*, 45(2), 83-91.
- Darling-Hammond, L., Carver-Thomas, D., & Sutchter, L. (2017). Teacher Turnover Debate: Linda Darling-Hammond, Colleagues Respond to Critiques of Their Latest Study. <https://www.the74million.org>.
- Darling-Hammond, L., Hudson, L., & Kirby, S. N. (1989). Redesigning teacher education (Research Report No. R-3661-FF/CSTP). *Santa Monica, CA: Rand Corporation*.
- Dayton, N. A. (2003). The demise of total quality management (TQM). *The TQM Magazine*, 15(6), 391-396.
- DeAngelis, K. J., Wall, A. F., & Che, J. (2013). The impact of preservice preparation and early career support on novice teachers' career intentions and decisions. *Journal of teacher education*, 64(4), 338-355.
- Deering, P. D., & Maiden, J. (1999). The fiscal effects of state mandated class size requirements in Oklahoma. *Journal of Education Finance*, 25(2), 195-210.
- Dixon, A. (2011). *Focus on the alternative school calendar: Year-round school programs and update on the four-day school week*. Southern Regional Education Board.
- Djonko-Moore, C. M. (2016). An exploration of teacher attrition and mobility in high poverty racially segregated schools. *Race Ethnicity and Education*, 19(5), 1063-1087.
- Donis-Keller, C., & Silvernail, D. L. (2009). *Research brief: A review of the evidence on the four-day school week*. Center for Education Policy, Applied Research and Evaluation, University of Southern Maine.
- DuFour, R., & DuFour, A., Eaker, R., & Karhanek, G. (2010). *Raising the bar and closing the gap: Whatever it takes*. Solution Tree Press.
- Echols, M. (2007). Learning's role in talent management. *Chief Learning Officer*, 6(10), 36-40.
- Education Supply and Demand Report (2018) | Oklahoma State Department of Education. (2019). Retrieved from <https://sde.ok.gov/documents/2018-12-31/education-supply-and-demand-report>

- Enders, C., & Tofighi, D. (2007). Centering predictor variables in cross-sectional multilevel models: a new look at an old issue, *Psychological methods*, 12(2), 121.
- Equitable Access to Excellent Educators Plan. (2016). Retrieved from <https://www2.ed.gov/programs/titleiparta/equitable/okeyequityplan0815.pdf>
- Ermeling, B. A., & Graff-Ermeling, G. (2016). *Teaching better: Igniting and sustaining instructional improvement*. Corwin Press.
- Ferguson, R. F. (1990). Racial patterns in how school and teacher quality affect achievement and earnings.
- Fowler Jr, W. J., & Monk, D. H. (2001). A primer for making cost adjustments in education: An overview. *US Department of Education Office of Educational Research and Improvement NCES 2001-378*, 43.
- Fowles, J., Butler, J., Cowen, J., Streams, M., & Toma, E. (2013). Public employee quality in a geographic context. *The American Review of Public Administration*, 44(5), 503-521. doi: 10.1177/0275074012474714
- Futernick, K. (2007). *A possible dream: Retaining California teachers so all students learn* (Vol. 2, No. 10). Sacramento: California State University.
- Gaines, G. (2008). *Focus on the school calendar: The four-day school week*. Atlanta: Southern Regional Education Board.
- Gallo, J., & Beckman, P. (2016). A global view of rural education: Teacher preparation, recruitment, and retention. *Global Education Review*, 3(1).
- Gardner, H. (2006). *Multiple intelligences*. New York: BasicBooks.
- Gavin, M. B., & Hofmann, D. A. (2002). Using hierarchical linear modeling to investigate the moderating influence of leadership climate. *The Leadership Quarterly*, 13(1), 15-33.
- Glennie, E. J., Mason, M., & Edmunds, J. A. (2016). Retention and satisfaction of novice teachers: Lessons from a school reform model. *Journal of Education and Training Studies*, 4(4), 244-258.
- Goldstein, H. (2011). *Multilevel statistical models* (Vol. 922). John Wiley & Sons.
- Gonsalves, R. S. K. (2015). *Teacher retention and classroom instructors who coach interscholastic athletics or advise extracurricular activities* (Order No. 10800097). Available from ProQuest Dissertations & Theses Global. (2155338542). Retrieved from <https://search-proquest-com.ezproxy.lib.ou.edu/docview/2155338542?accountid=12964>

