

Lindenwood University

Digital Commons@Lindenwood University

Dissertations

Theses & Dissertations

Spring 5-2017

Interpreting the Impact of the Four-Day School Week: An Examination of Performance Before and After Switching to the Four-Day School Week

Matthew Lee Gower
Lindenwood University

Follow this and additional works at: <https://digitalcommons.lindenwood.edu/dissertations>



Part of the [Educational Assessment, Evaluation, and Research Commons](#)

Recommended Citation

Gower, Matthew Lee, "Interpreting the Impact of the Four-Day School Week: An Examination of Performance Before and After Switching to the Four-Day School Week" (2017). *Dissertations*. 205. <https://digitalcommons.lindenwood.edu/dissertations/205>

This Dissertation is brought to you for free and open access by the Theses & Dissertations at Digital Commons@Lindenwood University. It has been accepted for inclusion in Dissertations by an authorized administrator of Digital Commons@Lindenwood University. For more information, please contact phuffman@lindenwood.edu.

Interpreting the Impact of the Four-Day School Week:
An Examination of Performance Before and After
Switching to the Four-Day School Week

by

Matthew Lee Gower

May 2017

A Dissertation submitted to the Education Faculty of Lindenwood University in
partial fulfillment of the requirements for the degree of
Doctor of Education
School of Education

Interpreting the Impact of the Four-Day School Week:
An Examination of Performance Before and After
Switching to the Four-Day School Week

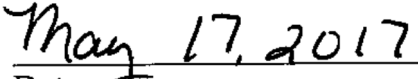
by

Matthew Lee Gower

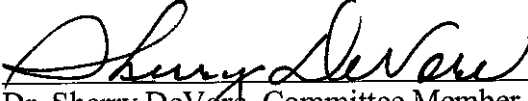
This Dissertation has been approved as partial
fulfillment of the requirements for the degree of
Doctor of Education
Lindenwood University, School of Education



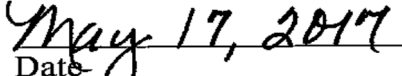
Dr. Shelly Fransen, Dissertation Chair



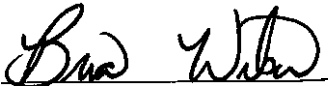
Date



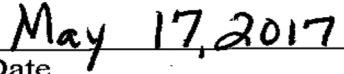
Dr. Sherry DeVore, Committee Member



Date



Dr. Brian Wilson, Committee Member



Date

Declaration of Originality

I do hereby declare and attest to the fact that this is an original study based solely upon my own scholarly work at Lindenwood University and that I have not submitted it for any other college or university course or degree.

Full Legal Name: Matthew Lee Gower

Signature: Matthew Gower

Date: 5/17/17

Acknowledgements

I would to thank Dr. Shelly Fransen, my dissertation chair and adviser, as she provided a significant amount of guidance throughout this process. She continuously added clarity by answering my questions and assisting me on a number of challenges as they arose. I would also like to thank my committee members, Dr. Sherry DeVore and Dr. Brian Wilson, whose input and advice was vital in developing this project.

I especially want to thank my wife, Callie, for her constant support during this process; her patience, understanding, and reassurance helped me make it to the end. In my absence, she dedicated countless hours to our family, making sure everything ran as smoothly as possible. Finally, I want to thank my children, Ansley, Alianna, Hailey, Holly, Matthew, and Marc, for their daily love and encouragement which provided me inspiration to see this through.

Abstract

As four-day school weeks continue to gain popularity among school districts across the United States, determining the potential impact associated with the unconventional school week has become increasingly important (Johnson, 2013). The four-day school week has been credited with producing a number of potential benefits and consequences, but there is currently a limited amount of research available to determine the overall worth of the practice compared to the five-day school week. Some purported impacts of the four-day school week include shifts in teacher and student attendance, changes in achievement, financial adjustments, decreases in dropout rates, and improvement in morale (Plucker, Cierniak, & Chamberlin, 2012). This study involved investigating the system-wide impact of the four-day school week by examining attendance, ACT scores, and dropout rates before and after implementation in participating school districts across Missouri. Additionally, the school climate perceptions of Missouri administrators and teachers who work within the four-day school week were collected. Interview responses were then analyzed using coding methods to identify common phrases, key words, and themes, while the quantitative data were treated to examine pre- and post-implementation patterns. The findings of this study revealed the four-day school week produced a statistically positive significant impact on attendance, whereas ACT scores and dropout rates were not influenced. Furthermore, the perceptions of administrators and teachers indicated the four-day school week was beneficial to the school culture.

Table of Contents

Abstract	iii
List of Tables	viii
List of Figures	ix
Chapter One: Introduction	1
Background of the Study	2
Theoretical Framework	5
Statement of the Problem	6
Purpose of the Study	7
Research Questions and Hypotheses.....	8
Significance of the Study	9
Definition of Key Terms	10
Limitations and Assumptions	10
Summary	11
Chapter Two: Review of Literature	13
Theoretical Framework.....	14
Background on Conventional School Calendars	16
Background on the Four-Day School Week.....	18
Formats of the Four-Day School Week	20
Time Requirements of the Four-Day School Week	23
ACT Background.....	24
Student Achievement	26
Decreased Student Achievement	27

Increased Student Achievement	29
No Impact.....	31
Attendance.....	33
Financial Considerations	37
Transportation.....	37
Personnel and Associated Costs.....	39
Energy.....	40
Qualifying Factors.....	41
Budgetary Concerns	42
Other Claims	44
Reduced Discipline	45
Improved Morale	45
Decreased Dropouts	46
Cognitive Fatigue	46
Improved Instruction	48
Summary.....	48
Chapter Three: Methodology	51
Problem and Purpose Overview	52
Research Questions and Hypotheses.....	52
Research Design	53
Population and Sample	55
Instrumentation.....	57
Data Collection	58

Data Analysis	59
Ethical Considerations	60
Summary.....	61
Chapter Four: Analysis of Data	62
Attendance.....	63
ACT Composite.....	66
Dropout Rates.....	69
Interviews.....	72
Administrator Responses	72
Teacher Responses.....	99
Summary	130
Chapter Five: Summary and Conclusions	132
Findings	132
Conclusions	145
Implications for Practice	152
Recommendations for Future Research	155
Summary	157
Appendix A	160
Appendix B	162
Appendix C	164
Appendix D	165
Appendix E	167
Appendix F	168

Appendix G	169
References	170
Vita	181

List of Tables

Table 1. <i>Three-Year Average Attendance Prior to and Post-Implementation of the Four-Day School Week</i>	64
Table 2. <i>Three-Year Average ACT Composite Prior to and Post-Implementation of the Four-Day School Week</i>	68
Table 3. <i>Three-Year Average Dropouts Prior to and Post-Implementation of the Four-Day School Week</i>	70

List of Figures

<i>Figure 1.</i> Three-year average attendance rates before and after four-day school week for nine Missouri school districts.....	66
<i>Figure 2.</i> ACT composite score three-year average before and after four-day school week for seven Missouri school districts.....	69
<i>Figure 3.</i> Dropout three-year average before and after four-day school week for seven Missouri school districts	71

Chapter One: Introduction

Facing rising costs and limited revenue, many school districts across the United States have considered switching from the conventional five-day school week to the less orthodox four-day week (Johnson, 2013). Although the four-day week is controversial for a number of reasons, it is not a new concept by any means (Hewitt & Denny, 2011). A historical review by Dixon (2011) indicated this adjusted calendar has its roots in the 1930s in South Dakota. Dixon (2011) mentioned the four-day school week saw its largest growth during the 1970s due to the energy crisis and during the late 2000s as a result of the economic collapse. Sheehy (2012) stated that nationwide, nearly 300 districts operated on a four-day school week in 2012, and several additional districts were contemplating the move for 2013. This number was expected to continue to grow as more schools face decreases in state funding, increasing costs, and diminishing resources (Sauter, Allen, Hess, & Nelson, 2012).

This study included examination of attendance and performance data of four-day Missouri schools before and after the transition from a traditional calendar. Archival data associated with attendance, dropout rates, and American College Test (ACT) performance were disaggregated, and statistical analyses were performed to determine whether a difference exists. Data were also collected through a series of interviews to determine perceptions of school personnel about student learning, teacher attendance, morale, cognitive fatigue, discipline, and finance in relation to a four-day week. These perceptions were analyzed to reveal patterns and relationships about schools that have undergone the transition to a four-day school week.

Background of the Study

Currently, less than 1% of school districts in the United States utilize the four-day school week (Hedtke, 2014). Four-day schools often resemble one another in name alone, as each school schedule is tailored to meet the needs of the district (Donis-Keller & Silvernail, 2009). One of the most significant differences can be observed in the philosophy of how the nonattendance day is positioned (Hewitt & Denny, 2011). Giger (2012) stated districts typically choose four consecutive days in session with the break occurring on Mondays or Fridays. These decisions are based on several factors ranging from holidays to extra-curricular calendars (Plucker et al., 2012). Another key difference in scheduling is how schools provide for state-required instructional hours (Rowland, 2014b). This is often accomplished by adding between 60 to 90 minutes each day to provide the same number of instructional hours per year as five-day schools (Plucker et al., 2012).

The motivations behind implementing a four-day school week over the traditional five-day schedule can vary from district to district (Donis-Keller & Silvernail, 2009). Supporters of the four-day school week often refer to perceived benefits such as increased attendance; increased planning time; and savings on utilities, transportation, and food (Plucker et al., 2012). Further cited benefits include the following: additional professional development time, higher graduation rates, reduction in discipline referrals, increase in teacher morale, and improved attitudes toward school (Thomason, 2013).

Critics of the four-day school week often voice concern over whether or not the practice is educationally sound (Plucker et al., 2012). Much of this apprehension is the result of lengthened days that accompany the four-day practice which students must

endure in order to meet requirements for minimal student contact hours (Blakesley, 2013). Many argue longer school days cause younger students to experience fatigue, which will ultimately affect their retention and learning (Thomason, 2013). A similar argument against the four-day school week revolves around the idea “by moving to a four-day school week students lose twenty percent of their contact days with teachers each year” (Hedtke, 2014, p. 1). This makes the impact of every student absence more significant (Kordosky, 2013). Another criticism of the four-day school week was provided by Fischer and Argyle (2016), who suggested an increased level of juvenile crime due to the lack of student supervision. Other critics of the four-day week point to daycare costs and potentially unfair compensation for hourly employees (Thomason, 2013).

As support for the four-day school week continues to grow, it is necessary to analyze student achievement under the practice; an examination of recent literature on four-day schools yields a wide range of educational outcomes (Hedtke, 2014). Plucker et al. (2012) cited inconsistencies and noted:

Existing data on the effect of the four-day week on student achievement have been inconclusive. Some districts report student academic gains after moving to a four-day schedule, while others report only slight increases or no change at all. (p. 5)

Existing literature on the topic provides little consensus and indicates there are a number of advantages and disadvantages to the shortened school week (Tharp, Matt, & O’Reilly, 2016).

Despite lack of consensus on the efficacy of four-day schools, the National Conference of State Legislatures (2013) found there were 21 states offering a four-day school week. Since the participating schools in this study were all located within Missouri, historical background on Missouri's involvement with the four-day school week is provided. According to Johnson (2013), Missouri first allowed schools to adopt a four-day school week in 2009. As a condition to this allowance, the legislature required school districts that failed to meet two or more performance standards on two successive annual performance reports to revert to a minimal 174-day school calendar the following year (Missouri Department of Elementary and Secondary Education [MODESE], 2013). As of 2013, Bradley stated that none of the participating Missouri schools have had to transition back to the traditional five-day school week due to test scores (2013).

Nationwide, public school system calendars are based on state-mandated minimum instructional time measured in days and/or hours, depending on the state (Farbman, Davis, Goldberg, & Rowland, 2015). Minimum instructional time requirements are provided to all districts, whether they operate on a traditional or alternative calendar (Dixon, 2011). These minimum calendar standards are outlined by statutes provided by the Missouri General Assembly (Missouri School Calendar Act, 2016). Missouri requires a "minimum term of one hundred forty-two days and one thousand forty-four hours of actual pupil attendance" (Missouri School Calendar Act, 2016, para. 5). Despite the minimal 174-day and 142-day calendar for five-day and four-day schools, respectively, the Missouri legislature provides the same standard in terms of 1,044 hours of attendance (Rowland, 2014b).

Theoretical Framework

Yanow and Schwartz-Shea (2015) stated an interpretivist approach to research involves an uncritical exploration wherein cultural meaning through participants' views, backgrounds, and experiences is discovered. According to Antwi and Hamza (2015), this construct provides a viewpoint for research where the "interpretive paradigm is concerned with understanding the world as it is from subjective experiences of individuals" (p. 218). Therefore, through the perspective of interpretivism, the key goal is to relay a story by particular individuals, groups, and cultures in order to search for patterns and meanings and to explain the subjective reasons that lie behind social action (Antwi & Hamza, 2015). According to Al Riyami (2015), interpretivists observe educational research through social constructs, allowing for multiple realities and interpretations to be constructed.

This view was supported by the works of Chowdhury (2014), who asserted understanding the social world through interpretivism produces a reliance upon meaningful interpretations that individuals develop as a necessary part of everyday activities together. Reed (2016) described the interpretivist paradigm as "socially constructed, complex, and ever changing; therefore, it is important to know how people make meaning of an object, event, action, perception, among others" (p. 4). Since the day-to-day operations of a school are constructed of actions by teachers, learners, administrators, and other educational professionals, it is necessary to assess the perspectives of several members of each social group in an investigation to identify patterns of thought (Reed, 2016). Therefore, research under the interpretivist approach is heavily reliant on the interactions between researchers and subjects (Yazan, 2015).

Furthermore, these actions are seldom in isolation from the participants' values which may produce interactions, biases, and variables which are difficult, if not impossible, to separate in research (Reed, 2016).

In this study, an interpretivist theoretical framework was employed. Utilizing the interpretivist perspective, the perceptions of teachers and administrators in regard to the four-day school week were examined. These perceptions were collected through interviews conducted with administrators and teachers in schools currently implementing the four-day structure. Additionally, historical data of attendance, dropout rates, and academic performance (ACT scores) of four-day schools that recently transitioned from five-day weeks were analyzed. The four-day school week was described through "diverse perspectives and value systems" of the participants, by utilizing a mixed-method study focused on perceptions, student learning, teacher attendance, cognitive fatigue, discipline, finance, morale, and performance data through a framework of interpretivism (Antwi & Hamza, 2015, p. 222).

Statement of the Problem

School districts across the nation are continuously trying to balance revenues and expenditures while also facing a great deal of uncertainty from a variety of funding sources (Ellerson, 2015). As this monetary problem is not uncommon, many school districts have had to consider some tough budgeting decisions (Ellerson, 2015). The American Association of School Administrators found 39% of school districts nationwide have considered implementing the four-day school week (Ellerson, 2015). The allure of saving between 0.4% and 2.5% of annual budgets by adjusting to a four-day week has enticed many schools to convert (Plucker et al., 2012). As more schools begin

implementing the four-day school week, there is a growing need to understand the ramifications of such a switch on attendance, student achievement, dropout rates, and perceptions of faculty.

Lack of consistent research in regard to the four-day calendar led the Center for Education Policy at the University of Southern Maine to conclude, “Despite over 35 years of implementation, few studies have documented the impact of the four-day school week” (Donis-Keller & Silvernail, 2009, p. 5). According to Tharp (2014), many of the claims such as increased attendance for teachers, a boost in morale, and more efficient use of instructional and planning time appear to be only anecdotal. Similarly, detractors of the four-day school week seem to offer no data to support their position (Tharp, 2014). Upon examining scientifically-based and peer-reviewed research, many questions about the four-day school week remain unanswered (Plucker et al., 2012). The lack of consistent findings and the narrow focus provided by each of the studies makes it difficult to reach a reliable conclusion about any of the stated impacts associated with the four-day school week (Mykerezi & Nash, 2012). Since this is a non-traditional school schedule, more research should be conducted to evaluate its effectiveness.

Purpose of the Study

This study included comparison of ACT results of four-day schools with ACT data compiled before the switch from a five-day school to determine whether or not there is a difference in academic outcomes. The researcher also examined attendance levels for each of the school districts prior to and after the change to see if there is a difference. Additionally, dropout data were studied for schools that have transitioned to the four-day school week. Finally, perception data were examined through the administrative and

teacher lenses with a focus on morale, student learning, teacher attendance, cognitive fatigue, discipline, and finance.

The purpose of this investigation was to examine the impact, both real and perceived, of the change from a five-day school week to a four-day school week on various Missouri school districts. This study provided insight into interrelated components impacted during the conversion to a shortened school week. The research questions and hypotheses were constructed to describe both qualitatively and quantitatively what results this change produced in each participating school.

Research questions and hypotheses. The following research questions guided the study:

1. What difference exists, if any, between attendance rates for schools before and after switching to a four-day school week?

H1₀ There is no difference between attendance rates for schools before and after switching to a four-day school week.

H1_a There is a difference between attendance rates for schools before and after switching to a four-day school week.

2. What difference, if any, exists in ACT scores for schools before and after switching to the four-day school week?

H2₀ There is no difference in ACT scores for schools before and after switching to the four-day school week.

H2_a There is a difference in ACT scores for schools before and after switching to the four-day school week.

3. What difference, if any, exists between dropout rates for schools before and after switching to the four-day school week?

H3₀ There is no difference between dropout rates for schools before and after switching to the four-day school week.

H3_a There is a difference between dropout rates for schools before and after switching to the four-day school week.

4. What are the perceptions of school administrators who work in a four-day school week related to teacher morale, teacher attendance, discipline, and finance?

5. What are the perceptions of school teachers who work in a four-day school week related to student learning, student morale, cognitive fatigue, and discipline?

Significance of the Study

This mixed-methods study on the four-day school week provides a detailed examination of an area currently insufficiently investigated. Many of the claims made for and against the four-day school week appear to be anecdotal as opposed to reliably based on scientific evidence (Tharp, 2014). Previous scientific investigations have provided inconsistent results and have often raised more questions about the four-day school week (Plucker et al., 2012). This study is significant, as it will incorporate a mixed-methods approach with the goal of examining the four-day school week from a variety of perspectives to gain a better understanding of the impact on school climate. This approach will provide useful data for similar schools considering a switch to the four-day school week in the areas of student performance, dropout rates, attendance, and perceptions about morale, student learning, teacher attendance, cognitive fatigue, discipline, and finance.

Definition of Key Terms

For the purposes of this study, the following terms are defined:

Five-day school week. Within a five-day school week, students are required to attend school Monday through Friday and typically have a seven-hour school day (Thomason, 2013).

Four-day school week. Within a four-day school week, students are required to attend school only four days of the week and have extended school days in order to make up for the day of school missed each week (Tharp, 2014).