- Grady, M. P., Collins, P., & Grady, E. L. (1991). Teach for America 1991 summer institute evaluation report. *Unpublished manuscript*.
- Gray, L., & Taie, S. (2015). Public school teacher attrition and mobility in the first five years: Results from the first through fifth waves of the 2007-08 beginning teacher longitudinal Study. First Look. NCES 2015-337. *National Center for Education Statistics*.
- Griffith, M. (2011). What savings are produced by moving to a four-day school week? *Education Commission of the States (NJ3)*.
- Grubb, W. N. (2009). *The money myth: School resources, outcomes, and equity*. Russell Sage Foundation.
- Guarino, C. M., Brown, A. B., & Wyse, A. E. (2011). Can districts keep good teachers in the schools that need them most? *Economics of Education Review*, 30(5), 962-979.
- Hanushek, E. (2003). The failure of input-based resource policies. *Economic Journal*, 113(485), F64-F68.
- Hanushek, E. A. (2010). *Making schools work: Improving performance and controlling costs*. Brookings Institution Press.
- Hanushek, E. A., Kain, J. F., & Rivkin, S. G. (2004). Why public schools lose teachers. *Journal of human resources*, 39(2), 326-354.
- Hanushek, E., & Rivkin, S. (2006). Teacher quality. *Handbook of the Economics*
- Harrell, P., Leavell, A., van Tassel, F., & McKee, K. (2004). No teacher left behind: results of a five-year study of teacher attrition. *Action in Teacher Education*, 26(2), 47-59. doi: 10.1080/01626620.2004.10463323
- Harris, D. N., Rutledge, S. A., Ingle, W. K., & Thompson, C. C. (2010). Mix and match: What principals really look for when hiring teachers. *Education Finance and Policy*, 5(2), 228-246.
- Hasegawa, H. (2011). *Factors influencing novice teacher retention in Hawaii's public schools* (Doctoral dissertation). Available from ProQuest Dissertations and Thesis database.
- Heck, R. H., Tabata, L., & Thomas, S. L. (2013). *Multilevel and longitudinal modeling with IBM SPSS*. Routledge.
- Hedtke, J. T. (2014). The four-day versus the five-day school week: A comparative study of South Dakota schools.
- Hendricks, M. (2014). Does it pay to pay teachers more? Evidence from Texas. *Journal of Public Economics*, (109), 50-63.

- Hendricks, M. (2016). An Empirical Analysis of Teacher Salaries and Labor Market Outcomes in Oklahoma. Retrieved from https://www.ossba.org/wp-content/uploads/2015/11/Teacher_Pay_FINAL_revised_cw.pdf
- Hewitt, P., & Denny, G. (2011). The four-day school week: Impact on student academic performance. *The Rural Educator*, 32(2).
- Hill, H. (2015). *Resources for teaching: Examining personal and institutional predictors of high-quality instruction* (Doctoral dissertation). Harvard College.
- Hime, S., & Maiden, J. (2017). An examination of the fiscal equity of current, capital, and crossover educational expenditures in Oklahoma school districts. Retrieved from <http://www.educationfinance.us/publications/isef-crossover-study>
- Hough, H., Loeb, S., & Policy Analysis for California Education. (2013). Can a district-level teacher salary incentive policy improve teacher recruitment and retention? Policy Brief 13–4.
- Huberman, M. (1993). The lives of teachers. *London: Cassell*.
- Imazeki, J. (2005). Teachers' salaries and teacher attrition. *Economics of Education Review* 24(4), 431–449.
- Ingersoll, R. (2001). Teacher Turnover and Teacher Shortages: An Organizational Analysis. *American Educational Research Journal*, 38(3), 499-534. doi: 10.3102/00028312038003499
- Ingersoll, R. M. (2003). *Is there really a teacher shortage? A research report*. Center for the Study of Teaching and Policy. Retrieved from <http://www.ctpweb.org>.
- Ingersoll, R. M. (2004). Why do high-poverty schools have difficulty staffing their classrooms with qualified teachers. *Washington DC: Center for American Progress and Institute for American's Future*.
- Ingersoll, R. (2005). Four myths about America's teacher quality problem. *Yearbook of the National Society for the Study of Education*, 103(1), 1-33. doi: 10.1111/j.1744-7984.2004.tb00029.x
- Ingersoll, R., & Kralik, J. M. (2004). The impact of mentoring on teacher retention: What the research says.
- Ingersoll, R. M., & May, H. (2012). The magnitude, destinations, and determinants of mathematics and science teacher turnover. *Educational Evaluation and Policy Analysis*, 34(4), 435-464.