Limitations and Assumptions

The following limitations were identified in this study:

Sample size. The sample size for the qualitative portion of this study was limited by the number of teacher and administrator participants in the interview process.

Sample demographics. The populations of the schools and the communities they serve are uniquely different from one another. Since each school population has its own set of challenges and strengths, the switch to a four-day school week may have created varied outcomes. The relatively small number of schools included in the study provided less opportunity for the data to normalize.

Instrument. The interview questions were constructed by the researcher.

ACT data. All ACT data reported prior to the 2014-2015 school year included only those students who chose to take the ACT test. Moreover, these scores represented a range of grade levels at which the graduates last took the ACT. Scores provided for the 2014-2015 school year and thereafter represent the Missouri State Board of Education mandate that the ACT is administered to all 11th-grade students (MODESE, 2015).

Adaptation time. Many of the schools represented in this study began the transition from a five-day school week to a four-day school week at different times and for different reasons. This difference in length of implementation might have impacted the perceptions of staff members on student performance and school climate.

The following assumptions were accepted:

1. The responses of the participants were offered honestly and without bias.
2. Each district followed similar protocols for taking attendance.
3. Each district followed similar protocols for reporting dropouts.

Summary

This mixed-methods study was focused on perceptions, performance data, dropout rates, and attendance rates of four-day schools within Missouri. Qualitative data were collected utilizing the perceptions of district administrators and teachers from four-day schools. Through interviews, perceptions on morale, student learning, teacher attendance, cognitive fatigue, discipline, and finance were gathered. The interview responses were transcribed and analyzed to reveal patterns or themes. Quantitative data centered on student achievement, dropout rates, and attendance rates were assembled from schools that had undergone the switch to a four-day school week. This information was utilized to determine if there is a difference between attendance, student performance, and dropout rates and the four-day school week.

Chapter Two includes a review of literature on the four-day school week. This review provides information on the history of the four-day school week, potential formats, background on Missouri-specific requirements, and information about the ACT.

Chapter Two also includes a description of potential impacts of the four-day school week from various school districts across the nation.

In Chapter Three, the methodology used in this study is outlined. Chapter Three includes an overview of the problem and purpose, in addition to the research design of the study. A background on the population, sample, and instrumentation within the study is also provided. Procedures for data collection and data analysis are outlined, along with ethical considerations.

Chapter Four consists of a review and analysis of the collected data. The data collected from interviews, along with district performance data, are examined in detail. Chapter Four concludes with tables and figures displaying the data from this study. Finally, Chapter Five includes a summary of findings, implications for practice, conclusions, and recommendations for future research as they relate to performance data and teacher and administrator perceptions of the four-day school week.

Chapter Two: Review of Literature

With a large number of school districts considering or currently implementing the four-day school week, understanding the potential benefits and consequences of such a transition is essential (Johnson, 2013). Although the four-day school has existed for a number of years, the documented impacts of such a shift from the traditional calendar have been minimal (Tharp et al., 2016). The following literature review offers a detailed analysis of the research associated with the four-day school week and its recognized effects. In this review of literature, each of the findings have been selected and organized to correspond with the questions posed in Chapter One.

The review of literature in Chapter Two offers a thorough examination of the characteristics of the four-day school week. The chapter is organized into sections, beginning with the theoretical framework, with the intent to refocus the lens of research. The subsequent section includes examination of the traditional five-day school week in order to lay a groundwork for understanding the alternative four-day school week. The transformation of the four-day calendar throughout the years is then examined, followed by a detailing of various implementation methods utilized by school districts across the nation. An analysis is included of time mandates many school districts must meet when changing from a five-day week. Sections on the ACT, student achievement, and attendance rates provide background for the importance of this study in relation to academic outcomes. Finally, sections on financial implications, other claims, and conclusions are included.

Theoretical Framework

Rowlands (2005) emphasized before conducting research, the investigator needs to define how the study will be conducted, what theoretical lens will be applied, and what methods are most appropriate. As the interpretivist perspective was chosen for the theoretical framework of this study, it is important to communicate the central philosophy behind the interpretivist approach. The main tenet of interpretivism is that social researchers must “explore and understand the social world through the participants’ and their own perspectives; and explanations can only be offered at the level of meaning rather than cause” (Ritchie, Lewis, Elam, Tennant, & Rahim, 2013, p. 24). Ultimately, the goal of interpretive research is observation and understanding rather than explaining (Ritchie et al., 2013).

According to Abou-Assali (2014), understanding between the researcher and participants can only be achieved through the founding assumption of interpretive research that knowledge of reality is gained only through rules, values, or norms certain people have or share via social constructs. Rowlands (2005) acknowledged these subjective experiences can best be interpreted in terms of subjective meanings rather than objective definitions. As described by Walsham, a theoretical framework based on interpretivism has the sole purpose of producing an understanding of the circumstances surrounding a social phenomenon and how the associated processes impact the phenomenon (as cited in Rowlands, 2005).

Rowlands (2005) maintained in order to understand these phenomena, interpretive researchers must utilize the meanings society has assigned. This makes it impossible to maintain a truly objective or factual understanding and necessitates the interpretivist

framework, as the investigator is reliant on a relativistic or shared understanding (Rowlands, 2005). Thus interpretivism aids in the understanding of the contemporary world by examining social realities through multiple perspectives and interpretations (Chowdhury, 2014). Through this framework researchers can “build rich local understandings of life-world experiences of teachers and students” (Taylor & Medina, 2013, p. 4). This ability to encompass such a wide range of viewpoints from administrators to teachers on the four-day week’s impact on school climate and student achievement also contributed to the decision to utilize an interpretivist theoretical framework in this study.

According to Schwandt, the purpose behind each interpretivist study is to gain knowledge that provides insight into the world and to report the experience from various perspectives of those living within it (as cited in Andrade, 2009). This approach is particularly important in education, as it indicates interpretation and context can play a large role in research involving people (Andrade, 2009). Rose (2016) maintained this view by suggesting that unlike natural science, it is nearly impossible to take the human element out of teaching and learning, thus creating a greater emphasis upon interpretivist approaches in educational research to allow for teachers and learners to construct meaning. Garcia and Quek supported the role of interpretivism in educational research by declaring the need for subjectivity backed with quality arguments when dealing with people, as opposed to purely statistical approaches (as cited in Andrade, 2009)

Consequently, the role of interpretivist research is to demystify social reality by examining multiple perspectives and presenting a variety of constructions and contexts (Andrade, 2009). Therefore, this investigation was designed to determine perceptions of

the four-day school week utilizing interviews conducted with school administrators and teachers. Achievement data, graduation rates, and attendance rates were also examined not for the purpose of drawing conclusions, but as an integral part of painting the complete picture of the four-day school week.

Background on Conventional School Calendars

As described by Pedersen (2012), the conventional school calendar and associated five-day school week is the product of an agrarian society where parents needed their children to work on family farms and in small businesses. Leiseth (2008) felt it was important to note that less than 3% of the American workforce was represented by farmers and ranchers, meaning the traditional schedule has very little to no application in current society. Others, such as Gold, have suggested the school calendar was established to allow families to vacate urban areas during the intense heat of the summer (as cited in Tharp, 2014). Increased industrialization nationally is also often cited as playing a significant role in the current structure of the school day (Dixon, 2011). Whether the calendar was developed for vacationing, increased industrialization, or to meet the needs of the 19th-century farmer, all scenarios indicate a situation in which educational needs are not the primary focus of the conventional school calendar and the five-day school week (Leiseth, 2008).

According to a state policy review conducted by the Education Commission of the States, the traditional school calendar follows a schedule of five-day weeks for five to six hours a day and approximately 180 school days (Rowland, 2014b). Dixon (2011) posited the standardization of the school calendar is in part due to the passage of federal child labor laws and the introduction of state compulsory attendance laws. Nationwide, these

state compulsory attendance laws provide minimum instructional times that have regularly driven public school calendars (Dixon, 2011). Each state defines this instructional time differently in days, hours, or both, and each school must meet minimum requirements within its calendar (Dixon, 2011). This set of circumstances has produced a calendar approximately nine months in length with nearly three months of summer vacation (Dixon, 2011)

Instructional time standards remain fairly consistent across each of the 50 states (Tharp, 2014). A survey conducted by the Education Commission of the States in 2014 revealed 29 states required 180 days of instruction, and only two, Kansas and North Carolina, required more (Farbman et al., 2015). Many of these states provide flexibility for instruction by accepting an equivalency of instructional hours, with 36 states measuring the school year in hours per year in addition to or in place of days per year (Woods, 2015). The concept of the four-day school week is relatively new in Missouri with the passing of Senate Bill 291 (Knapp, 2014). This created §171.029, RSMo, which required at minimum 1,044 hours per school year (Knapp, 2014). In Missouri, the time requirements have an additional condition of a minimum of 174 days on a five-day schedule and 142 days on a four-day schedule (Missouri School Calendar Act, 2016).

When compared to other industrialized nations, the length of the school year falls short in the United States, with the highest-achieving nations attending an average of 210 days per year (Leiseth, 2008). Japan appears to be an extreme outlier by having students attend 243 days of school per year (Leiseth, 2008). Leiseth (2008) pointed out these dramatic differences are partially negated by the fact the United States offers more years of formal education than do many of the other industrialized nations.

Not much has changed in the past 173 years when discussing the standard school calendar (Tharp, 2014). This stagnant approach from public schools in regard to the calendar and length of school week seems counterintuitive when everything else in society, including family structures, information, technology, and student learning has greatly diversified (Leiseth, 2008). The focus on clock and calendar instead of individual student needs has led to typical schools operating from early morning to mid-afternoon, on a six-period day, with each period lasting just over 50 minutes, resulting in approximately 5½ hours of classroom time per day (Leiseth, 2008).

Johnson (2013) discussed the reluctance for change from the traditional five-day week in a case study, declaring many of the challenges associated with modifying the school year and instructional time often lead to investigation and not implementation. Many school districts have retained calendars that still resemble those created more than a century ago (Dixon, 2011). Recently, many state legislatures throughout the nation have made efforts to provide districts with more flexibility by focusing on minimal instructional time rather than minimal instructional days (Dixon, 2011). This response by the legislature has increased the willingness of public schools to move toward alternative calendars including four-day school weeks (Leiseth, 2008).

Background on the Four-Day School Week

The four-day school is generally defined as a school that increases the hours in session for four days of the week so it can be closed one day each week (Leiseth, 2008). Under the four-day school week, students ultimately attend fewer overall days per school year (Dixon, 2011). For years, and for an assortment of reasons, schools throughout the nation have chosen to implement the four-day school week (Hewitt & Denny, 2011). The

first four-day school week in the United States was established during the 1931-1932 school year by the Madison Central School District in Madison, South Dakota (Hewitt & Denny, 2011). This pioneering version of the four-day school week placed required classes and core subjects in the first four days to free up the remaining day for optional extracurricular activities for students (Hewitt & Denny, 2011). This brief experiment with a four-day format disappeared shortly after the economy improved (Hedtke, 2014).

The four-day school week reemerged in 1971 in the Maine School Administrative District III, which began a three-year trial of the four-day school week as part of a federal grant for professional development (Roeth, 1985). The movement toward a four-day school week consequently gained popularity primarily as a result of the energy crisis caused by the Arab Oil Embargo and deregulation of natural gas (Dixon, 2011). During this period, an increase in transportation and utility costs drove schools in Maine, Massachusetts, New Jersey, New Mexico, and Washington to experiment with the four-day calendar (Donis-Keller & Silvernail, 2009). This move was the result of a choice between a shorter school week or cutting programs from curriculum in order to combat fuel prices and save money (Hedtke, 2014).

Though many of the school districts practicing the four-day school week returned to the five-day school week after the crisis ended, Cimarron School District in New Mexico did not (Miles, 2012). Cimarron is credited with the longest continual utilization of the four-day calendar, having it in place since the 1973-1974 school year (Feaster, 2002). After the energy crisis subsided, the Emergency Conservation Act of 1979 was passed, which allowed the president, if need be, to enforce a non-compulsory four-day week for public schools (Leiseth, 2008). This signaled to some state policymakers the

need to provide more flexibility in the process of legislating academic calendars to allow the focus to shift to hours of instruction as opposed to days of instruction (Giger, 2012).

Another economic downturn and slow recovery renewed many school districts' interest in the four-day school week (Mykerezi & Nash, 2012). This economic crisis began in 2007 and was dubbed the Great Recession; it created huge increases in unemployment, deep drops in housing prices, and tight credit across the United States (United States Bureau of Labor and Statistics, 2012). Educational resources became limited shortly after the onset of the recession, and during this period most school districts received less-than-adequate state and local revenue (Oliff, Mai, & Leachman, 2012).

Leachman, Albares, Masterson, and Wallace (2016) quantified the extent of the problem when they revealed during the 2013-2014 school year, 31 states were still providing funding well below pre-recession levels. Facing lean budgets and less opportunity to fund schools, many state legislatures provided school districts with additional flexibility in constructing calendars (Dixon, 2011). Confronted with budgetary shortfalls and the possibility of undergoing major cuts in staffing and programs, some school districts decided to implement the four-day school week to at least partially mitigate their revenue problems (Giger, 2012). Even as revenues rebounded, the prolonged cutbacks created a ripple effect among many public schools that were heavily reliant on state and federal funding (Johnson, 2013).

Formats of the Four-Day School Week

According to the National Conference of State Legislatures (2013), there are currently a number of different schools in Arizona, California, Colorado, Georgia, Idaho,

Kansas, Kentucky, Louisiana, Michigan, Minnesota, Missouri, Montana, Nebraska, New Mexico, Nevada, Oklahoma, Oregon, South Dakota, Utah, Wisconsin, and Wyoming operating under the four-day calendar. With such a vast geographic and demographic diversity encompassed in these participating schools, it is no surprise an assortment of different models for the four-day week have been developed (Giger, 2012). Though many contemporary models share a similar format, a multitude of different options have been implemented in school districts committed to the four-day school week (Leiseth, 2008). A potential difference in four-day schools is the selection of the nonattendance day; the most popular are Monday and Friday (Giger, 2012). A majority of four-day school districts have implemented a school week that encompasses Monday through Thursday, while sessions of Tuesday through Friday are less frequent (Giger, 2012).

This decision is generally dictated by the preferences and needs of the community and is balanced with the philosophy of the district (Giger, 2012). Hewitt and Denny (2011) described the dichotomy of motivations most districts go through when choosing their nonattendance day of either Monday or Friday. Schools that choose Fridays as the off day typically weigh the ability to protect instructional time as an important factor in their decision (Hewitt & Denny, 2011). This choice allows them to safeguard class time from interruptions due to extracurricular activities and associated responsibilities (Hewitt & Denny, 2011).

An example of this was described by DeNisco (2014), who examined Copan Public Schools in Oklahoma. This school chose a Monday through Thursday schedule to decrease absences due to activities, as many of their students had used up their allotted 10 absences at the beginning of the year due to a high level of involvement in extracurricular

activities (DeNisco, 2014). Schools that close on Mondays generally stress the financial impetus behind their choice (Leiseth, 2008). Closing on Mondays allows for the potential of higher savings on utilities, since Fridays often encompass student or community events that require a particular space to remain lit and heated or cooled (Donis-Keller & Silvernail, 2009).

Another major variation among schools implementing the four-day school week is the format of the nonattendance day (Plucker et al., 2012). In many four-day schools, teachers are also granted the nonattendance day off to use at their discretion (Leiseth, 2008). Plucker et al. (2012) reported it is common practice in many of these districts for teachers to choose to use this uncontracted time to complete paperwork, plan lessons, make parent contacts, provide enrichment activities, or even tutor students. Since many of these districts are rural and medical offices may be a great distance away, teachers are encouraged to schedule appointments on nonattendance days to decrease absenteeism (Donis-Keller & Silvernail, 2009). Other school districts have chosen to keep the remaining day as a contracted day or half day to build in professional development opportunities and/or work time for grading, planning, parent-teacher conferences, committee meetings, research teams, grade-level meetings, tutoring, and student activities (Leiseth, 2008). Many schools generate a hybrid calendar which utilizes a combination of contracted and uncontracted fifth days (Donis-Keller & Silvernail, 2009).

Donis-Keller and Silvernail (2009) provided another possible variation to the four-day week in the intervals at which the structure is utilized. When discussing the four-day school week, the most commonly implemented method is to apply the four-day week for the entire year (Donis-Keller & Silvernail, 2009). Some districts create a four-

day calendar exclusively during winter months to provide additional energy savings and to build in snow makeup days (Penn, 2016). This format requires a small increase of instructional time spaced over the entire year (Donis-Keller & Silvernail, 2009). A final variation is to extend the school day slightly and implement a four-day week every other week (Donis-Keller & Silvernail, 2009).

Time Requirements of the Four-Day School Week

The language within many state statutes prohibits school districts from implementing the four-day school week based on minimum instructional day requirements (Dixon, 2011). Traditionally, provisions for natural disasters, disease, special education purposes, or other emergencies have existed to bypass these requirements through petition (Dixon, 2011). Though none of these exemptions include financial reasoning, many state statutes began providing flexibility to implement a four-day schedule as long as students meet an equivalent instructional time requirement (Dixon, 2011).

In order to accomplish this schedule change, four-day schools often only have to add a modest amount of time to their standard school day to maintain the same amount of weekly classroom instruction (Leiseth, 2008). Students receive the same number of instructional hours through the four-day school week as they do during five days (Leiseth, 2008). In most districts, this requires a daily extension of an hour to an hour and a half (Giger, 2012). This can vary significantly depending on the state minimal instructional time requirements for five-day and four-day schools (Dixon, 2011). Some states provide a minimum six-hour requirement on the five-day week, meaning increasing instruction to six and a half hours is acceptable for four-day weeks (Hedtke, 2014). Other

schools have seen increases to eight hours a day in order not to shortchange students in terms of seat time (Hedtke, 2014).

ACT Background

During the 2014-2015 school year, the ACT was administered to all Missouri grade 11 students in public, private, and charter schools with the exception of students who qualified for alternative testing under the Missouri Assessment Program-Alternative (MODESE, 2016a). This measure was approved on January 14, 2014, by the Missouri State Board of Education to provide all high school juniors one free administration of the ACT exam during school hours (MODESE, 2015). The move corresponded with the state's Top 10 by 20 initiative, which called for Missouri to be one of the top 10 states for education by 2020, and for all Missouri students to graduate career- or college-ready (MODESE, 2015). By providing a free ACT exam to every high school junior, schools are better positioned to determine if students are graduating with the commensurate knowledge and skills necessary to be successful in their future goals (MODESE, 2015). Though often tied to college admittance, the ACT is directly related to content and concepts high school students are learning in their courses and can be used to indicate academic strengths and weaknesses (Knapp, 2014). This accounts for why Missouri has a long history of tracking graduates' ACT scores (Knapp, 2014).

The ACT is a national standardized test designed to evaluate the level of academic development along with preparedness of high school students for freshman-level college coursework (McNeish, Radunzel, & Sanchez, 2015). This test is often used by colleges and universities to determine admittance, scholarship, and placement (McNeish et al., 2015). The ACT is a multiple-choice test that consists of English, math,

reading, and science sections each with a scoring scale ranging from one to 36 (McNeish et al., 2015). Students can take the test multiple times to improve scores in individual sections or overall (ACT, Inc., 2015). In a report entitled, *The Condition of College and Career Readiness in Missouri*, the author discussed how upon completion of the ACT, a comprehensive profile about a student's coursework in high school and his or her academic abilities is generated, in addition to a composite score (ACT, Inc., 2015).

Included in each subject area score is a set of ACT college readiness benchmarks which indicate a 75% chance of earning a C or higher and a 50% likelihood of obtaining a B or higher in each first-year college course associated with that discipline (Allen, 2013). These college readiness benchmarks were revised in 2013 based on research conducted by ACT after monitoring first-year college students' progress (Camara, O'Connor, Mattern, & Hanson, 2015). This revision was linked to the ACT's college and career readiness standards, which were created through a national sampling of median course expectations provided by colleges across the nation, in order to set appropriate benchmarks (Camara et al., 2015). Currently, college readiness benchmarks have been set at scores of 18 for English, 22 for reading, 22 for mathematics, and 23 for science (ACT, Inc., 2015). Although these scores have been utilized as predictors for college and career readiness, research conducted by ACT shows academic readiness composes only one of four domains (Mattern et al., 2014). According to an ACT report, a clearer picture of college and career readiness could be developed by measuring three other domains which include behavioral skills, the ability to navigate future pathways, and crosscutting skills (Camara et al., 2015).

In 2015, 59% of the graduating class in the United States took the ACT, with 77% of Missouri graduates completing the ACT (ACT, Inc., 2015). These 49,640 Missouri students outperformed the national average in every category (ACT, Inc., 2015). Research shows if students can meet three or more ACT college readiness benchmarks, they have a strong likelihood of success and are more likely to finish a degree in a timely manner (ACT, Inc., 2015). In Missouri, only 44% of students who took the ACT met this criteria, leaving significant room for improvement (ACT, Inc., 2015). Additionally, 91% of students in the 2014-2015 class who took the ACT aspired to some form of postsecondary education, whereas only 75% actually enrolled (ACT, Inc., 2015).

As one of the measuring sticks for career and college readiness in relation to academic achievement, the ACT has gained a great deal of prominence in Missouri (Knapp, 2014). School districts have placed an increased interest in maximizing ACT scores as a result (Knapp, 2014). As four-day school weeks become more popular, the related impact on ACT scores will become a greater focus throughout Missouri and the nation (Knapp, 2014). Currently, there are a variety of researchers who have examined student achievement within the four-day school week through various means; a few of these investigators analyzed ACT scores specifically. The following section provides an outline of results related to student achievement and the four-day school week.

Student Achievement

As with any school initiative, it is important to determine how the four-day school week impacts student achievement (Johnson, 2013). When examining the four-day school week, Tharp (2014) outlined, “There is very little peer-reviewed research concerning student achievement in schools that have made the transition from a

traditional school week to a four-day week” (p. 24). Hedtke (2014) also commented on the disproportionately small amount of information related to the impact of the four-day school week on academics revealed over the last 35 years and the value additional research would provide to districts considering a switch. Another challenge presented within the literature is that the impact on subgroups such as special education students, English language learners, and at-risk students has not been investigated (Davy & Hall, 2015).

Despite the small selection of literature concerning student achievement and the four-day school week, current research has provided a variety of interpretations on the efficacy of this practice (Tharp, 2014). Uncertainty is mostly due to mixed results, small sample sizes, and variation in achievement measures (Tharp, 2014). Blakesley (2013) highlighted some of these challenges and stated there are a myriad of variables within the scope and limitations of each study, which makes it difficult to determine if the four-day school week has an overall positive, neutral, or negative impact on student achievement. The findings of each of these investigations are chronicled in the following sections, and results as they relate to student achievement have been placed into three categories: decreased student achievement, no impact, and increased student achievement.

Decreased student achievement. Critics of the four-day school week often cite negative impacts on student achievement as the primary reason schools should maintain a five-day week (Donis-Keller & Silvernail, 2009). Tharp (2014) provided a justification for this argument. Tharp (2014) examined the relationship between student scores in Montana schools utilizing the four-day school week and those which followed the traditional five-day week. Montana Comprehensive Assessment System achievement

scores provided evidence schools with a four-day week saw initial improvements in overall scores, but these results did not hold true over time (Tharp, 2014). In fact, Tharp (2014) determined there were long-term consequences to schooling students under the four-day system, as declines in testing results compared to five-day schools were measured in each of the subsequent years. Tharp (2014) revealed:

Not only are the students in four-day weeks achieving proficient and advanced at a lower rate than the state average, the difference between the student scores in four-day week schools compared to the state is growing at an increasing rate. (p. 66)

By breaking data into cohorts based on years of implementation, it was determined schools with over five years devoted to the altered calendar seemed to be most negatively impacted (Tharp, 2014).

Another study conducted by Hewitt and Denny (2011) involved examination of 62 schools in Colorado to observe the impact a four-day school week had on performance as it related to the Colorado Student Assessment Program test. The results of the study showed five-day schools outperformed four-day schools in grades three through 10 on 11 out of 12 test areas (Hewitt & Denny, 2011). The researchers concluded these results, though not favorable to the four-day school week, were not significant enough to warrant alarm (Hewitt & Denny, 2011).

Tharp et al. (2016) showed Montana schools participating in a four-day school week performed at a lower level than those in the traditional school week on a criterion-referenced test. Furthermore, students in four-day schools dropped from 70.5% to 57.2% for proficient and advanced, whereas their five-day counterparts saw growth from 64.2%

to 67.3% proficient and advanced (Tharp et al., 2016). Feaster (2002) also observed most of the schools that experimented with four-day schools during the energy crisis in the United States and abroad transitioned back to the traditional schedule when budget pressure decreased. Clearly, each of these school districts felt a five-day school week was more beneficial to student achievement (Tharp, 2014).

Increased student achievement. There are a number of studies that have supported positive outcomes related to student achievement in the four-day school week. According to Koki, researchers investigated the performance of four-day school districts in New Mexico and “determined that student performance on standardized tests remained above state and national averages” (as cited in Thomason, 2013, p. 5). A longitudinal study conducted in Custer, South Dakota, by Feaster (2002) showed positive effects for students in four-day schools as compared to their counterparts utilizing the traditional calendar. Achievement data for fourth and eighth graders were examined by Feaster (2002) over a 10-year period. Throughout this study, the four-day schools continuously exceeded state averages (Feaster, 2002).

An additional case was made for the four-day school week in a study conducted by Schreier (2013) on the Lathrop School District in Missouri. Schreier (2013) determined there was an increase in achievement based upon Missouri Assessment Program (MAP) scores. Scores were examined before and after the transition to the four-day school week and indicated a significant improvement in student achievement the year following implementation (Schreier, 2013). In New Mexico, Richards compared nine schools that had implemented the four-day school week with nine schools that followed the traditional school week from 1982-1989 and examined over 4,000 students to

determine their achievement as measured by the Comprehensive Test of Basic Skills (CTBS) (as cited in Hedtke, 2014). According to Richards, when comparing yearly mean scores on the CTBS, students in the four-day system showed a significantly higher level of achievement in four of the seven measured variables than those educated through the five-day week (as cited in Hedtke, 2014).

Another important study which supports the notion of the four-day school week improving student achievement was conducted at Merryville High School in Louisiana (Miles, 2012). Chmelynski noted an increase in ACT average scores from 18.7 to 20, and the number of students qualifying for the junior and senior high school honor roll doubled immediately after implementation of the four-day school week (as cited in Miles, 2012). The Miami R-1 School District in Missouri credits their change to the four-day school week in 2013 as the primary reason for an increase in ACT scores to their highest levels in over a decade (Preston, Jakubiec, & Kooymans, 2013). Pompeo examined the nation's longest-running four-day school district, Cimarron, and asserted more gains on the four-day schedule than the five-day schedule (as cited in Leiseth, 2008).

Anderson and Walker (2015) documented student achievement in four-day school weeks in Colorado by examining test scores in English and math in fourth and fifth grades. This research showed schools with the four-day school week saw an increase of 7% in fifth-grade math scores and 3% in fourth-grade reading scores (Anderson & Walker, 2015). Anderson and Walker (2015) reported the most significant change for fourth-grade reading students who moved out of the lowest-achieving level or moved into the highest-achieving level. Improvements in the fifth-grade math classes came from students moving from partially proficient to proficient (Anderson & Walker, 2015).

A final reported success of the four-day school week occurred in a school district outside of New Orleans, Louisiana (Thomason, 2013). Anderson and Walker (2015) described the findings as indicating a significant positive correlation between performance in reading and mathematics due to the adoption of the four-day school week. As for the remaining tested areas, it was determined students had not been hurt by the change (Thomason, 2013).

No impact. A fair amount of literature on student achievement and the practice of the four-day school week indicates there is no discernible impact (Thomason, 2013). One such study, conducted in Colorado, involved examination of student achievement in five schools before and after implementation of the four-day school calendar (Donis-Keller & Silvernail, 2009). Daly and Richburg examined results from the Iowa Test of Basic Skills among the same group of students for four years across each grade level (as cited in Miles, 2012). The outcomes of the study suggested there was no academic advantage or disadvantage, since the “results show that in the five schools studied, performance scores were as inconsistent before the change as they were after it” (Hedtke, 2014, p. 12). Another study within Colorado conducted by Richburg and Edelen involved examining eight different school districts that had recently switched to a shortened school week and comparing them before and after the transition (as cited in Hedtke, 2014). Some schools improved math and reading scores, while others decreased in performance, preventing Richburg and Edelen from drawing any conclusions on student performance as it relates to the four-day week (as cited in Hedtke, 2014).

More inconclusive results were found in a study performed by Giger (2012), which included an examination of MAP scores. Giger (2012) studied grades three, four,

and five in both math and communication arts and determined there was not a significant impact on academic achievement due to mixed results, along with a positive trend already established in math scores for the years preceding the change to the four-day school week. Thomason (2013) tried to determine whether or not achievement in respect to end-of-course (EOC) exams in math and communication arts was impacted in a single school in Missouri. Thomason (2013) described:

The results reported from this study show that there is no significant difference between student achievement on Algebra I and English II EOC exams two years previous to the adoption of the four-day school week and the two years following in the school district. (p. 28)

Knapp (2014) examined four schools in Missouri to determine if there was an influence on ACT scores when switched from the traditional schedule. The investigation ended with mixed results, and upon further analysis, the impact on ACT scores was determined to be insignificant (Knapp, 2014).

Miles (2012) researched 62 school districts in Colorado operating on the four-day school week and compared them to similar school districts utilizing the five-day schedule. Results from the Colorado Student Assessment Program showed the four-day school week did not drastically affect student academic achievement (Miles, 2012). Following an additional study conducted in Portland, Furrer, Magnuson, and Suggs (2012) concluded the potential benefits and drawbacks of the four-day week were not academic in nature, as this schedule did nothing to benefit or harm standardized test scores.

Attendance

Much like student achievement, average daily attendance plays a major role in how schools are evaluated (Johnson, 2013). This emphasis on attendance is tied to the fundamental idea students are more likely to learn and to perform well on standardized tests when they are present at school (Sanchez, London, & Castrechini, 2015). In Missouri, this measure impacts not only Adequate Yearly Progress (AYP) but the state school funding formula; “if the number of students in attendance drops, the amount of money a school receives is less” (Johnson, 2013, p. 13). Any increases in average daily attendance numbers help schools receive more funds from the state (Leiseth, 2008). In order to combat lower attendance levels, many school districts across the nation have considered unique solutions such as the four-day school week (Johnson, 2013).

When examining the literature regarding the four-day school week, one of the most surprising benefits is an increase in attendance (Johnson, 2013). This positive is shared among both staff and students (Miles, 2012). The rationale behind such claims suggests a shortened school week allows more opportunities to schedule appointments, trips, and personal matters, thus creating fewer disruptions (Thomason, 2013). There may be an additional upside for schools practicing the four-day school with Fridays off due in part to a large percentage of students missing Friday class time due to extracurricular activities (Leiseth, 2008).

The majority of the literature seems to support the idea a switch to the four-day week creates a greater level of attendance within schools (Cardinale, 2013). Anderson and Walker (2015) described how this claim of better attendance seems to permeate through the literature but asserted most of the evidence is anecdotal rather than empirical.

An example of this can be found in a study by Roeth (1985), who surveyed the superintendents of 50 different school districts under the four-day school week. Roeth (1985) found school superintendents perceived one of the benefits of the four-day school week is improvement in student and teacher attendance.

Besides anecdotal evidence, there appear to be a significant amount of data suggesting higher attendance rates result from implementing an alternative schedule (Cardinale, 2013). A longitudinal study conducted by Sagness and Salzman (1993) included examination of five schools in Idaho in order to determine the various impacts of a four-day school week. The findings revealed decreased absenteeism for students, staff, and teachers (Sagness & Salzman, 1993). Sagness and Salzman (1993) reported an average increase in attendance of 2% for both students and staff. Thomason (2013), in an investigation involving a rural district outside of Portland, Oregon, determined there was an advantage for students in average daily attendance when the four-day school week was implemented. A similar study by Feaster (2002) in Custer, South Dakota, involved investigation of student attendance records to determine how they were impacted by a switch to the four-day school week. In summary, Feaster (2002) reported a 3% increase in overall attendance.

In South Dakota, Hale (2007) observed five public schools under the four-day schedule with one of the focuses of the study being student attendance. By investigating attendance records, it was revealed 60% of the schools that had adopted the new schedule saw notable improvements in attendance (Hale, 2007). In a study conducted by Leiseth (2008), descriptive statistics regarding attendance were analyzed from the No Child Left Behind score cards of a South Dakota school from 2002-2007. In the three years prior to

the transition to a four-day week, the school reported attendance rates of 94.68%, 94.89%, and 94.89%, respectively (Leiseth, 2008). After transitioning to the four-day school week in 2005-2006, Leiseth (2008) reported attendance climbed to 94.98% and further increased in 2006-2007 to 95.93%. According to Leiseth (2008), after examining this “prior flat rate of growth, and the relatively larger rate of growth after the implementation of the four-day school week, it can be assumed that there is a slight increase in the attendance rate” (p. 138). In another study by Hewitt and Denny (2011), 62 Colorado school districts utilizing the four-day school week were examined with each reporting attendance rate increases.

Although not the primary focus of his study, Thomason (2013) noted some attendance increases in a Missouri high school that transitioned to the four-day school week. Thomason (2013) observed attendance levels remained at a constant 92.8% for the year prior to and during the switch only to see a drastic rise to 93.5% in the second year of operating under the four-day calendar. Finally, Skogen (2012) reported significant increases in attendance among teachers and students after Centerville Public Schools of Montana switched to the four-day school week. Interviews with administrators revealed a perception the transition to the four-day school week caused the increased attendance (Skogen, 2012).

At times, the correlation between attendance rate and the four-day school week does not appear to be conclusive. Anderson and Walker (2015) examined data from Colorado school districts and found weak evidence attendance improves following the schedule change. The researchers concluded there was a “0.6 percent improvement for four-day week schools,” and without more data, this “estimate is not statistically

significant” (Anderson & Walker, 2015, p. 341). No studies were found that showed a negative correlation between the four-day school week and average daily attendance.

As previously described, one of the most frequently cited factors leading to increased student and teacher attendance is that the four-day week allows for appointments and other personal matters to be attended to on the fifth day rather than during school hours (Plucker et al., 2012). A study conducted in the Lake Arthur School District in New Mexico by Delisio (2004) indicated although this reasoning may be sound, it likely is not as impactful as one might think. From Delisio’s (2004) research it was determined student and staff attendance did not increase due to the four-day school week. The researcher cited community factors creating higher-than-expected levels of absenteeism (Delisio, 2004). One of these factors included parents and teachers frequently being unable to schedule appointments on off days due to doctor offices not being available (Delisio, 2004). Also with extended learning hours, student appointments after school were drastically limited, negating some of the potential positive impact (Delisio, 2004). Furthermore, Delisio (2004) mentioned protection of instructional time was undermined by surrounding districts that did not take into consideration scheduling extracurricular activities for students and teachers during the four-day school week.

Although the majority of the research indicates increased levels of attendance in four-day schools as opposed to five-day schools, four-day schools do present some attendance-related concerns (Miles, 2012). As described previously, students under the four-day school week make up for the missed contact day by extending the length of the remaining four school days (Hedtke, 2014). Increased length of each instructional day produces an attendance concern since students under the four-day system miss more class

time for each absence than under the five-day system (Miles, 2012). Hedtke (2014) explained how absences in certain four-day school weeks could mean a loss of anywhere from an additional 30 minutes to two hours of instructional time. As Leiseth (2008) pointed out, many districts utilizing the four-day week have struggled to balance the benefits of increased attendance with the impact of the potential volume of material missed within one class period. This has often led four-day school districts to revisit attendance policies to ensure student success (Leiseth, 2008).

Financial Considerations

One of the largest motivators to implement the four-day school week is the overwhelming amount of research that indicates a financial boon for districts (Plucker et al., 2012). There are a number of factors that contribute to potential cost savings, but as Donis-Keller and Silvernail (2009) pointed out, the most reliable and predictable trends in financial outcomes for four-day school weeks are relegated to the areas of transportation, food service, utilities, and staffing. Intuitively, a 20% savings for custodial, foodservice, and transportation is expected when shifting calendars to a four-day school week, and a drastic savings in energy is also anticipated (Tharp, 2014). However, this is not the case, as described in a summary report by Roeth (1985) where following a four-day school week, administrators were asked to report savings based on seven categories. No change was reported in salaries for certified staff, custodians, and administrative assistants, whereas 10-20% savings were claimed on transportation and food services along with 5-20% saved in energy and custodial supplies (Roeth, 1985).

Transportation. Some of the most frequently cited budgetary savings are those associated with transportation (Dixon, 2011). Since busses are not used on the fifth day

for transporting students, there should be an approximate reduction of 20% in all associated transportation costs (Johnson, 2013). Dixon (2011) estimated the overall budgetary impact in an average school district is approximately 0.85%. In Colorado, Penn (2016) found in order to approach the 20% savings in transportation, school districts would have to severely restrict or eliminate transportation for activities taking place outside of the four-day school week. Due to the fact many school districts continue to bus students to extracurricular activities and special education programs, the actual transportation savings is closer to 10% rather than 20%, meaning an overall budgetary savings of 0.43% (Griffith, 2011).