- Ingersoll, R., & Smith, T. (2003). The wrong solution to the teacher shortage. *Educational leadership*, 60(8), 30-33.
- Ingersoll, R., Merrill, L., & May, H. (2014). What are the effects of teacher education and preparation on beginning teacher attrition?
- Jimerson, L. (2005). Placism in NCLB—How rural children are left behind. *Equity & Excellence in Education*, 38, 211-219. doi:10.1080/10665680591002588
- Johnson, S. M., & Birkeland, S. E. (2003). Pursuing a “sense of success”: New teachers explain their career decisions. *American Educational Research Journal*, 40(3), 581-617.
- Johnson, B., & Christensen, L. (2012). *Educational research: Quantitative, qualitative, and mixed approaches*. Los Angeles, CA: Sage
- Johnson, C. (2013). *The four-day school week: A case study examining three stages of implementation* (Doctoral dissertation, University of Missouri--Columbia).
- Johnson, J., & Strange, M. (2007). Why Rural Matters 2007: The Realities of Rural Education Growth. *Rural School and Community Trust*.
- Johnson, S. & Papay, J. (2009). Redesigning teacher pay: A system for the next generation of educators. Washington, DC: Economic Policy Institute.
- Johnson, S. M. (2006). The workplace matters: Teacher quality, retention, and effectiveness. Working Paper. *National Education Association Research Department*.
- Johnston, R. C. (1997). A matter of time: Schools try four-day weeks. *Education week*, 17(13), 1.
- Keigher, A., and Cross, F. (2010). Teacher attrition and mobility: Results from the 2008–09 teacher follow-up survey. National Center for Education Statistics, Retrieved April, 21, 2017, from <http://nces.ed.gov/pubs2010/2010353.pdf>
- Kelley, L. M. (2004). Why induction matters. *Journal of teacher education*, 55(5), 438-448.
- Kersaint, G., Lewis, J., Potter, R., & Meisels, G. (2007). Why teachers leave: Factors that influence retention and resignation. *Teaching and Teacher Education*, 23(6), 775-794.
- Killion, J., & Harrison, C. (2006). Taking the lead: New roles for teachers and school-based coaches. *Oxford, OH: National Staff Development Council*.
- Kini, T., & Podolsky, A. (2016). Does teaching experience increase teacher effectiveness. *A Review of the Research*.
- Koki, S. (1992). Modified school schedules: A look at the research and the pacific.

- Laczko-Kerr, I., & Berliner, D. (2002). The effectiveness of "teach for America" and other under-certified teachers. *Education Policy Analysis Archives*, 10, 37. doi: 10.14507/epaa.v10n37.2002
- Ladd, H. F. (2009). Teachers' perceptions of their working conditions: How predictive of policy-relevant outcomes? Working Paper 33. *National Center for Analysis of Longitudinal Data in Education Research*.
- Larrivee, B. (2012). *Cultivating teacher renewal: Guarding against stress and burnout*. R&L Education.
- Lazear, E. P. (2000). The power of incentives. *The American Economic Review*, 90(2), 410-414.
- Leachman, M., Albares, N., Masterson, K., & Wallace, M. (2016). Most states have cut school funding, and some continue cutting. *Center on Budget and Policy Priorities*, 4.
- Leachman, M., Masterson, K., & Figueroa, E. (2017). A punishing decade for school funding. *Washington: Center on Budget and Policy Priorities*.
- Leiseth, B. (2008). *A case study of the four-day school week: An alternative schedule for public schools* (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses database.
- Lipscomb, S. (2007). Secondary school extracurricular involvement and academic achievement: A fixed effects approach. *Economics of Education Review*, 26(4), 463-472.
- Liu, X. S., & Meyer, J. P. (2005). Teachers' perceptions of their jobs: A multilevel analysis of the teacher follow-up survey for 1994-95. *Teachers college record*, 107(5), 985-1003.
- Loeb, S., Kalogrides, D., & Bételle, T. (2012). Effective schools: Teacher hiring, assignment, development, and retention. *Education Finance and Policy*, 7(3), 269-304.
- Luczak, L. D. H., & Loeb, S. (2013). How teaching conditions predict: Teacher turnover in California schools. In *Rendering School Resources More Effective* (pp. 48-99). Routledge.
- Macdonald, D. (1995). The role of proletarianization in physical education teacher attrition. *Research Quarterly for Exercise and Sport*, 66(2), 129-141.
- Madsen, C. K., & Hancock, C. B. (2002). Support for music education: A case study of issues concerning teacher retention and attrition. *Journal of Research in Music Education*, 50(1), 6-19.

- Maiden, J., & Stearns, R. (2007). Fiscal equity comparisons between current and capital education expenditures and between rural and nonrural schools in Oklahoma. *Journal of Education finance*, 33(2), 147-169.
- Maiden, Jeffrey. (1998) An examination of fiscal effects of statewide education reform on Oklahoma school districts. *The Journal of School Business Management* 10, no. 2 p 17-25.
- Marion, K. S. (2018). *The perceived impact of the four-day school week on teacher recruitment, teacher retention, and job satisfaction* (Order No. AAI10830948). Available from PsycINFO. (2108008530; 2018-40525-235). Retrieved from <https://search-proquest-com.ezproxy.lib.ou.edu/docview/2108008530?accountid=12964>
- Marshall, I. A. (2015). Principal leadership style and teacher commitment among a sample of secondary school teachers in Barbados. *Journal of Arts and Humanities*, 4(5), 43-58.
- Marzano, R. (2010). High expectations for all. *Educational leadership*, 68(1), 82-84. Retrieved from <http://www.ascd.org/publications/educational-leadership.aspx>
- Mathis, W. J. (2003). Equity and adequacy challenges in rural schools and communities.
- McGrath, H., & Noble, T. (2010). Supporting positive pupil relationships: Research to practice. *Educational and Child Psychology*, 27(1), 79.
- McNeely, C., Nonnemaker, J., & Blum, R. (2002). Promoting school connectedness: Evidence from the national longitudinal study of adolescent health. *Journal of School Health*, 72(4), 138-146. doi: 10.1111/j.1746-1561.2002.tb06533.x
- Morrow, John. (1999). The teacher shortage: wrong diagnosis, phony cures. *Education Week*, October 6, 1999, pg. 38-64.
- Miles, K. (2012). A brief analysis of the possible impact of a four-day school week on student performance in Colorado schools. (61-683 *Research Paper*). Maryville, MO: Northwest Missouri State University.
- Monk, D. H. (2007). Recruiting and retaining high-quality teachers in rural areas. *The Future of Children*, 155-174.
- Moran, J. (2017). *The impact of extracurricular activity on teacher job satisfaction* (Doctoral dissertation). Youngstown State University.
- Murnane, R., Singer, J., Willet, J., Kemple, J., & Olsen, R. (1991). Who will teacher? Policies that matter. Cambridge, MA: Harvard University Press.