An additional discrepancy on expected and actual cost arises when savings are not uniform throughout the transportation budget (Ely & Teske, 2014). Penn (2016) relayed many transportation-associated expenses such as capital, insurance, maintenance, and administrative costs remain constant despite indications they will go down, whereas fuel, oil, and hourly salaries result in reductions dependent on non-school day utilization. These transportation savings vary drastically dependent upon factors such as how many students are served and the degree of rurality (Hedtke, 2014). Hedtke (2014) provided a simplified example:

A school with a district covering 100 square miles, and a student body of 150 or 200 students K-12, is not going to be saving as much as a school with 500+ students and covering 1000 square miles or more. (p. 16)

These transportation savings are also negated in many school districts which continue to bus students on the fifth day for tutoring (Hedtke, 2014).

Personnel and associated costs. A second area which experiences reduced costs is food service. Providing meals one less day a week should reduce salaries for food service personnel, along with food costs (Donis-Keller & Silvernail, 2009). Griffith (2011) estimated food service cuts resulting from a four-day school week provide a potential budget savings of 0.76%. Since most food service programs utilize government subsidies to break even, some of these savings may not be realized in the district budget (Griffith, 2011). Penn (2016) found schools which subsidize their food program from the general fund can save 20% of that subsidy, but since other costs remain fixed, this amount is decreased substantially.

An additional potential savings often mentioned would be that of support personnel. Literature shows districts implementing a four-day week often experience minimal or nonexistent savings in the area of maintenance (Griffith, 2011). This is due to the fact most school districts have janitorial staff continue working the same schedule or identical total hours over longer shifts (Griffith, 2011).

Support staff such as secretaries often work 10-hour days with offices closed on the off day, and janitorial staff also see similar changes in schedules (Donis-Keller & Silvernail, 2009). As previously discussed, bus drivers and food services employees provide a reduction in costs, though other potential savings exist through salaries for aids, paraprofessionals, and substitutes (Griffith, 2011). Griffith (2011) noted the anticipated savings to the overall budget from these remaining hourly employees should amount to a maximum of 0.03% and this was only likely to occur if the district experienced a 20% reduction in the number of substitute days. Another potential pitfall to this savings plan

is retaining substitutes for the same amount of pay while increasing their daily contracted time (Griffith, 2011).

Only one study recorded an increase in overall personnel costs through implementation of the four-day school week (Leiseth, 2008). Leiseth (2008) showed costs increased in staffing after implementation, rising from \$277,512 to \$319,482 in a four-year span. Upon further examination, Leiseth (2008) determined cost-of-living adjustments and the addition of two staff members likely played a role in this increase, although the savings provided by the four-day week should have offset this number.

Energy. Nationwide estimates from the U.S. Green Building Council, as provided by the U.S. Department of Energy, indicated school districts in 2012 spent a combined total of \$8 billion on energy (Tharp, 2014). A large potential for savings exists in energy consumption, as electricity throughout buildings can be reduced one more day a week, leading to lower utility costs (Miles, 2012). Griffith (2011) noted actual energy savings produced by the four-day school week are difficult to measure because of differences in each facility's usage, which impacts utilities including electricity, heating oil, propane, water, and sewer. Savings could approach 20% of the overall energy budget if optimizing usage (Griffith, 2011).

Cimarron District in New Mexico provided one of the first examples of how a four-day school week could reduce energy costs (Leiseth, 2008). After implementing the four-day school week, along with some energy conservation practices, the school saw usage drop from 144,450 kilowatt hours to 46,073 kilowatt hours and propane consumption reduce from 61,234 gallons to 46,409 gallons a year (Leiseth, 2008). Nine other school districts in New Mexico followed suit, and the data compiled within each

district showed an overall savings between 10% and 20% of operating costs (Leiseth, 2008). Another study conducted on the Atlantic Ocean Community College showed significant energy savings generated by closing buildings on Fridays (Cardinale, 2013). The college changed to a four-day school week in response to projected funding shortfalls, and in the first year the utilities savings totaled \$270,000 (Cardinale, 2013).

Qualifying factors. There are a number of contributing factors present when calculating overall savings for each school district, and this percentage of savings can vary drastically among school districts (Miles, 2012). One of the biggest fluctuations occurs from the determination of facility use on the non-school day (Griffith, 2011). If facilities are completely closed down on non-school days, the savings provided will be more compared to those schools left open for community activities or teacher in-service (Miles, 2012).

School districts that choose to close on Mondays tend to experience more cost savings due to lower utility expenses for gymnasiums, which are often cooled or heated for student events (Leiseth, 2008). Closing on Mondays allows the gyms to remain unoccupied, thus reducing utility costs (Leiseth, 2008). Benefits can be maximized by scheduling activities on Thursdays, Fridays, and Saturdays, along with minimizing usage during the rest of the week (Leiseth, 2008). Schools that offer programs such as tutoring or childcare services on the fifth day do not experience the same level of savings as districts that entirely close their schools on the fifth day (Griffith, 2011). Districts looking to capitalize on the potential financial benefits of running a school for four days a week have to operate each school like it truly is a four-day facility (Griffith, 2011).

Budgetary concerns. Despite what the literature states, there is a growing body of evidence indicating the projected savings of a four-day week are less significant than originally anticipated (Sagness & Salzman, 1993). The reasoning behind this is the areas of saving make up a small percentage of the overall budget (Hill & Heyward, 2015). The largest percentage of the school budget is dedicated to salary and benefits of the professional teaching staff, which accounts for nearly 65% of all education spending (Griffith, 2011). A common misconception with the four-day week is that teacher pay and benefits are also reduced by one-fifth, which does not hold true since teachers continue working the same amount of time just on a condensed schedule (Hill & Heyward, 2015).

Most districts switching to the four-day week do not address teacher, administrator, and support staff salaries, which then creates minimal savings in the range of 0.4% to 2.5% in the overall budget (Griffith, 2011). Using national finance data from four-day school districts collected by the Education Commission of the States, Griffith (2011) calculated a maximum potential savings for any district in the four-day school week of 5.45%. Griffith (2011) acknowledged that dependent upon the unique characteristics of each school, it is impossible to produce a cost savings estimate applicable to all districts, and actual savings generally range between 0.4% and 2.5%. Donis-Keller and Silvernail (2009) argued calculating savings in real terms is a difficult proposition but estimated a savings ranging from 2-9%. This potential savings to the overall budget comprises a relatively small percentage, although many districts have found it significant enough to pursue or continue the four-day calendar (Amys, 2016). Griffith (2011) described how a minimal savings of 0.07% in Duval School District

actually led to an annual budget reduction of \$7 million and accounted for the retention of 70 teaching positions. A district with a much smaller overall operating budget receiving a similar savings might not see it as worthwhile.

It is important for school districts considering a move to the four-day school week to have a realistic set of expectations in regard to savings (Donis-Keller & Silvernail, 2009). Griffith (2011) analyzed the actual savings and found a range from 0.4% to 2.5% per year for schools participating in the four-day school week. Many of the districts experienced cost savings through the transition, but these totals were determined to be less than anticipated (Griffith, 2011). Sometimes these limited savings have resulted in school districts abandoning the practice shortly after implementation (Tharp, 2014). In an attempt to cut operating expenses by 10%, Maine Administrative School District 3 began a bi-weekly implementation of the four-day school week in 1972 (Roeth, 1985). After three years, the district saw minimal savings of 1.5% in the operating budget, and once energy concerns had lessened, the district returned to the five-day calendar (Tharp, 2014).

A similar fate awaited Custer School District in South Dakota, which saw a savings of \$70,000 as opposed to projected cuts of \$110,000 (Feaster, 2002). This, in part, led to the decision for the school district to return to the five-day school week (Tharp, 2014). Saratoga School District underwent a comparable experience after moving to a four-day school week due to a budget shortfall (Plucker et al., 2012). After six years of the four-day school week, the district returned to a five-day schedule due primarily to minimal savings totaling \$30,000 to \$40,000 annually (Plucker et al., 2012).

Modest savings can be found throughout the literature on four-day schools; for example, Shelley School District in Idaho reported a savings of 1.6% in school expenditures (Sagness & Salzman, 1993). When translating this percentage to an actual dollar amount, the change resulted in a savings of \$46,100 (Sagness & Salzman, 1993). These results were echoed in Scenic Valley School Division, which presented a savings of 2% after a switch to the four-day school week in 1996 (Tharp, 2014). Chmelynski recounted a similar savings of less than 2% (\$250,000) in Morrow County School District in Oregon, which had a budget slightly over \$14 million (as cited in Miles, 2012). Truesdale found Cunningham School District in Kansas experienced savings of 1.4% of their operating budget, or \$45,000 of actual savings (as cited in Hewitt & Denny, 2011).

One financial success story attributed to the four-day week can be found in Central Linn School District in Springfield, Oregon, which has reported a savings of \$180,000 each year since the switch (Delisio, 2004). Dixon (2011) noted Peach County, Georgia, was able to save 39 teaching positions by switching their calendar to a four-day school week. Additional success was declared by the Boundary School District in British Columbia, which claimed the decision to convert to a four-day week led to a 20% savings in transportation and custodial expenses and a yearly savings of \$210,000 (Tharp, 2014).

Other Claims

Besides attendance, achievement, and financial savings, there are still a variety of benefits claimed by proponents of the four-day school week (Plucker et al., 2012). Kordosky (2013) outlined the remaining perceived benefits, many of which he encountered in his experience at Oakridge School District in Oregon as superintendent of a four-day school. Kordosky (2013) cited declines in student discipline referrals,

increases in student engagement, higher student and teacher attendance rates, improved employee morale, improved grades, and increased teaching time.

Reduced discipline. One unexpected benefit reported with the implementation of four-day schools is a decrease in student discipline problems (Muir, 2013). Fewer discipline referrals and a decrease in behavioral problems have been noted by a number of districts (Plucker et al., 2012). Beesley and Anderson saw disciplinary referrals decline the semester after implementation of the four-day week (as cited in Plucker et al., 2012). Roeth (1985) showed fewer discipline and vandalism issues when schools implemented the four-day school week.

Improved morale. Another perceived benefit to students during the four-day school week is improved morale among staff and students (Muir, 2013). Many districts have reported boosts in morale, increased focus, and better behavior among students as a result of the shortened week (Donis-Keller & Silvernail, 2009). The Custer District also found student and staff morale increased with the switch to a four-day schedule (Feaster, 2002). Custer School District managed to survey teachers about student attitudes and behaviors in 2006 and 2007 and reported improvement was noted by 62% and 50% of teachers each year, respectively, whereas only 6%-9% reported worsened attitudes or behaviors in 2006 and 2007 (Leiseth, 2008).

A questionnaire distributed by Leiseth (2008) on student and teacher perceptions related to the four-day school produced results that showed student attitudes and staff morale did appear to improve after implementation. Roeth (1985) also conducted a survey on morale, and the results showed improvement for both students and teachers under the four-day week. A survey of superintendents from 84 school districts conducted

by Wilmoth showed most superintendents felt the four-day week improved staff and student morale (as cited in Miles, 2012). Finally, Hale (2007) conducted 60 interviews with principals, superintendents, and parents about the advantages and disadvantages of the four-day school week years after the change. The majority of the respondents described improved teacher and student morale (Hale, 2007).

Decreased dropouts. An additional cited benefit of the four-day school week is a decrease in dropout rates (Muir, 2013). After switching to the four-day school week, the administrators of 10 different schools in New Mexico reported significantly lower dropout rates as compared to the rest of the state (Roeth, 1985). In contrast, Hale (2007) noted administrators reported dropout and graduation rates were the same after the four-day school week was implemented. Upon review of district documents, it was revealed dropout rates had increased in half of the participating school districts, while graduation rates had decreased in each school (Hale, 2007).

Cognitive fatigue. Claims of cognitive fatigue are often cited as a concern for the four-day school week (Blakesley, 2013). Cognitive fatigue is described as a condition resulting from continuous cognitive engagement, which ultimately taxes mental resources and creates less-than-ideal learning conditions (Mullette-Gillman, Leong, & Kurnianingsih, 2015). Most frequently these concerns involve younger students, as it is thought longer days impact their retention and learning (Hill & Heyward, 2015). A report issued by Blakesley (2013) on the Gulf Islands in Canada seemed to support this position, as he suggested fatigue was significant among younger students and apparent among all students. Blakesley (2013) cautioned these results are causal and not scientific

due to a lack of benchmarking prior to transitioning to the four-day school week, which prevents direct comparison to the five-day week.

Sagness and Salzman (1993) noted Idaho schools participating in the four-day week saw 42% of primary, 37% of intermediate, and 19% of secondary students indicate they were tired and the day was too long (Sagness & Salzman, 1993). Sagness and Salzman (1993) also reported 41% of parents described their students as fatigued learners, while 24% of teachers assessed students as overly tired. The effects of cognitive fatigue can similarly be identified in a study by Fillmore and Pope (2012), where test scores fell for high school students required to take Advanced Placement exams with minimal time between testing sessions.

Not only are there concerns for educational fatigue among students, but also for teachers. Klaassen et al. (2016) asserted teacher burnout may be associated with cognitive fatigue from sustained performance of cognitively demanding tasks. Interestingly, Sagness and Salzman (1993) reported in an Idaho school district that increased the length of the day, 24% of teachers indicated greater levels of stress and fatigue due to longer school days.

A conflicting report by Leiseth (2008) indicated elementary students experiencing a 35-minute-longer school day showed no increase in fatigue according to stakeholder surveys. Similarly, Penn (2016) reported satisfaction surveys revealed that for Colorado schools which had been in the schedule for many years, 80-90% parents were in favor of longer school days. A final study conducted by Sagness and Salzman (1993) specified that students had higher levels of on-task behaviors despite longer days. Whether minimal or substantial, the impacts of cognitive fatigue can be prevented in a four-day

school (Sievertsen, Gino, & Piovesan, 2016). The results of a study on Danish schools showed that given an appropriate frequency and duration of breaks throughout the day, students can easily avoid or overcome cognitive fatigue (Sievertsen et al., 2016).

Improved instruction. Positive impacts on instruction and utilization of class time are frequently noted by school districts that have implemented the four-day school week. These claims are based on reports of more efficient and effective teaching in a lengthened day (Donis-Keller & Silvernail, 2009). Hewitt and Denny (2011) described analogous results of instructional improvement due to extended periods, with teachers and administrators reporting increased on-task time in four-day schools when compared to their instructional experiences in the five-day week. Feaster (2002) detailed teachers felt they were able to provide 20% more instruction on the adjusted schedule given the longer periods and drop in absences. In a study utilizing the perceptions of 10 superintendents working within the four-day school week, Hanson (2014) cited a pattern of responses indicating instructional improvements occurred as a result of teachers receiving regular professional development and additional time to collaborate.

Summary

As the review of literature indicates, transition to a four-day school week results in a great deal of unknowns. Comparing the history of the conventional calendar and the four-day school week provides perspective on why both of these calendars have managed to be successful. It is important to understand the four-day calendar provides a diverse set of options or formats to fit individual community needs (Hewitt & Denny, 2011). This flexibility has led in part to the popularity of the four-day calendar, but ultimately four-day schools, much like five-day schools, are bound to state-mandated compulsory

attendance requirements (Dixon, 2011). According to a report by Rowland (2014a), Missouri's compulsory attendance age extends from ages 7-16 with 1,044 hours as the minimal number of instructional hours.

Recent legislation has provided an opportunity for schools to meet time obligations rather than day requirements, allowing four-day schools to gain more traction (Giger, 2012). This has led to concerns about the four-day school week's impact on student achievement (Schreier, 2013). An examination of literature shows a wide variance of impact with positive, negative, and inconclusive results. Since a component of assessing student achievement in Missouri is through the ACT exam, this study involved determination of student achievement for four-day schools through ACT scores.

A variety of studies showed a link between attendance rates and the four-day school week (Muir, 2013). This attendance improvement could be measured for both students and teachers (Anderson & Walker, 2015). These higher rates of attendance could lead to increases in funding (Miles, 2012; Sanchez et al., 2015). Other financial benefits to the four-day school may exist through cuts in transportation, custodial, energy, and personnel costs (Hill & Heyward, 2015). These savings are dependent on how the school manages each of these potential expenses on the non-school day (Leiseth, 2008).

Schools should be careful when estimating savings, as potential savings to the overall budget generally do not exceed 5% and oftentimes are significantly lower (Griffith, 2011). Finally, a variety of other claims have been made about the impacts of the four-day school week which include the following: decreased discipline, increased morale, decreased dropout rates, and higher levels of cognitive fatigue (Donis-Keller & Silvernail, 2009). The inconclusive results presented in the literature on almost every

listed advantage or disadvantage to the four-day school week provide evidence this topic requires more scientific study.

Chapter Three focuses on the methodology of the proposed study and includes an overview of the problem and purpose, the design of the study, and all ethical considerations. Furthermore, the demographics of the study are examined. The details of instrumentation and data collection methods are presented. Chapter Three specifies the methodology and research design of this study including the population, sample, and process of collecting and analyzing data. Chapter Four contains details collected from the interviews of school administrators and teachers on the four-day school week along with MODESE data concerning attendance, dropouts, and ACT performance. Finally, Chapter Five presents the findings, conclusions, implications for practice, and recommendations for future research.

Chapter Three: Methodology

Since 2011, school districts within Missouri have been presented with the option of restructuring their calendars (Knapp, 2014). With a majority vote, each school board can adjust the schedule to 142 days or more as long as students receive 1,044 hours of instruction per year (Missouri School Calendar Act, 2016). With no schools participating in the four-day school week before 2011, recent implementation in Missouri offers an excellent opportunity to study the impacts of the four-day school week during the implementation and induction stages (Johnson, 2013). Additionally, the movement of rural schools in Missouri toward the four-day school week, from zero to 16 districts in five short years, is astonishing (Mann, 2016). This number will likely increase, as many districts have expressed interest in the four-day school week (Alves, 2017).

Along with growth in the number of schools implementing the four-day school week, the debate surrounding impacts on attendance, achievement, graduation rates, morale, teacher attendance, cognitive fatigue, discipline, and finance will continue to gain attention (Plucker et al., 2012). The implications of this study are significant not only to member schools and those within Missouri, but also to school districts across the nation considering a change to the four-day school week. Chapter Three includes a description of the research methodology and associated procedures used in this study to investigate the four-day school week. The chapter provides a description of the problem and purpose, research questions, design, population, methods, instruments, data collection methods, data analysis techniques, and ethical considerations.

Problem and Purpose Overview

With continual pressure on school districts to improve student achievement despite limited financial resources, many schools have opted to modify their schedules to a four-day format (Plucker et al., 2012). School districts considering this approach must balance the needs of their students, parents, teachers, and community to determine whether or not to implement the four-day school week (Plucker et al., 2012). For each of these communities, evaluating the merits and faults of a shortened school week often proves difficult, as anecdotal evidence and unsubstantiated claims surround the subject (Plucker et al., 2012). Adding to this challenge is a shortage of research, a history of inconclusive or conflicting results, and a fundamental disagreement on how to utilize school calendars to optimize learning (Tharp, 2014).