- Murnane, R. & Olsen, R. (1990). The effects of salaries and opportunity costs on length of stay in teaching: Evidence from North Carolina. *Journal of Human resources*, 25(1), 106–124.
- National Commission on Excellence in Education (1983). *A Nation at Risk: the imperative for educational reform*. Washington, DC: U.S. Government Printing Office.
- National Commission on Teaching and America’s Future (2013). *No dream denied: A pledge to America's children*. (2013). Retrieved from <https://www.utofp.org/FormsandDocuments/NoDreamDenied.pdg>
- National Commission on Teaching and America’s Future. (1996). *What matters most: Teaching for America’s future*. New York, NY: Author
- National Commission on Teaching and America’s Future. (2007). *The high cost of teacher turnover (Policy Brief)*. Retrieved October 5, 2018, from <http://www.nctaf.org>
- Newman, Z., Pavolva, U., & Luna, C. (2016). Many Missouri school districts cite benefits of four-day weeks. *KOMU News*.
- Odden, A. (1995). Incentives, school organization and teacher compensation.
- Odden, A. (2000). New and better forms of teacher compensation are possible. *Phi Delta Kappan*, 81(5), 361.
- Odden, A., & Kelley, C. (2002). *Paying teachers for what they know and do: New and smarter compensation strategies to improve schools*. Corwin Press.
- OK Stat § 70-1-109. (2014). Retrieved from <https://law.justia.com/codes/oklahoma/2014/title-70/section-70-1-109/>
- OK Stat § 70-1-124. (2018). Retrieved from <https://law.justia.com/codes/oklahoma/2014/title-70/section-70-1-124/>
- OK Stat § 70-6-101.3. (2014). Retrieved from <https://law.justia.com/codes/oklahoma/2014/title-70/section-70-6-101.3/>
- Oklahoma Policy Institute. (2016). *In the know: nearly one-third of Oklahoma school districts now on a four-day school week* - Retrieved from <https://okpolicy.org/know-nearly-one-third-oklahoma-school-districts-now-four-day-school-week/>
- Oklahoma Policy Institute. (2016). *Oklahoma's \$1.3 billion school funding gap (Capitol Updates)*. Retrieved from <https://okpolicy.org/oklahomas-1-3-billion-school-funding-gap-capitol-updates/>

- Oklahoma Policy Institute. (2017). Study shows higher teacher pay would ease teacher shortage, boost student outcomes - Retrieved from <https://okpolicy.org/study-shows-higher-teacher-pay-ease-teacher-shortage-boost-student-outcomes/>
- Oklahoma Policy Institute. (2018). However, you count it, Oklahoma's per pupil education funding is way down - Retrieved from <https://okpolicy.org/however-count-oklahomas-per-pupil-education-funding-way/>
- Oklahoma Public Schools: Fast Facts. (2018). Retrieved from https://sde.ok.gov/sites/default/files/documents/files/Fast%20Facts%20January%202019_0.pdf
- Oklahoma State Department of Education. (2012). Oklahoma Cost Accounting System (OCAS). Retrieved from Oklahoma State Department of Education Website: <http://sde.ok.gov/sde/financial-accounting>
- Oklahoma's Equity Plan. (2018, January). Retrieved from <http://www.sde.ok.gov/sde/equity-plan>.
- Ondrich, J., Pas, E., & Yinger, J. (2008). The determinants of teacher attrition in upstate New York. *Public Finance Review*, 36(1), 112-144.
- Perrachione, B. A., Rosser, V. J., & Petersen, G. J. (2008). Why do they stay? elementary teachers' perceptions of job satisfaction and retention. *Professional Educator*, 32(2), n2.
- Plucker, J., Cierniak, K., & Chamberlin, M. (2012). The 4-day school week: Nine years later. *Center for Evaluation & Education Policy*, 10(6). 1-8.
- Podgursky, M. (2002). The single salary schedule for teachers in K-12 public schools. *unpublished paper, Department of Economics, University of Missouri-Columbia*, 4-6.
- Podgursky, M. (2006). Teams versus bureaucracies: Personnel policy, wage-setting, and teacher quality in traditional public, charter, and private schools. *Education and Policy Analysis Archives*.
- Podgursky, M. J., & Springer, M. G. (2007). Teacher performance pay: A review. *Journal of Policy Analysis and Management*, 26(4), 909–949.
- Podgursky, M., & Springer, M. (2011). Teacher compensation systems in the United States K-12 public school system. *National Tax Journal*, 64(1), 165.
- Podolsky, A., Kini, T., Bishop, J., & Darling-Hammond, L. (2016). Solving the teacher shortage: How to attract and retain excellent educators. *Palo Alto, CA: Learning Policy Institute*. Retrieved October, 29, 2017.
- Pogodzinski, B. (2014). Collegial support and novice teachers' perceptions of working conditions. *Journal of Educational Change*, 15(4), 467-489.