This study was designed to provide a multifaceted examination of the four-day school week in order to identify and describe the system's overall impact. The purpose of the study was to gain an understanding of how the four-day school week influences attendance, achievement as measured through ACT scores, graduation rates, morale, teacher attendance, cognitive fatigue, discipline, and finances in each of the studied schools. Through this investigation, a clearer picture of the four-day system and its impacts was realized.

Research questions and hypotheses. The following research questions guided the study:

1. What difference exists, if any, between attendance rates for schools before and after switching to a four-day school week?

$H1_0$ There is no difference between attendance rates for schools before and after switching to a four-day school week.

$H1_a$ There is a difference between attendance rates for schools before and after switching to a four-day school week.

2. What difference, if any, exists in ACT scores for schools before and after switching to the four-day school week?

$H2_0$ There is no difference in ACT scores for schools before and after switching to the four-day school week.

$H2_a$ There is a difference in ACT scores for schools before and after switching to the four-day school week.

3. What difference, if any, exists between dropout rates for schools before and after switching to the four-day school week?

$H3_0$ There is no difference between dropout rates for schools before and after switching to the four-day school week.

$H3_a$ There is a difference between dropout rates for schools before and after switching to the four-day school week.

4. What are the perceptions of school administrators who work in a four-day school week related to teacher morale, teacher attendance, discipline, and finance?

5. What are the perceptions of school teachers who work in a four-day school week related to student learning, student morale, cognitive fatigue, and discipline?

Research Design

This mixed-methods study was designed to incorporate both qualitative and quantitative data in the investigation of the four-day school week. For the quantitative

portion of the research, historical data were utilized to examine high school attendance, dropout rates, and student achievement for schools that transitioned to the four-day calendar. These secondary data were collected by the Missouri Department of Elementary and Secondary Education (MODESE) and were utilized to determine how the switch to a four-day school week impacted each performance indicator. In order to accomplish this, data were collected from the last three years of the five-day school week to create a baseline and were then compared to the subsequent three years following the implementation of the four-day school week.

The second portion of this mixed-methods study involved qualitative research, where primary data were collected through personal interviews with administrators and teachers to determine their perceptions of the four-day school week. Each interview was conducted at the convenience of the participant. An administrator from the participating school was asked to comment on the four-day school week as it relates to school climate, specifically teacher morale, teacher attendance, discipline, and finance. A teacher from each participating school was also interviewed on how the four-day school week impacted student learning, student morale, cognitive fatigue, and discipline. In total, eight interviews with administrators and eight interviews with teachers were conducted and the results were recorded, categorized, and analyzed.

Before any interviews were conducted, Lindenwood University Institutional Review Board (IRB) approval was received (see Appendix A). Districts were then contacted in order to gauge interest in participating in the study, and superintendents were asked to sign a letter of permission (see Appendix B). Administrators and teachers who expressed interest in the study were then provided a letter of participation (see Appendix

C). In accordance with IRB guidelines, an informed consent was signed by each of the participants (see Appendix D). Verbal consent was obtained and recorded from each participant prior to conducting the interviews. To maintain a degree of anonymity for each participant, responses were coded with a designated position identifier (teacher and administrator).

Population and Sample

The population of the qualitative portion of this study consisted of teachers and administrators currently working within 17 Missouri school districts operating under the four-day school calendar. Within this portion of the study, purposeful sampling was utilized. Creswell (2012) described this type of sampling as choosing participants based on specific characteristics, knowledge, or experiences. Sites and individuals were intentionally selected based on the need to understand a certain phenomenon (Creswell, 2012). This sampling method was chosen to ensure only sites within Missouri practicing the four-day school week were selected. At the time of this study, Missouri schools currently participating or having participated in the four-day school week in the past included Albany, Community, East Lynne School District, Everton, Harrisburg, Laclede County, Lathrop, Lexington, Maires County, Miami R-1, Miller, Montgomery County High School, Orearville, Pierce City, Stet, Stockton, and Wellsville-Middletown. These school districts were contacted to inquire about potential interviews.

A cross-section of kindergarten through 12th grade teachers and administrators who were willing to participate in the interview process had to meet two simple selection criteria. The criteria necessary for the selection of interview participants included the following: (1) experience within the school before and after the transition to the four-day

school week and (2) a member of the certified staff. When multiple teacher or administrator interview opportunities were present, a random sampling process was utilized to select the interviewees.

The sample for this study included one teacher and one administrator from 8 different schools selected for this study, producing a total sample of 16 interviews. Within qualitative research, smaller sample sizes are frequently utilized since there are often a limited number of perceptions available (Baker, Edwards, & Doidge, 2012). Recommendations for acceptable sample size in order to reach sufficient depth and full range within a qualitative study are often varied but are generally described as between 12 and 60 (Ritchie et al., 2013). As a rule of thumb, Ritchie et al. (2013) argued qualitative sample sizes should stay below the 50-interview threshold, as the data may become too difficult to manage from the collection and analysis standpoint. Within most small qualitative analyses, extending beyond this threshold would be without purpose, as saturation would have occurred leading to no new perception data (Fusch & Ness, 2015). Baker et al. (2012) found this saturation level in qualitative research is difficult to determine in advance, with some studies reaching saturation in as few as five interviews based upon the homogeneity of the population and the breadth and scope of the study.

The quantitative portion of this study was determined through a separate treatment for population and sample. The population of the study included 17 schools within Missouri that utilized the four-day school week. Of these 17 schools, a sample of 9 schools was identified for the quantitative analysis. The sample was comprised of schools which operated under the four-day school week for four or more years to create a three-year post implementation average. Secondary data from current and former

students in each of the nine school districts involved within the study were utilized. This information on aggregate ACT scores, attendance rates, and dropout rates was acquired through the MODESE, and the results were then analyzed for each school before and after their switch to the four-day school format.

Instrumentation

Since this study followed a mixed-methods methodology, two distinctively different approaches to instrumentation were developed. Within the qualitative portion of the study, a series of interview questions were developed for teachers and administrators (see Appendices E and F). Each of these instruments included open-ended questions and was designed with the interpretivist theoretical framework in mind. The instruments were also guided by the research questions, with the goal of gaining a better understanding of each of the following components of the four-day school week: teacher morale, teacher attendance, discipline, finance, impact on student learning, student morale, cognitive fatigue, and discipline. All participants within the study were provided with a copy of these questions in advance, as well as a copy of the informed consent.

Quantitative instrumentation was provided through ACT test scores, dropout rates, and attendance reports. As a standardized test, ACT scores were utilized to indicate student achievement within each school district before and after transition to the four-day school week. Furthermore, attendance reports provided to the state from each individual school district were examined to determine the impact of the four-day school week on student attendance. Finally, dropouts for each individual school district were compared over time to indicate whether or not the four-day school week improved dropout rates in these particular districts.

Data Collection

Schools operating under the four-day school week in Missouri were contacted via telephone or electronic communication to inquire about participating in the research (see Appendix G). When interest was expressed, permission was attained to conduct research within the district. For the qualitative portion of this study, soon after permission was granted by district personnel, contact with an administrator was established through email explaining the study and the necessary requirements of all participants. This email also included an informed consent form and the interview questions for both teachers and administrators, which allowed for prior viewing.

After receiving consent from each of the participants, telephone interviews were scheduled and conducted. Each interview was recorded with a digital tape recorder upon the approval of the participants and was transcribed at a later date. No notes were taken during the interviews, which allowed the researcher to remain actively engaged in listening and focusing on the responses during the process. Clarifying questions and paraphrasing were utilized during the interviews in order to ensure the true sentiments of the interviewees were captured.

Immediately after the interviews, field notes were written in order to retain the essence of the conversations and responses. In both transcripts and field notes, each participant's identity was protected. Finally, all of these data will remain in the researcher's possession stored in a locked filing cabinet. Three years after the conclusion of this study, all records will be shredded or destroyed.

The quantitative data collected within this study were archival and public record in nature. These pieces of data were readily available through the MODESE website.

These data included attendance rates, ACT scores, and dropout rates for the periods leading up to and after the transition to a four-day school week. This timeframe generally encompassed school years ranging from 2010-2016.

Data Analysis

When conducting a mixed-methods study, an enormous volume of data help create “rich insights into various phenomena of interest that cannot be fully understood using only a quantitative or a qualitative method sources” (Venkatesh, Brown, & Bala, 2013, p. 21). Both archival data and those collected through the interview process were analyzed in order to gain insight into patterns and themes and to determine significance. The research questions for the study were the driving force behind the data analysis. When analyzing data from the interview process, the transcripts were reread several times, and a simple coding scheme was developed to organize and classify data. This coding scheme included organization of data by themes, words, phrases, and ideas (Bluman, 2013). By examining the response frequencies for each of the questions, patterns within the qualitative data emerged.

A descriptive analysis was conducted on the data and displayed in the form of tables and figures. Also utilized was an inferential analysis of attendance rates, dropout rates, and ACT scores, which was completed through utilization of *t*-tests. A *t*-test was chosen for each of these analyses in order to provide strong statistical evidence regarding the variation in mean performance before and after the switch to a four-day school week (Fraenkel, Wallen, & Hyun, 2012). Each of these tests was performed through Microsoft Excel’s statistical package by comparing data from before and after the transition to the

four-day school week at each site. This determined whether or not the effect was statistically significant.

Ethical Considerations

This study was approved by the Lindenwood University Institutional Review Board prior to the collection of data. After approval by the Lindenwood University IRB, steps were taken to protect the identities of those who chose to participate in the interviews. Participants received a letter of participation and an Informed Consent Form, which detailed the purpose of the research and the opportunity to opt out of the study at any time. Verbal consent was provided by the participants, and their participation was voluntary with assurances of confidentiality, anonymity, and the opportunity to remove themselves from the study at any time. To ensure this confidentiality, audio recording of participant interviews and all information related to the interviews were secured under lock and key in a location under the direct supervision of the researcher. All electronic files and documents were housed on a password-protected storage device.

Any personal information regarding the individual participants remained anonymous and confidential throughout the study. Designated data codes were assigned to each participant to further protect his or her identity and to assure confidentiality. To ensure the validity of the interview process, member checking was utilized, in which transcripts were provided to the participants in order for them to examine for accuracy. According to Maxwell (2013), member checking is a method of assuring the data collected are not misunderstood by the researcher. As a means of validating the research, transcripts were provided to the participants to review for accuracy and to ensure they

had an opportunity to confirm or refute the results. During statistical analysis, all data, including outliers, were reported to provide an interpretivist-based description of the four-day school week related to each individual school district.

Summary

The methodology used in this mixed-methods study was outlined in Chapter Three. The chapter consisted of an overview of the problem and purpose followed by the corresponding research questions and hypotheses developed for the study. Next, the design of the study was detailed, leading up to an explanation of the population and sampling methods. Descriptions of the instruments utilized within the study to collect data were also provided. Chapter Three concluded with details on data collection methods, along with the data analysis techniques and related ethical considerations.

In Chapter Four, qualitative and quantitative data involving the four-day school week are presented and analyzed. This includes responses to interview questions from teachers and administrators, in addition to ACT scores, attendance rates, and dropout rates. Associated tables and figures are presented to describe the impact of the four-day school week as it relates to each of the research questions. Chapter Five includes a summary of the findings, conclusions, and recommendations for future studies related to the four-day school week.

Chapter Four: Analysis of Data

A variety of claims, both negative and positive, have been attributed to the four-day school week in the areas of attendance, achievement as measured through ACT scores, graduation rates, morale, teacher attendance, cognitive fatigue, discipline, and finances (Plucker et al., 2012; Thomason, 2013). This analysis was conducted utilizing a mixed-methods approach involving qualitative data collection to determine school administrator and teacher perceptions of the four-day school week. Additionally, quantitative data were studied in order to examine school patterns in attendance, ACT scores, and dropouts before and after the switch from traditional scheduling to the four-day week.

Prior research on the four-day school week has been limited and inconclusive on how this system influences the educational process (Donis-Keller & Silvernail, 2009). Tharp (2014) stated, “Limited research performed on four-day school weeks primarily consisted of research briefs, research papers, and compilations of anecdotal data along with research that has significant flaws centered primarily around the very small sample sizes” (p. 12). Despite varied reports on the structure’s effectiveness, many school districts across the nation have implemented the four-day school week. Through this investigation, a clearer picture of the four-day system and its overall impacts should be achieved.

Quantitative data were collected through the MODESE website. Data were extracted from nine school districts in Missouri that have implemented the four-day school week for four or more years. A *t*-test was used to compare ACT scores,

attendance rates, and dropout rates from the three years prior to the four-day school week to the three years after implementation.

The focus of the qualitative portion of this investigation was to gain a more thorough understanding of the perceptions associated with four-day school week programs. Qualitative data were collected through telephone interviews with administrators and teachers in Missouri. Participants were asked open-ended questions regarding their perceptions of the four-day school week and the impact the switch had on their school districts.

Attendance

Attendance rates were collected from the MODESE website for each of the nine school districts participating in the four-day school week for at least four years. Of the nine districts examined, two were K-8 districts, while the remainder of the districts sampled were K-12. Although some of the districts had been utilizing the four-day school week longer than others, the data were treated so attendance rates were representative of only the three years before and after implementation to determine if a difference in attendance rates could be identified.

The attendance rates were then categorized to formulate two groups representing the three years prior to the four-day school week and the three years after. As displayed in Table 1, when these districts were operating under the traditional five-day school week, the difference in mean attendance rates ranged from -0.067 to 1.100. Only one district showed a decrease in attendance rate going from a five-day week to the four-day school week. A *t*-test produced a critical value of ± 2.30 ; *t* values must be greater than ± 2.30 to reject the null hypothesis. The obtained *t* statistic was -4.073, which falls in the

critical region. The null hypothesis for this portion of the study stated there is no difference between attendance rates for schools before and after switching to a four-day school week. With the Alpha number set at 0.05 and the p -value for the two-tailed t -test calculated as 0.004, the null hypothesis was rejected, and the alternative was supported. Therefore, a significant difference or improvement in attendance rates can be attributed to the four-day school week when compared to the five-day school week.

Table 1

Three-Year Average Attendance Prior to and Post-Implementation of the Four-Day School Week

School District	Five-Day Attendance %	Four-Day Attendance %	Change in Attendance %
District 1	95.233	95.167	-0.067
District 2	94.533	95.467	0.933
District 3	95.733	95.867	0.133
District 4	95.200	95.333	0.133
District 5	94.567	95.100	0.533
District 6	94.133	94.700	0.567
District 7	94.467	95.333	0.867
District 8	94.033	95.133	1.100
District 9	95.833	96.667	0.833
Mean	94.859	95.419	0.559

Figure 1 highlights three-year aggregate attendance rates before and after the switch to the four-day school week for each individual school district. The data indicate within the nine districts studied, eight experienced varying degrees of attendance improvement after switching to the four-day school week. The greatest attendance adjustment was experienced in District 8, which saw a three-year average increase from 94.033% to 95.133% for a 1.1% improvement. It should also be noted District 8 had the most room for improvement, as it began with the lowest three-year average attendance level of the nine districts studied.

This increase was mirrored in District 2, which saw rates increase by 0.933%, while District 7 increased by 0.867%, and District 9 increased by 0.833%. District 6 produced a growth in attendance rate of 0.567%, while District 5 saw an increase of 0.533%. Less notable improvements were found in District 3 and District 4, which each realized an increase in attendance percentage of 0.133%. Only one of these school districts, District 1, dropped in attendance, which was reflected in a change from 95.233% to 95.167%, or a decrease of 0.066%.

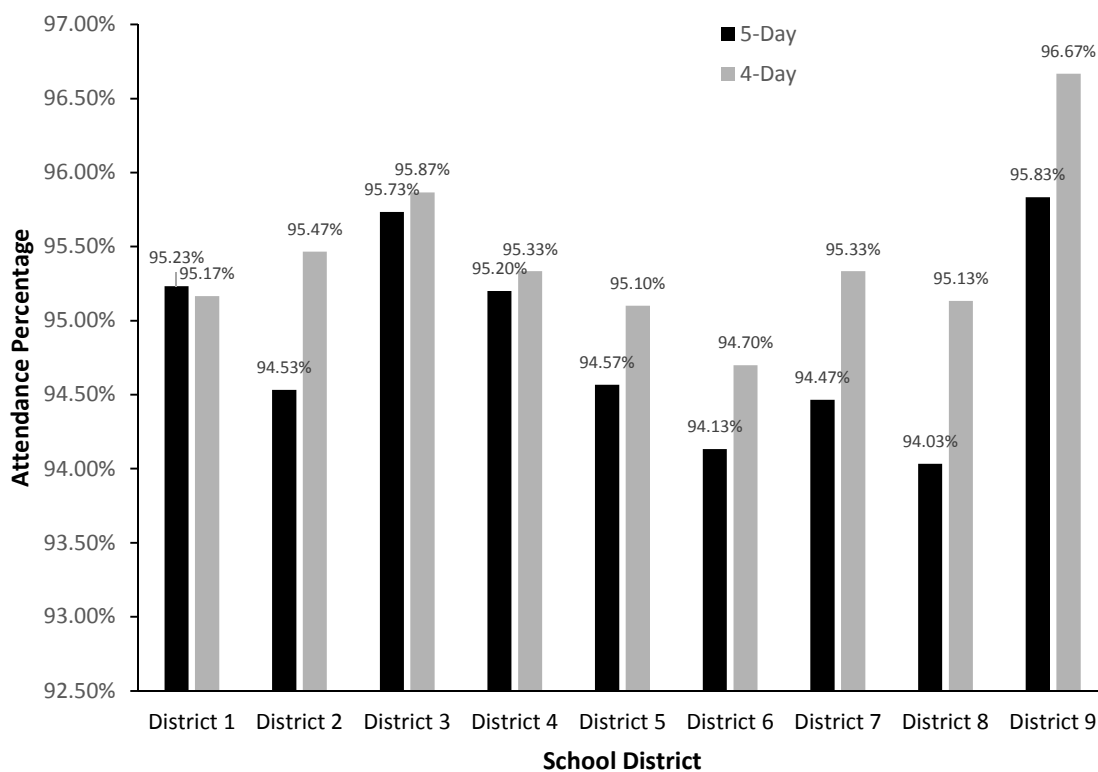


Figure 1. Three-year average attendance rates before and after four-day school week for nine Missouri school districts.

ACT Composite

Composite ACT scores were gathered from the MODESE website for districts utilizing the four-day school week for four or more years. In Missouri, this sample was limited to seven school districts, as two of the districts were only grades K-8. Composite ACT score data from District 1, District 3, District 4, District 5, District 6, District 7, and District 8 were then compiled for the last three years of the five-day school week and averaged. Similarly, the three years following the implementation year were then averaged to identify any notable difference in ACT scores.