- Prince, C., & American Association of School Administrators, A. V. (2002). Higher pay in hard-to-staff schools: The Case for Financial Incentives.
- Prostik, J. (1996). History of teacher pay and incentive reforms: *Journal of School Leadership*, 6(3), 265–289.
- Rankings of the States 2017 and Estimates of School Statistics 2018. (2019). Retrieved from http://www.nea.org/assets/docs/180413-Rankings_And_Estimates_Report_2018.pdf
- Raudenbush, S., & Bryk, A. (2002). *Hierarchical linear models*. Thousand Oaks, CA: Sage Publications.
- Redding, C., & Smith, T. M. (2016). Easy in, easy out: Are alternatively certified teachers turning over at increased rates? *American Educational Research Journal*, 53(4), 1086-1125.
- Reed, D., Rueben, K. S., & Barbour, E. (2006). Retention of new teachers in California. San Francisco: Public Policy Institute of California.
- Rees, D. I. (1991). Grievance procedure strength and teacher quits. *ILR Review*, 45(1), 31-43.
- Reschovsky, A., & Imazeki, J. (2003). Let no child be left behind: Determining the cost of improving student performance. *Public Finance Review*, 31(3), 263-290.
- Reuters. (2018, January 30). What's the matter with Oklahoma? Retrieved from <https://www.economist.com/news/united-states/21736102-low-teacher-pay-and-severe-budget-cuts-are-driving-schools-brink-whats-matter>
- Richards, M., & Huppert, F. A. (2011). Do positive children become positive adults? Evidence from a longitudinal birth cohort study. *The Journal of positive psychology*, 6(1), 75-87.
- Richburg, R. W., & Sjogren, D. D. (1983). The Four-Day Week—What Are the Advantages for Schools? *NASSP Bulletin*, 67(459), 60-63.
- Riley, R. W. (February 22, 2000). *Setting New Expectations*. Paper presented at the Seventh Annual State of American Education Address, Durham, NC.
- Rinke, C. (2008). Understanding teachers' careers: Linking professional life to professional path. *Educational Research Review*, 3(1), 1-13. doi: 10.1016/j.edurev.2007.10.001
- Rivkin, S. G., Hanushek, E. A., & Kain, J. F. (2005). Teachers, schools, and academic achievement. *Econometrical*, 73(2), 417-458.
- Rockoff, J. E. (2004). The impact of individual teachers on student achievement: Evidence from panel data. *American Economic Review*, 94(2), 247-252.

- Ronfeldt, M., Loeb, S., & Wyckoff, J. (2013). How teacher turnover harms student achievement. *American Educational Research Journal*, 50(1), 4-36.
- Roscigno, V. J., & Crowle, M. L. (2001). Rurality, institutional disadvantage, and achievement/attainment. *Rural Sociology*, 66(2), 268-292.
- Roscigno, V. J., Tomaskovic-Devey, D., & Crowley, M. (2006). Education and the inequalities of place. *Social Forces*, 84(4), 2121-2145.
- Rowan, B., Correnti, R., & Miller, R. (2002). What large-scale, survey research tells us about teacher effects on student achievement: Insights from the prospects study of elementary schools. *Teachers College Record*, 104(8), 1525-1567. doi: 10.1111/1467-9620.00212
- Rural Education in America - Definitions. (2019). Retrieved from <https://nces.ed.gov/surveys/ruraled/definitions.asp>
- Ryan, M. (2009). Four-day school week. *State Notes-Education Commission of The States*.
- Sanders, W. L., & Rivers, J. C. (1996). Cumulative and residual effects of teachers on future student academic achievement.
- Sass, T. (2008). The stability of value-added measures of teacher quality and implications for teacher compensation policy. Brief 4. National Center for Analysis of Longitudinal Data in Education Research
- Schanzenbach, D., (2014). Does class size matter?.
- Schargel, F. P. (2013). *162 Keys to school success: Be the best, hire the best, train, inspire and retain the best*. Routledge.
- Scholastic, Bill & Melinda Gates Foundation. (2012). Primary sources: 2012. America's teachers on the teaching profession. Retrieved from http://www.scholastic.com/primarysources/pdfs/Gates2012_full.pdf
- Shields, R. A., & Education Resource, S. (2013). Misfit structures & lost opportunities: The urgent case for restructuring teacher compensation and career paths. *Education Resource Strategies*.
- Skaalvik, E., & Skaalvik, S. (2011). Teacher job satisfaction and motivation to leave the teaching profession: Relations with school context, feeling of belonging, and emotional exhaustion. *Teaching and Teacher Education*, 27(6), 1029-1038. doi: 10.1016/j.tate.2011.04.001
- Springer, M. G. (2009). Rethinking teacher compensation policies: Why now, why again. Performance incentives: Their growing impact on American K-12 education, 1-21.

- Stinebrickner, T. R. (2001). A dynamic model of teacher labor supply. *Journal of Labor Economics*, 19(1), 196-230.
- Stronge, J. H. (2002). Qualities of effective teachers. Alexandria, VA, USA: Association for Supervision & Curriculum Development.
- Sutcher, L., Darling-Hammond, L., & Carver-Thomas, D. (2016). A coming crisis in teaching? Teacher supply, demand, and shortages in the US. *Learning Policy Institute*.
- Taylor, L., Springer, M., & Vanderbilt University, N. I. (2009). Optimal Incentives
- The rural solution. How community schools can reinvigorate rural education. (2010). Retrieved from <https://cdn.americanprogress.org/wp-content/uploads/issues/2010/09/pdf/ruralschools.pdf>
- Thompson, W. (2013). *An exploratory investigation of teacher job satisfaction and involvement in extracurricular programming* (Unpublished master's thesis). Rowan University, Glassboro, NJ.
- Tompkins, A., & Beauchamp, A. S. (2006). How Are States Responding to the Issue of Teacher Recruitment and Retention, and What More Needs to Be Done?
- Tucker, M. S. (2011). *Surpassing Shanghai: An agenda for American education built on the world's leading systems*. Harvard Education Press. 8 Story Street First Floor, Cambridge, MA 02138.
- Turner, J., Finch, K., & Ximena, U. (2017). Staff Perspectives of the Four-Day School Week: A New Analysis of Compressed School Schedules. *Journal of Education and Training Studies*, 6(1), 52. doi: 10.11114/jets.v6i1.2769
- Tye, B. B., & O'Brien, L. (2002). Why are experienced teachers leaving the profession? *Phi Delta Kappan*, 84(1), 24-32.
- Wang, A. (2014). The forgotten struggles of rural schools. *Education Week*. Retrieved from <https://www.edweek.org/ew/articles///wang.h34.html?r=197302272&print=1>
- Warr, D. L. (2013). *Negotiated Agreements, Student Achievement and Teacher Retention* (Doctoral dissertation, Walden University).
- Watson, A. (2015). Unshakeable: 20 ways to enjoy teaching every day - No matter what. *Brooklyn, NY: Due Season Press and Educational Services*.
- Watson, T. (2001). *In search of management: Culture, chaos and control in managerial work*. Cengage Learning EMEA.

Wood, J., Finch, K., & Mirecki, R. (2013). If we get you, how can we keep you? Problems with recruiting and retaining rural administrators. *The Rural Educator*, 34(2).

Woods, J. (2015). Instructional Time Trends. Education Trends. *Education Commission of the States*.

Yarbrough, R., & Gilman, D. (2006). From five days to four. *Educational Leadership*, 64(2), 80-85.

Zembylas, M., & Papanastasiou, E. (2006). Sources of teacher job satisfaction and dissatisfaction in Cyprus. *Compare: A Journal of Comparative and International Education*, 36(2), 229-247.