Table 2 shows the increase in mean ACT composite scores from 20.314 to 20.514. In order to determine whether or not this 0.2 composite score increase was statistically significant, a *t*-test was conducted for each paired sample. Results of the *t*-test showed a value -1.43 with six degrees of freedom. When examining the ACT composite scores for schools that switched to the four-day school week, the null hypothesis stated there is no difference in ACT scores for schools before and after switching to the four-day school week. After applying an Alpha of 0.05 along with a *p*-value of 0.203, the null hypothesis was not rejected. There was not a statistically significant difference in composite ACT scores for the schools which switched from the five-day week to the four-day school week.

Table 2

Three-Year Average ACT Composite Prior to and Post-Implementation of the Four-Day School Week

School District	Five-Day ACT Score	Four-Day ACT Score	Change in ACT Score
District 1	20.23	20.33	0.10
District 3	20.17	20.47	0.30
District 4	21.43	21.80	0.37
District 5	19.93	20.77	0.83
District 6	19.93	19.90	-0.03
District 7	19.07	19.27	0.20
District 8	21.43	21.07	-0.37
Mean	20.31	20.51	0.20

Figure 2 shows the three-year mean of each school district's composite score before and after the switch to the four-day school week. Five of the seven districts saw an improvement in their three-year mean composites. The greatest increase occurred in District 5, which exhibited a three-year growth in mean composite scores of 0.833. District 4, District 3, District 7, and District 1 saw more modest improvements of 0.367, 0.300, 0.200, and 0.100, respectively. Contrary to these results, data from District 6 and District 8 showed slight decreases in mean ACT scores of 0.033 and 0.367.

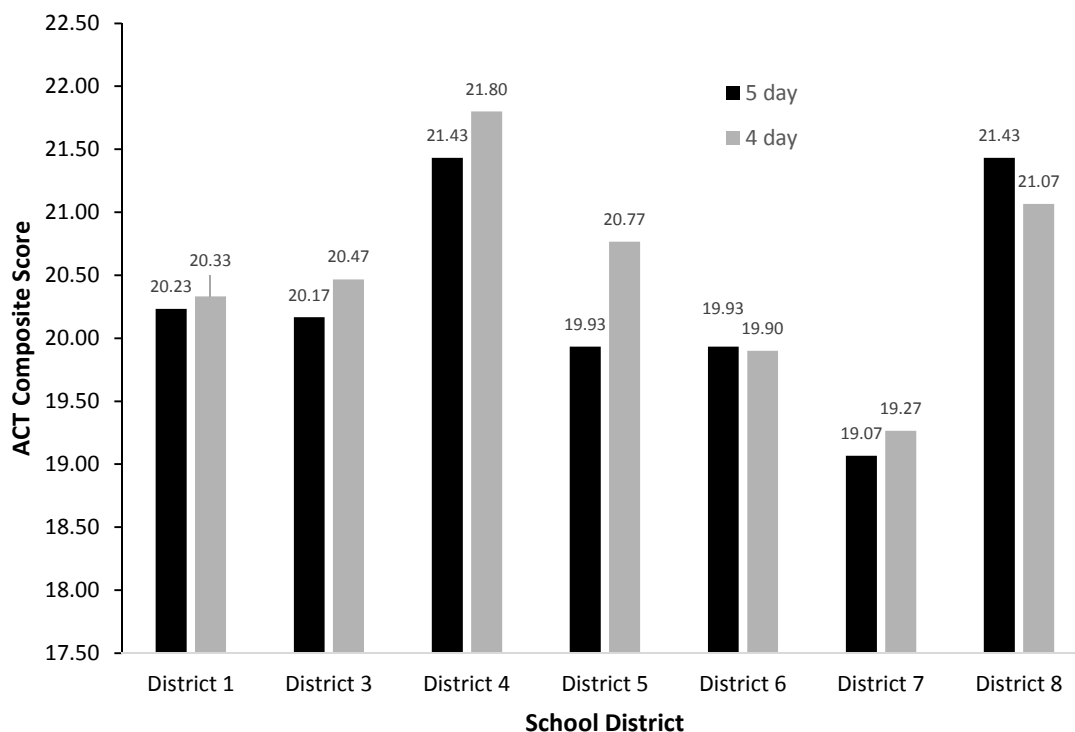


Figure 2. ACT composite score three-year average before and after four-day school week for seven Missouri school districts.

Dropout Rates

The MODESE website was utilized to collect data on high school dropouts for each of the seven school districts in Missouri that implemented the four-day school week for four or more years. Dropouts were then compiled and averaged for the three years prior and three years after these school districts transitioned to the four-day school week. The year of implementation was excluded from these data.

Table 3 shows the mean dropout rates for the seven school districts involved in the study declined from 2.567 under the five-day school week to 1.919 after the four-day week was implemented. This decrease in the average dropout of 0.648 for this cohort of

seven schools was analyzed using a *t*-test to determine if a statistically significant difference had been identified. The sample showed a *t*-test value of 0.986 with six degrees of freedom. The null hypothesis was stated as no difference between dropout rates for schools before and after switching to the four-day school week. The paired sample *p*-value of 0.362 coupled with an Alpha of 0.05 determined the null hypothesis was not rejected. The length of the school week appeared to have no influence on dropouts for each of these Missouri school districts.

Table 3

Three-Year Average Dropouts Prior to and Post-Implementation of the Four-Day School Week

School District	Five-Day ACT Score	Four-Day ACT Score	Difference in Dropouts
District 1	1.43	2.57	-1.13
District 3	4.90	0.67	4.23
District 4	1.87	2.43	-0.57
District 5	3.67	2.60	1.07
District 6	3.03	2.97	0.07
District 7	0.47	0.00	0.47
District 8	2.60	2.20	0.40
Mean	2.57	1.92	0.65

Figure 3 shows the three-year mean of each school district's dropouts before and after the four-day school week was implemented. Of the seven districts studied, four decreased in their dropouts, one had virtually no change, and two increased in their average dropouts after switching to the four-day school week. The largest decrease in dropouts occurred in District 3, which produced an improvement from a three-year average of 4.9 to a 0.7 rate.

More moderate results were experienced in District 5, District 7, and District 8, which generated a difference in average dropouts of 1.07, 0.5, and 0.4, respectively. District 6 was virtually stagnant with a 0.06 rate change for the three-year average. District 1 and District 4 saw increases to their dropout averages after turning to the four-day school week. Of the two, District 1 produced the highest average growth of 1.2 dropouts, while District 4 experienced an increase of 0.5 compared to their three-year average.

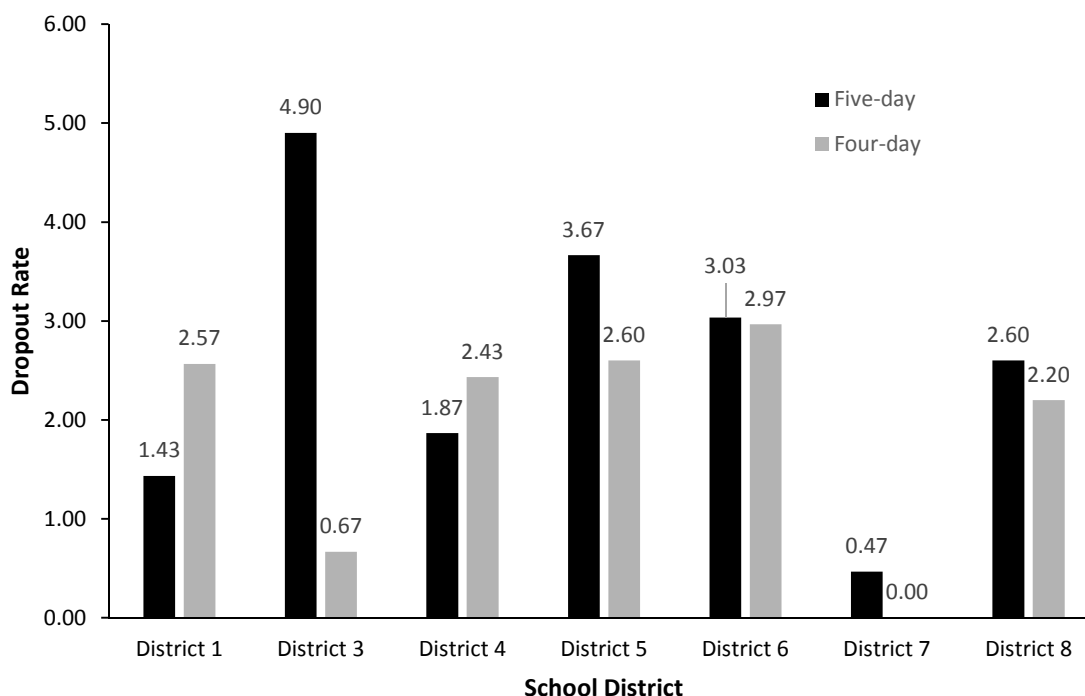


Figure 3. Dropout three-year average before and after four-day school week for seven Missouri school districts.

Interviews

The primary data for this research were collected through interviews. Each interview was audio recorded. At the time of the interviews, participants were divided into two categories based on the role within the school as an administrator or teacher. The 16 participants were comprised of eight school administrators including superintendents and/or school principals and eight teachers of varying subject areas, experience, and grade levels. All participants were teachers and/or administrators before and after the school district switched to the four-day school week. Unlike the quantitative portion of the study, the qualitative interviews incorporated participants with varying lengths of experience in the four-day school week ranging from six years to a

single school year. This range of input was designed to provide a wide perspective of the four-day school week's impact on school climate.

To assure anonymity, each school administrator and teacher interviewed was provided a data code corresponding to his or her position/role within the school. For example, the first administrator interviewed was coded A1, the second administrator as A2, and so on through A8. Teachers were similarly identified with designations of T1, T2, T3, T4, T5, T6, T7, and T8.

Administrator responses. The purpose of the eight interviews conducted with school administrators was to gain insight on their perceptions of school climate within a four-day school week as related to teacher morale, teacher attendance, discipline, and finance.

Administrator interview question one. What differences, if any, have you noted in teacher morale since the switch to the four-day school week has occurred?

To this question, six of the eight administrators had purely positive remarks about the impact of the four-day school week on building and teacher morale. One administrator shared mixed reviews, deeming it as a net positive but citing it as a struggle in the area of morale during the first year of implementation. The last administrator noted he saw no impact.

Among the administrators who described teacher morale improvements after implementation of the four-day school week, a variety of inputs were utilized such as direct observation, surveys, and discussion. Regardless of the source, a few common threads seemed to emerge among the administrator interviews. One of these commonalities was that teachers appeared happier. Administrator 3 described,

“Everybody enjoys it, they’re happy with it, and that’s about it.” This sentiment was echoed in the account of A1, who mentioned, “Compared to a five, it’s always a good thing. I think the teachers are very pleased here.” A similar response was provided by A2 when discussing teacher morale after switching to the four-day school week.

Administrator A2 stated, “Teacher morale has actually really increased. We had a pretty positive building climate in the past, but since our four-day school week, teachers just, I don’t know, they seemed more energized, they smile a little bit more.” These positive contributions to morale were also detailed by A7 when he mentioned, “I think there’s definitely been a positive impact.” A few of the administrators went on to explain this improvement in morale might be due to the benefit of more time for teachers.

The administrators shared extra time for teachers is then utilized for family time, professional development time, and professional work time, which ultimately leads to greater levels of teacher morale. One administrator, A8, described how one of the biggest boosts to morale is that the four-day school week allows for a protected meeting time so teachers do “not have to spend time after school or before school meeting.”

Administrator A6 touched upon the substantial time commitment involved with teaching and noted the four-day school week provides time for teachers to do what they previously “were required to do on their own time or ended up doing out of default on their own time,” which is for teachers “generally speaking, a total positive.” Likewise, A7 acknowledged these benefits and how the four-day school week has been invaluable for teacher morale, reporting, “It doesn’t necessarily mean that our teachers have Monday off just because, you know, there’s grading and other things.” However, with technology

and the four-day week, “It saves them from having to come into school that extra day and being able to work from home. They’re much happier with the four-day-week.”

This insight was verified by A4 when he explained there is now a greater separation between weekends and worktime, “The big thing that teachers always express with the four-day school week is that they get their weekends back” from prepping and grading. Administrator A4 went on to mention, “Sundays, they [teachers] now had back with their families and could concentrate on putting a full day in to grade and do their prep work on Mondays.” Administrator A8 relayed a similar observation:

I think morale has improved greatly, and the biggest, I would say the biggest reason for that is just teachers come in and feel, for the most part when I talk to them and see them, they feel rested when they come in on Tuesday.

This administrator went on to describe within his district the four-day school week has produced the added benefit of removing the “Monday morning blues.” Administrator A8 explained under the five-day school week, “We used to have that Monday morning drag where everybody just feels like they’ve run ragged all weekend and then they show up, and it’s just back to the grind and we don’t have that here. It’s been surprising.” Finally, A8 mentioned this morale boost is most apparent with teachers entering the district, as they often describe they are “surprised by how rested and how ready to work they feel” and how much happier they are under the four-day school week as opposed to the traditional five-day format.

Another component of morale discussed by two administrators was how the four-day school week improved classroom instruction. Both of these administrators argued teachers have a greater level of satisfaction with their jobs and ultimately higher morale

because they have built-in professional development and work time. This was relayed by A2, “I believe the planning and preparation is better as well, but overall teacher morale has increased a bit, and I believe it’s specifically due to the four-day school week.”

Similarly, A8 witnessed benefits to teacher morale and student learning, finding there is “engagement from the moment they step in until the moment they leave. Because they’re trying to work with five days’ instruction into four, and so they’re definitely making the most of that time.” Administrator A8 supported this argument of improved morale by describing, “Our teachers do not ever, you never hear them rooting for a snow day, they value those four days they have so much” and do not want their class time interrupted.

Besides improvements in teacher attitudes indicated by surveys, observations, and discussions, teacher retention rates were also provided as another indicator to support the idea the four-day school week is beneficial to teacher morale. This pattern of higher retention was discussed by A1 and A7 as something that emerged within their respective districts after switching to the four-day school week. Each of these individuals expressed teacher retention has become a positive culture piece to their school system and is evidence of improved job satisfaction. Both administrators mentioned their attrition rates were much higher before the four-day school week.

Administrator A1 noted he has had minimal or no staff turnover since implementing the four-day school week and mentioned each replacement was “a retiree or somebody that was living far off from where they’re originally from and wanting to move back closer to home.” A similar response was provided by A7, who stated, “I think teacher retention for us related to the four-day-week is better. Just the response from our teachers has been that the four-day-week has energized them, and that they’re really not

interested in going to another district.” Each of these administrators attributed this increased retention rate to the impact the four-day school week has had on creating a higher job satisfaction level for teachers.

A contradictory view was established by A5, who felt the four-day school week has little to no impact on teacher morale. This administrator specified, “I don’t know that four days versus five days really is the key factor for teacher morale.” He went on to argue too many factors impact teacher morale and satisfaction to speculate how the four-day week has influenced teacher morale. Administrator A5 also cautioned the impact on morale might be a bit overstated by other four-day school districts, asserting teachers are still in session for professional development on many of the dates the students are absent, and “when you look at the paycheck, the pay is no different.”

Although A3 mentioned the impact on teacher morale in the long run is positive, he also recognized in the short-term, it is at times damaging, “I think it was just stressful that first year trying to make sure we had everything covered and that we were getting everything taught.” The interviewee acknowledged the amount of focus involved in putting everything into four days instead of five is difficult for the staff, and overall morale did take a hit in the first year of implementation due to increased stress levels. This administrator mentioned after this initial adjustment period, the second year saw improvements to morale since teachers had finished fine-tuning their curriculum.

Administrator interview question two. What changes in student morale have you noticed since the switch to the four-day school week?

To this question, seven of the eight administrators thought the switch to a four-day school week has improved student morale within their respective districts. The

primary rationale for improved student morale was that the schedule gives students an additional day off, but there were some other reasons shared throughout the interviews with administrators. One administrator expressed there has been little to no overall impact on student morale. None of the administrators interviewed saw the four-day school week as detrimental to student morale.

Similar to interview question one, when examining the positives behind the four-day school week for students, the majority of the responses were based upon direct observation by administrators and discussion with students. Administrator 1 stated, “Students seem to like having the three-day weekend, every weekend. For the kids it is a three-day weekend every weekend.” A similar verdict was reached by A4, who indicated, “Of course they’re all super excited about four days just go to school with four days a week,” and morale was very high at the beginning of the process.

Other administrators acknowledged they have observed a happier student body on each of the four days they are in session. This was reported by A3, who described, “Student morale has gone up, they enjoy it, obviously. That is they like it, they’re happy with it.” Administrator A5 provided a personal and professional viewpoint and reported both his own children and other students enjoy the four-day structure. Similarly, A7 reported students appear more “refreshed throughout the week,” and “Students are much happier.” This administrator cited attendance is much better and discipline is down, which is evidence he “can definitely tell there’s a change in the students.”

Parallel to A7, A8 noted after switching to the four-day school week, “Our attendance has been up nearly every year, climbing to a point where now we consistently, our attendance is around 96% day in and day out, which is high.” Administrator A3

noted, “The students seem well-rested,” and even with longer days, “They seem to enjoy it” and have higher morale than when they operated within a five-day school week.

Administrator A1 pointed out as a K-8 school which feeds to a five-day high school, they have the opportunity to see how much the four-day school week means to their students’ morale. This administrator has observed students returning for a visit to the K-8 school often complain about high school not following the same four-day format.

One administrator presented some additional benefits the four-day school week offers. He stated:

It gives them a few more opportunities than what they had with the five-day-week as far as work experience. Most of them now can work Saturdays, Sundays, and Mondays and get 25-30 hours of work in just those three days.

This administrator also mentioned this option decreases the likelihood students are out late on school nights working and thus has increased the morale of students who want to have a job.

By the same token, A8 described these benefits extend not only to working students but to those who are involved with extracurricular activities. He went on to describe how this has improved morale, because students who are “involved in activities on weekends are just running nonstop, and they get to Sunday night and then they’re trying to squeeze in a couple hours of homework, and all the sudden it’s 10 o’clock Sunday night.” This administrator stated now students do not have to get up at six the next morning to get to school; instead, they have an entire day to do their work.

Not all administrators described the four-day school as a positive when it comes to student morale. One administrator felt the four-day school week has positive and

negative attributes, whereas another thought the positives have waned with time, and a third felt it has little to no impact on student morale. A diverse perspective was provided by A2, who found, “Student morale has increased a little bit” for the student population who gained a day off, but some of this has been offset by others who lost a day of school each week. Administrator A2 summarized:

We’re a pretty positive school, and there is a lot of these kids that like to be at school, so I can’t, I don’t know, I can’t say that that’s increased as much as the teacher morale, but I still think it’s been a positive for many students.

Although A5 felt the four-day school week improved student morale when it was first instituted, A5 also described the impact has dwindled as the structure has become engrained within their community. This administrator observed, “In the beginning the morale was pretty high, students were pretty high on the four-day school week, now we’re getting so used to it the kids are now, and it’s just our normal routine.”

One administrator reported the four-day school week has little impact on student morale in his district. This administrator (A6) declared, “I don’t know that if that I’ve seen as much in the change in morale on the kids’ behalf. It’s not a negative, but the kids are just resilient.” Administrator A6 asserted there is not an increased level of enthusiasm from students like there is from teachers, and he noted this is because when it comes to morale, students “kind of go with the flow.” The interviewee pointed out he thought students probably appreciate having the extra days off, but with scheduled breaks many of the four-day weeks become five and so the impact is less noticeable other than the total days of attendance.

Administrator interview question three. What is your overall impression of the four-day school week?

When asked about their overall impressions of the four-day school week, all eight of the administrators mentioned they enjoy being on the four-day school week, with A8 going as far as to state, “I’m a big advocate for it.” The common themes encountered during the interviews of administrators included more family time, happier teachers, more individual work time, and a way to increase professional development of staff. Only one of the eight had continued professional reservations about the four-day school week. These hesitations stemmed from concerns about best serving the special education and at-risk populations.

Among the responses, a common theme emerged centering on how the faculty are able to utilize the non-instructional day for professional development and professional work. Two of the administrators, A3 and A7, mentioned the day provides personal benefits for administrators as a day without faculty or students which can be utilized to get work done. Administrator A7 specified how he uses Mondays:

Get paperwork done, send out attendance letters, send out discipline, those type of things. I don’t necessarily work the entire day but work part of the day to get the paperwork that I don’t get a chance to do when everyone is here.

This line of thinking was also provided by A3 when discussing the overall impression of the four-day school week, “I could just come in and focus primarily on what I need to do.” The extra day allows him to go in on Mondays to get work done without having the disruptions of discipline and teacher issues.

These benefits were extended to the teachers in A2's comment that the four-day school week "allows them that extra time to prep, and we're seeing good results." In addition to the professional work aspect, some administrators described the four-day school week as improving their district's professional development focus. One administrator, A4, described how a four-day school week has allowed for a more consistent schedule, since "professional development days are on Mondays and so the kids don't miss time for that." He continued, "This way we are pretty consistent where the kids get four full days, and it's working for us." Likewise, A8 mentioned, "We do not get out early for school for anything, for any in-services. We protect that we work Tuesday through Friday every week except for two times a year when we have Good Friday and we have Thanksgiving." Later A8 stated, "I would argue with anyone to find me, or challenge anyone to find me a better schedule for what we have here. It's very, very consistent."

By embedding professional development on the off day, A1 stated the district has been able to increase professional development time. When describing the previous professional development structure which incorporated a series of half days sprinkled throughout the year, A1 stated:

I didn't think we were getting much out of our professional development, so that was our main reason in switching to the four-day week, that we would have a full day of professional development at least every other week and we do take advantage of that.

It is easier to focus professional development when "we come in at 8 o'clock in the morning, we're here till 4 o'clock every other Monday," and are "busy from the

beginning of the day to the end of the day.” This is instead of taking off at noon, where “by the time you get started it’s basically time to send the teachers home.” Like A1, A8 felt this consistency is a benefit for teachers and students because they come in every week knowing what is expected and ready to work.

In addition to having professional development and work time, many administrators spoke of the benefits of the four-day school week from a personal standpoint. These administrators outlined how the four-day school week has provided them with extra time to spend with family and friends to recharge. Administrator A1 stated, “Personally, I love it. I get that every other Monday off, too.” This sentiment was shared by A3, who announced, “I enjoy it. That extra day off is nice to have with family and friends.” Approval of the four-day school week was also communicated by A4, who described, “When the kids are out, we’re out and, so it works really well personally for my family for the four-day school week.” This theme continued with A2, who mentioned he “feels more energized” because of having more personal time.

Administrator A7 addressed some additional benefits by stating, “It’s been fantastic, and I wouldn’t want to go back to a five-day-week if it keeps continuing the way it is,” because it has improved the district’s “test scores, morale of teachers, and morale of students.” Administrator A2 also touched upon how the four-day school week has made a difference, because “it’s really good for the teachers and students,” noting “my teachers are happier,” “I know our kids are happier,” and it is “definitely a benefit.” Much like A7, A2 valued the improved morale and energy of the staff and students.

Many of the administrators also discussed academics when giving their overall impressions of the four-day school week. Responses by A1, A2, A3, A6, A7 and A8

specifically described how the four-day school week has created positive academic changes within their buildings. Administrator A8 focused on how his district's test scores have improved since implementing the four-day school week and commented:

It's been one of the best things that our district has done. Just from the academic standpoint, when I look at our test scores from last year and the four-day week was not entirely due to that, but I'd like to think it played a role.

Similarly, A3 cited success by focusing on testing results and the ability to maintain similar academic results to the five-day school week. Administrator A3 felt testing results had been nearly replicated over their first year of implementation and observed continued growth in learning and teaching, stating, "I think after our first comparison between our test scores, it hadn't fell off that dramatically. I think we've adjusted pretty well and am anxious to see how the end of this year turns out." A glowing report was provided by A1 when he noted the district had been in school improvement prior to turning to the four-day school week and since then, they have managed to move out of this academic distress into academic success.

Another positive evaluation of the four-day school week in regard to academic achievement was provided by A6. This administrator described regression in academics was a concern the district originally had when moving to the four-day school week. Administrator A6 went on to state this is no longer a concern, "Our scores and our Annual Performance Report have continued to actually be way superior from where we were previously, so it is a positive." Administrator A8 shared, "Our test scores have consistently gone up," and after comparing test scores from all previous years as an administrator, he felt the abilities of the student population remained relatively consistent.

Administrator A8 continued by stating, “You know, you can’t say it’s the four-day that’s causing us to have better test scores, because we just may have better teachers teaching better material, but it certainly hasn’t been detrimental in any way that I can find.”

A different academic justification supporting the four-day school week was provided by A2, as he spoke positively of how the switch has improved teacher focus on instruction, relevance, and rigor. When describing these changes, A2 highlighted teachers now “have a sense of urgency. I’ve seen so much less fluff in our classrooms than I have ever before.” He went on to mention, “When teachers are here they are here teaching. They’re in there and they’re getting stuff done.”

Although the majority of the interviewees depicted the four-day school week as an academic success in their districts, this viewpoint was not shared by A4.

Administrator A4 was not sold on the four-day school week as a viable option for the entire student population, both academically and socially. He stated that for most of the “population it works, but there is a section of the student body I think five days will benefit.” This administrator elaborated:

I’m probably one of the few people who have questions with it a little bit just because I feel especially with that at-risk student population, the kids we have, that it’s one last time in front of a positive influence, it’s one less time we get a breakfast and lunch.

Another academic concern was expressed by A4, when he observed students had difficulty adjusting to the routine of four-day school weeks. Administrator A4 found longer days result in students being tired by the end of the school week and even relayed students have greater difficulty returning to school on Tuesday mornings refreshed.

Administrator interview question four. Have you noticed any changes to teacher attendance patterns since implementation of the four-day school week? If so, how do they differ?

To this question, six of the eight administrators thought the switch to the four-day school has increased teacher attendance rates. These responses varied from a significant difference to a slight improvement. Two administrators (A2 and A5) acknowledged they did not notice any difference. None of the administrators indicated teacher attendance levels dropped as a result of switching to the four-day school week.

Administrators A7 and A8 were confident the four-day school week has created notable improvements in their teacher attendance patterns. In an interview with A7, he explained:

My calls in the morning to get a sub are definitely down. Those are rare anymore because of sickness, or you know, one reason or another. But we don't utilize subs as much as we used to. That's for sure. Teacher attendance is definitely up. This statement was supported with data, as the administrator explained a review of substitute expenditures revealed there was a decrease compared to the previous five years. The majority of absences occurring with the four-day week are due to workshops, activities, or professional development that cannot be scheduled on Mondays, not due to illness. Administrator A8 described seeing attendance rates increase in "the order of 15 to 20% improvement in teacher attendance the first couple years, meaning 15 to 20% less days were taken, less absences from teachers." This was primarily from teachers scheduling medical appointments, but A8 felt some change might be attributed to the idea that under the five-day school week, some of "those teachers that may be calling in sick

on a Friday [do so] because they just are mentally exhausted.” Teachers no longer run into this, because according to A8, “I think mentally it helps people stay prepared and stay sharp and feel rested.” Administrator A8 relayed this teacher absence improvement has dipped over the last two years from 15-20% improvement over the first three years to a more modest 8-10% increase in attendance.

This sentiment was echoed by A4 when he described the evolution of teacher attendance patterns:

It really changed our teacher attendance, you know, we talked a lot about, hey, get as much done as you can on Mondays and so on, our particular attendance was really good the first several years, two, three years we did it.

This administrator then mentioned they still have fewer absences due to doctor and dentist appointments but understood “there are still things come up, you know, we have staff illnesses and if their kids get sick, their kids get sick, but for the most part, yeah, it did actually help our teacher attendance.” Administrator A4 noted it is unrealistic to think the four-day school week will have much impact on these types of absences.

The most frequent response on attendance patterns associated with teachers was that the four-day school week produced a slight uptick. Administrators A1, A3, A4, and A6 each felt attendance has improved but not to the degree they expected based on their independent research. This viewpoint was expressed by A3 when he stated there are not as few “absences as what I thought there would be, but a little bit less” even though teachers are trying to schedule their appointments on Mondays as much as possible. Another administrator, A1, mentioned the school district studied teacher attendance and found, “Is slightly better than what it was. It’s not a major increase, but it is slightly

better.” Administrator A6 indicated attendance has increased but it is not “astronomic.” Instead, “you’re probably looking at a lot less discrepancy. More likely you have a staff member that would normally miss five days and now they missed three or four days.” Administrator A6 went on to assert, “Some things can’t be done on Monday and some days if you are sick, you are sick, and it doesn’t matter what day of the week it is.”

Other administrators described no change in teacher attendance patterns with the implementation of the four-day school week. One such observation was provided by A2, who stated, “I thought we would have less but we have been pretty similar to what it was when we were a five-day, so I have not seen any change in that regard.” An analogous response was provided by A5, who noted, “People still make doctor appointments when there’s supposed to be a PD day,” and “Not everyone decides that they need to look at our school calendar and take their Mondays to do the things that they need to outside of school.” This administrator even stated this is a concern for their entire leadership and they have begun looking at ways to recognize poor teacher attendance.

Administrator interview question five. How have student attendance rates been impacted since the four-day school week has been implemented?

When examining student attendance rates in the four-day school week, it is important to note this question was already addressed in the quantitative portion of the study. The design of this question was to allow administrators to speak to any differences or similarities they observed in attendance patterns within their buildings and not necessarily to present district-wide data. Among the administrators interviewed, three outcomes were common: positive, slightly positive, and no impact.

Two administrators found the switch to the four-day school week has made a significant impact on student attendance rates. Administrator A3 saw improvements as measured by the state attendance 90/90 rule, which requires 90% of students to be in attendance at least 90% of the time (MODESE, 2016b). According to A3, “We had 81% of our students had 90% attendance or better, and then last year with the four-day work week for the first time, we had 86% of our students with 90% attendance or better.” Similar results were described by A8, who noted, “Student attendance is unarguably statistically better than it was in the five-day.” Supporting this claim, A8 stated attendance has “steadily gone up. It went up to a point now where I, the last three years, I have broken my attendance, my ADA attendance record every year.” Administrator A8 relayed this has resulted in attendance of 95% or higher, and the district attributes gains to the four-day school week and to educating students and parents on the importance of getting to school.

The most frequent response to how student attendance has been impacted was that the four-day school week has produced a slight increase in attendance rates. A modest increase was reported by A2, A6, and A7 when describing student attendance rates within their respective schools. This improvement was described by A2 as “a slight or very slight uptick in student attendance.” The administrator went on to support this statement by noting under the four-day school week, their ADA finished at 96%, while their previous average daily attendance usually fell in the mid-to-high 95% range. Another administrator provided a similar perspective, indicating, “The previous years we didn’t quite make the 90 for 90. Before we were the four-day-week we would be in the 88-89 range,” but with the introduction of the four-day school week, “We were just over 90%.”

Administrator (A6) saw similar results and declared the impact on “student attendance was probably more of a positive than even the staff attendance.”

A common subtheme among the administrators was they noted their schools’ biggest improvements in student attendance are from scheduled absences. Administrator A2 stated absences from “regularly scheduled appointments has gone down pretty dramatically,” because “a lot of the parents are actually taking advantage of those Mondays to do those regular appointments and things like that.” This trend was also noted by A6, “Appointments for getting braces adjusted and things of that nature are taken care of more on Mondays.” Administrators A2 and A6 also cautioned improvements in student attendance do have limits, because even with scheduled absences, A6 shared, “Some things just aren’t accommodated on Mondays.” Administrator A7 stated these improvements in attendance will vary, because “regardless of how many days a week you go, you’re always going to have that population of students that miss a lot of school.” He went on to describe the design of the four-day school week tends to impact these students’ attendance patterns the least.

Finally, a few administrators noted no difference in their overall student attendance rates. This lack of improvement was discussed by A1, who found attendance is “pretty consistent, we’re about 95%, 96% attendance every year and then that hasn’t really changed.” Additionally, A4 described a similar situation, stating the district “had been pretty flat as far as attendance,” and they find themselves “around the low to mid 90s most years.” This perspective was shared by A5, who felt the impact of the four-day school week on attendance is overstated and mentioned, “I still think we are like a five-day school,” and “We still struggle getting some kids to school.” Administrator A5 also

stated, “We will still struggle with attendance with kids that have attendance problems whether or not its four days or five days.” Many variables factor into yearly attendance, which is probably why A5’s school has not seen a change in attendance patterns, especially for the upper grades.

Administrator interview question six. Have you changed any of your attendance policies as a result of the four-day school week? If so, how?

Six of the eight administrators indicated they have made adjustments to their attendance policies, while two administrators noted their schools have not made any changes as a result of the switch to the four-day school week. The most common modification was to reduce the allotted days students can miss. This strategy was used, since students are now in attendance for fewer total days. A rationale for this adjustment was provided by A4, when he stated, “As far as when kids do miss a day, they miss a quarter of their week.” This time lost is “just a little bit more significant because they haven’t got much time in class.” According to A4, this is why the district has placed such an emphasis on good attendance.

In an interview with A7, he described this process and stated, “The only thing we changed was in the past we allowed eight days of semester absences. We decreased that to six with the four-day week. Other than that our attendance policies stayed the same for students.” Another administrator, A5, indicated absences were adjusted downward in order to keep in line with previous policy on earning credit and required days in attendance.

Similarly, A6 mentioned the district made a series of adjustments to policy including moving a 10-day-per-year absence limit instituted for senior trips down to eight

days per year. The district also modified their attendance policy so attendance letters were sent at two days, four days, and every absence after, as opposed to only being sent out at three days and five days. Not all school districts examined their policies only from the perspective of student absences. After changing policy from total days to attendance percentages, A2 stated the district made a corresponding move for teachers by adjusting “the staff leave from 10 days to nine days.”

The most dramatic changes were described by A3, who said the policy was adjusted in order to accommodate goals for the A+ program and the 95% attendance mandate. Previously, the school allowed students to miss four days of school “regardless if they had a note or not and then we switched it down to three.” On top of these changes, the district completely “eliminated college days for juniors and seniors” with the expectation students should visit campuses during their off days.

Not all school districts made adjustments to their attendance policies, as A1 and A8 indicated they have simply adhered to their previous attendance plans. Administrator A8 commented, “We do the things we’ve done in the past. So that hasn’t changed, but our attendance has gone up even without the changes.” They both went on to mention they still focus on rewarding attendance as much as during the five-day school week, including utilizing attendance incentives such as quarterly parties and yearly awards. The attendance policy on excessive absences also was not adjusted and was instead centered on contacting parents and the juvenile authorities at specific intervals.

Administrator interview question seven. How has discipline been impacted by the change to the four-day school week?

This question generated two primary responses ranging from no impact to seeing an improvement. Four administrators described no impact to discipline in their districts. Three administrators thought the four-day week has decreased the amount of discipline problems within their schools. No administrators found the four-day school week increased the amount of discipline within their districts.

When examining the impact of discipline within each school district, half of the administrators felt the change to the four-day school week has not created any noticeable difference. Administrator A3 described discipline, “It’s been pretty much the same, same issues, same students, you know. I have not noticed a difference in it.” Similarly, A1 noted administrators “have noticed no changes in discipline,” and they have been fortunate enough to have “very little discipline here at the school” before and after the switch to the four-day school week. This was echoed by A8, who described, “I don’t know it’s changed a whole lot. It hasn’t got worse by any means. We don’t have a lot of discipline here. I would attribute a lot of that not to the four-day but to the PBS (Positive Behavior System).” Administrator A8 went on to state the consistently good behavior patterns established before the four-day school week left little room for improvement.

Finally, A5 pointed out, “There is a lot of other factors that impact [discipline ...and] “there are still kids that choose to be bad.” According to A5, discipline is “determined already” whether or not in a four-day or five-day school week.

Administrator A5 also mentioned if a district experiences an improvement in discipline, it likely comes in the form of fewer tardies, as there would be fewer opportunities for students to be late to class over a given year.

Other administrators felt the four-day school week has influenced the amount of discipline they deal with over the course of the year. Administrators A2 and A7 reported the four-day school week has made a positive impact on discipline within their schools. An example of this was provided by A2, who stated, “I’ve seen less kids in my office the past two years than I have the previous four, and by quite a bit. I can’t give you any hard numbers there but the discipline has decreased.” Another illustration of discipline reduction was provided by A7, who noted, “I believe it is down,” but the “discipline of our students is very low and it always really has been.” This administrator continued with the assertion, “I think the four-day-week has had an impact, but it’s probably minimal just because of the students that we have.” Administrator A7 felt although he has seen a change within his district, he thought it could make a bigger difference elsewhere.

Another administrator, A4, relayed he experienced a decrease in discipline after implementing the four-day school week but was unable to attribute these results to the change, since the school also implemented Positive Behavioral Interventions and Supports (PBIS) in the same year. The four-day week may have had some impact, but A4 stated PBIS “helped that part more than the four-day school week.” Finally, A6 thought the four-day school week had a significant impact on discipline, because it altered the discipline structure and provided more options within the district. Administrator A6 pointed out this additional flexibility in discipline options is created “when the staff have an in-service day on one of our scheduled Mondays... I have the option of bringing them in on a Monday to make up their time.” He went on to state the number of discipline occurrences has not necessarily lessened because of the four-day

school week, but it did open up opportunities besides suspension as a disciplinary consequence.

Administrator interview question eight. What savings or additional costs has the district encountered as a result of the four-day school week?

In response to this question, none of the eight administrators described any additional costs incurred by switching to the four-day week. All eight conveyed the districts have encountered some degree of savings. These savings vary among all districts and come from an assortment of different cost-cutting measures. When discussing savings, many of the administrators mentioned the difficulty of calculating a true savings to the overall budget when considering fluctuating fuel costs, a wide range of heating and cooling needs, and capital upgrades occurring from year to year.

When examining savings, each district reported these financial gains from different perspectives. One group of administrators saw the impact of the savings as a must within their districts for operating expenses, and the other group viewed the additional savings as supplementary to their budgets, because switching to the four-day school week was not fiscally motivated. Among the administrators who felt the four-day school week stabilized their finances was A4, who stated:

We were at a point where we were having to cut programs and cut some teachers and really had to tighten our belts, so our four-day school week has made a financial impact and enabled us to produce some better quality of education for the kids.

These results were in line with A8, who described a substantial savings to the district of about 2% of their annual budget and went on to communicate, “It doesn’t sound like a lot

but it ended up being \$120,000 to \$150,000, which is pretty significant when you start talking actual dollar numbers.” Similarly, A7 noted the four-day school week was instituted as a result of financial concerns and discussed the positive impact it had on the operating budget. He stated, “Everything that we had researched said about 2% of your overall budget,” and “We were a little bit below 2%.” Administrator A7 concluded this “was a significant savings for a small district” and was satisfied with the results.

The second group of responses centered on the idea the impact of the savings was supplementary because it was not the primary focus of switching to the four-day school week. A commonality emerged among these responses that the financial implications of the four-day school week are underwhelming compared to expectations. This can be found in responses from A1 and A2, who both reported savings of around 1-2% of the overall budget. Administrator A2 described the savings, “We didn’t really save as much as anticipated, right around the 2% mark.” Administrator A1 found their district in a similar situation and stated, “We are not saving a whole lot; I would say we’re probably saving 1% or 2%.” Another administrator reported, “Our savings was [sic] nothing extravagant in the scheme of things.” Finally, A3 indicated the district saved “just a little bit, not much.”

A subset of this group was A5, who understood the district is still saving money but has moved entirely past the impact the four-day school week has on their operating budget. When discussing the financial impact, A5 communicated it goes unnoticed now because “we’ve been doing this for six years, so I’m probably not seeing a new savings. Yeah, it is just the way we do business now.” Even with savings similar to the first group

of administrators, this group seemed less impressed with how the four-day school week impacted their budgets.

One last theme emerged from discussing the savings each district encountered – where the savings originated. The most commonly identified area for producing savings was bussing, as it was discussed by A1, A3, A4, A5, A6, and A8. These savings incorporate a range of outlooks including savings on fuel, wear-and-tear on busses, and personnel. Administrator A3 mentioned, “We save a little bit with our gas for busses.” This was built upon by A4, “You are running one less day of fuel for all your buses in the mornings and the afternoons, so you save there.” Expounding upon these savings, A8 stated over the course of the year the district “runs buses 24 less days so you’re obviously not going to spend as much money running buses.”

Administrators A1, A5, and A6 each utilize contracted bussing and described their transportation savings as far less than other schools. A common savings from fuel was described by A1, who stated, “Contracting on bussing and the bus company didn’t save us any money but the fuel cost was saved.” This idea was continued by A6 when he described going to a four-day school week did not “change our contract as far as the cost,” because the district “didn’t go around looking to renegotiate to cut cost on transportation.” Administrator A1 pointed out the actual savings on fuel have been hard to judge, “because fuel prices are going down dramatically here in the last four years compared to what they were.” Although A5 utilized a bussing contract similar to A1 and A6, the district’s pay structure allowed for some additional savings. Administrator A5 noted, “We are paying a per-day bus fee and so we only pay for 150 student days versus 174.”

An unquantifiable savings was described by A4 as “wear and tear on buses, one less round, I don’t know how you figure that long term but there was definitely some savings.” The last component of transportation savings centered on staffing. This was the most diversified response among the administrators, as some were not impacted while others saw savings. Since A1, A5, and A6 utilize bussing contracts within their districts, there are no financial implications in regard to personnel for them. Additionally, A3’s district chose to minimize the potential impact for classified employees by choosing “to keep them all on full time.” The remaining districts were able to cut their transportation budgets since they paid for one less route per week.

Some other personnel savings mentioned besides transportation centered upon paraprofessionals, food service, and maintenance staff. Much like transportation, the cost savings with other classified employees are a mixed bag among the various districts. Only A3’s school district contracted out food service, so they were unable to save money on cooks. Administrators A2, A4, A5, A7, and A8 described how cutting non-certified hours created savings within their districts. However, A4 mentioned when hourly employees went from 40 to 32 hours a week, it created quite a “push back from hourly wage employees because they were losing money when we went to four days school week.” Administrator A8 noted this challenge and cited “a morale challenge for your noncertified staff, your secretaries, your paraprofessionals, your bus drivers, your custodians. Those folks are making less money because of there’s less hours to work in the week for them.”

These concerns led the other districts to come up with creative solutions. One solution, outlined by A3, was to continue paying each individual to work a 40-hour work

week, because “custodial hours, secretary hours, all that is where you can really start saving, seeing the benefits probably, but we’ve been able to keep them all on full time.” This sentiment was echoed by A6, “We could have had savings there but once again we did not, we adjusted hours and allowed individuals to continue, to make their same money. It wasn’t intended to cause anybody a financial distress.” Within A8’s school district, they received some financial gains but “tried to make sure anybody that was on benefits received benefits, make sure they all had enough hours to keep those” and ultimately offset much of the savings by increasing pay to these employees as a measure of good faith. Administrator A1’s district found a middle ground and decided only to cut cooks’ hours, “because no were not cooking meals on those days.” They coupled this with the idea of reducing the amount of professional development paraprofessionals and other classified staff are required to attend.

The last area of savings identified related to utilities. These savings were described by five of the eight administrators interviewed. After cataloging each of the areas in which the district has saved, A7 highlighted the impact of the four-day school week on the district’s energy usage by stating, “There was definitely savings, utility wise.” Administrator A3 also identified utilities as one of “the main two places” the district saved. Furthermore, A8 found utility costs decreased because the “amount of water and things we’re using went down because we’re just using 24 less days” and noted electricity consumption was limited but still necessary to heat and cool the buildings. This idea was furthered by A6, who relayed within his district the utility savings comes from multiple sources including propane, electricity, and water. According to A6, “We have saved some on electricity and propane,” and during the three-day weekends, “We

pull the heat back down to 60-65 and so we save on utilities on that nature, the water for bathrooms, and for the kitchen.” Only A4 reported the actual savings on utilities from a study commissioned in the first year of implementation. Administrator A4 relayed the district “saved like \$76,000 on those type of things.”

Teacher responses. The purpose of the eight teacher interviews was to provide a detailed understanding of perceptions of the impact of a four-day school week on school climate in regard to student learning, student morale, cognitive fatigue, and discipline.

Teacher interview question one. What are some benefits you noticed in the four-day school week compared to the five-day school week?

When comparing the four-day school week to the five-day school week, seven of eight teachers discussed a variety of benefits they observed after the switch. Common among these educators was the view the four-day school week has improved attendance, provided an opportunity for greater consistency, and allowed students more personal time to keep them refreshed and energized for learning. Only one teacher, T3, asserted there are absolutely no benefits of the four-day school week aside from financial justification.

One frequently cited benefit provided within the interviews was improved attendance for students. The teachers who mentioned this discussed how they observed parents utilizing the off day to schedule appointments for students. According to T8, “You don’t notice as many student absences due to doctor and dentist appointments, because a lot of the parents try to get those appointments scheduled on our Mondays.” Confirmation of this development was provided by T1, who reported, “One of the biggest benefits of my class, especially, I’ve noticed is increased attendance.” Teacher T1

“noticed the parents are taking the opportunity to get those kids in to appointments on Mondays so that they are not missing school throughout the week.”

Not only did teachers describe attendance benefits for students, but many stated they have seen similar improvements among staff. This was outlined by T5, who remarked, “Our student attendance and teacher attendance have both improved.” One teacher, T7, stated a particular advantage of the four-day school week is “teacher absences, since we use our Mondays off to make appointments as best as we can.” Similarly, T2 noticed the extra day has improved teacher attendance, because they have “that extra day to kind of get some of the personal things done.” Teacher T5 echoed this response by noting, “Teachers are able to now take care of personal matters on Mondays so this has also been a benefit.” Teacher T5 felt faculty improvements in attendance are a direct result of scheduling “doctor appointments, dentist appointments, orthodontist appointments, all those things that kids and teachers miss days for throughout the week” on the off day.

Another way teachers felt the four-day school week has produced benefits is that it gives kids and teachers an opportunity for some extra rest. Responses shared by T1, T2, T6 focused on how additional rest creates an environment where students and faculty are less stressed. Focusing on the student benefits, T6 described, “One of the things that we really love about the four-day school week is that students are well-rested.” This opinion was reiterated by T1, who noted when students come back they have been given a “whole extra day to relax, whole extra day to play outside, and a whole extra day to just be a kid,” which overall “has made the kids a lot less stressed.” It was presented by T6 that when everyone comes back to school, “they are ready to work and we can get the

same amount of work done in four days that we do in five days.” This perspective about extra rest was also shared by T2 in regard to faculty. Teacher T2 later went on to describe how this rest is just as meaningful to teachers as it helps preserve family time on weekends from extracurricular activities, grading, and planning.

Creating consistency in the schedule for students is an additional benefit noticed by teachers. Teacher T5 acknowledged this is the primary advantage of the four-day school week. She went on to describe how this consistency was developed within the school calendar, “We don’t have any early out PD days or other Monday holidays. We miss all of those because Monday is our day that we don’t go school so our schedule is super consistent.” Teacher T8’s school also follows a similar setup but T8 noted when scheduling for consistency, they were more intentional about having four days a week, but were flexible with which four they were in session to account for holidays and the needs of the community. Generating consistency in the district’s approach to makeup days was described by T7 as an added benefit. Within T7’s district, snow make up days are scheduled for the Monday(s) immediately following the event(s). The benefit T7 found was these days allow the district to “make up the instruction in a timely fashion and in an effective way” as opposed to tacking days onto the end of the year.

Teacher T8 felt not only is there an improvement in consistency in the calendar, but also in classroom time. Teacher T8 described this impact, “We used to do the early out like every other week, and so we’d have a different schedule those days.” By incorporating professional development for teachers on Mondays, the district provided “kids pretty much a consistent schedule. Every day it’s the same routine and so they’re not having to adapt and change to those half days.” This opinion was shared by T5, “All

year long with the exception of two weeks we can count on having a consistent four-day a week where we've got all of our classes throughout the course of the day." An unexpected outcome of this consistency was shared by T5 when she asserted, "We're actually teaching more minutes a year now as a four-day week school than we were as a five-day week school." Teacher T5 then went on to state the sum of these minutes has allowed teachers to cover more content, and "I've been able to teach on average about an extra unit per course per year than I was previously with our five-day week setup."

A boost in morale was also reported as a benefit of the four-day school week. Teacher A6 posed an interesting question on the four-day school week in regard to morale, asking, "If you can get the same amount of work done and everybody's attitude improves and scores don't go down, if there's no downfall to the four-day school week, why would you spend the extra money to go five days?" This opinion was shared among the other teachers who viewed morale as an important component of the four-day school week. Teacher T1 expressed, "Morale overall of the kids in my class has definitely increased, which I think has helped with our student achievement and made them more positive whenever they do come to school." This coincided with T2's findings that "kids really enjoy it" and strongly favor it over the five-day school week based on a survey the school district compiled at the end of the school year.

Three of the teachers provided insight into some various academic benefits they observed after switching to the four-day school week. These ranged from creating more opportunities for professional growth for teachers to improvements in student learning and instruction. Teacher T7 felt the "biggest benefit for us I think is that we have built-in professional development days. Our students don't go to school on Mondays ever, and

every other Monday the teachers come and we have professional development.” Teacher T7 went on to describe how much of a benefit it is for the district to be able to commit to this time, since there is no option for common plan time. Teacher T7 mentioned, “A lot of us wear many hats, so doing any kind of professional development before we went to the four-day school week usually required us to meet after school.” She also noted the four-day school week has allowed for professional development time “for collaboration, for data teams, for team building, and communication,” and this construct is fundamentally stronger than other options available to the district. Similarly, T4 noted the four-day format has allowed teachers to have time together to “really sit down, especially with the new standards.”

Another academic benefit of the four-day school week included by a few of the teachers is improvement in student learning. Teacher T1 mentioned improvements within math class since implementation of the four-day school week. She then presented when comparing sixth-grade math scores in the conference, first and second were the only two schools which had switched to the four-day school week. In regard to student learning, T4 reported the four-day school week has improved instruction and learning because T4 is able to spend more time “creating better lessons and being able to have a better idea of what I want to do with the week.” Teacher T7 also thought the four-day school week has made everyone “more effective in our classrooms” by focusing instruction and increasing professional development.

As previously described, not all teachers felt the four-day school week has produced positive benefits within the classroom. Teacher T3 indicated, “I honestly don’t see any benefits of the four compared to the five.” She mentioned it was implemented as

a purely cost savings measure and acknowledged it did save the district some money, but the savings were never reported and so the true financial benefit was unknown. This teacher went on to state the four-day week has now morphed into a professional development focus, but T3 felt it is detrimental to kids and their potential for learning.

Teacher interview question two. What are some of the challenges associated with the four-day school week?

The responses related to the challenges of the four-day school week were varied from teacher to teacher. Focus on classroom issues such as designing lessons, reworking curriculum, and dealing with Tuesday morning student apathy appeared to be the biggest concerns. Another set of challenges described by the teachers related to gaining community support and providing for concerns such as daycare and the availability of food for needy students.

The most frequently described challenge teachers addressed was adjusting their content timelines to meet the new schedule. These concerns about fitting in the curriculum were expressed by five out of the eight teachers. Teacher T3 discussed, “We don’t want to just have one less day of education, so it should be the same amount of information,” which creates a need to “have more information packed in to four days versus five.” This was also a difficulty for T8, who stated the “biggest challenge is getting everything done, because we have less days.” A similar perspective was noted by T1, who stated the biggest challenge is “being able to fit everything in” and “buckle down” to not run out of time. Teacher T4 found her main concern is “feeling like I haven’t had enough time to actually cover everything that I feel like I need to cover.” Additionally, she noted that although teachers are not losing instructional time, they “still

feel a little pressure or a little crunch on time to get everything in,” especially to “fit everything in that I now need to be covered before testing.” All of this leads to a challenge in trying to get the year planned.

This scheduling concern is only exasperated by a feeling of less instructional flexibility. Teacher T8 voiced other concerns of fitting things in and described:

Sometimes I feel like I don't have that flexibility, that I have to keep going one day and then just review the next while I go ahead and do the next lesson to make sure I get everything taught and covered in a year that I need to.

Teacher T8 expounded upon this with an example of how the district's phonics program has 148 lessons while school is in session for the exact same number of days. This means there is very little leeway to teach the program as it is intended, not to mention the challenges associated with multiday lessons or finding extra time for practice. A consequence of having to rework the curriculum for longer days and fewer class periods was noted by T2 as a challenge for getting all teachers on board with the four-day school week. Teacher T2 stated, “That was something that we were kind of worried about, but really it hasn't been that much of a problem.”

This was backed up by T1, who thought some positives came out of the challenge of being forced to adjust the curriculum. According to T1, “This has really made me pull out any fluff that I was doing” and has allowed T1 to “say okay, what's more important for my kids to know and I think it made my lesson, my curriculum, and my entire class better.” In addition, T1 explained moving to the four-day school week has created a more professional outlook within the building by forcing each individual to focus on the standards and continuously seek out what is essential in the curriculum and what is not.

Teacher T5 presented a unique classroom challenge encountered after the switch to the four-day school week dealing with motivation. This teacher noticed, “It seems like it takes them a bit longer I think to shake off the three-day weekend and be ready to learn on Tuesday than before.” Teacher T5 acknowledged there is no way to quantify this, but kids are more irritable and less motivated on Tuesdays, so “it just seems like Tuesdays are the new Monday.” A separate issue dealing with classroom fatigue was presented by T1 regarding the first few weeks of students returning to school. It seemed to be a greater challenge for the students to adjust to coming back to school under the four-day school week. This teacher noted, “Now there is no issue with that and everyone’s got transitioned and gotten used to it,” but this is a real struggle at the beginning of each school year.

Some of the other challenges expressed by teachers were centered on community needs. These challenges ranged from babysitting to backpack programs to ensure students have meals during extended weekends. Three of the teachers found there was an initial challenge when the district switched to the four-day school week in regard to childcare. Each teacher expressed there was a great deal of concern within the community. Teacher T5 found, “In the beginning, I would say a big challenge was childcare on those Mondays,” and many feared younger students might have to “stay home all by themselves.” This concern was shared by members of T6’s community, who frequently communicated they did not know what to “do about the elementary kids who might need a babysitter on Mondays.”

Teacher T2 recalled similar questions arose in her district such as “what are the kids going to be doing on the Mondays, and are there going to be enough babysitters

available to be watching those kids?” Each teacher relayed these concerns turned out to be unfounded, as there ended up being plenty of childcare opportunities. Teacher T6 noted, “Now those concerns have since gone away. Even the elementary hasn’t received any kind of complaints about a lack of daycare.” Similarly, T2 stated the matter quickly died once the school year began and reported, “I don’t think we’ve really had that many issues from it.” Teacher T5 found this issue resolved itself and stated there are plenty of solutions, because “the older siblings are able to stay home and watch those kids in a lot of the households. We’re fortunate enough to have a couple of daycare facilities here now that are open all day on Mondays and are open to having older kids.” A creative solution T5’s district came up with was to require all Monday practices be scheduled outside of normal school hours to ensure older students could be home to watch younger siblings.

An additional challenge of the four-day school week was expressed by T5, “When we switched to four-day week, there’s an extra day you know, that those kids don’t have access to the food that they were having dinner at school.” In order to ensure students who rely on school food programs have the necessary resources for the prolonged weekend, the buddy pack program was extended. As T5 stated, this initial problem was addressed by increasing the amount of food, and ultimately this challenge turned into a benefit for those families needing additional support. In line with this concern, T7 felt getting the community to adjust to the changes was a challenge, specifically “communicating that across the board that you know we’re just doing four days and they’re still just as important, if not even more, since we don’t come on Mondays.”

Teacher T7 explained this was a process that took a while, but eventually the district was able to gain community support and understanding.

Teacher interview question three. What impact do you think the four-day school week has had on student learning within your building?

The impact of the four-day school week on student learning as described by the eight teachers interviewed within this study was quite varied. Four of the teachers felt the four-day school week has created positive results within their buildings. Three teachers provided opinions the four-day school week has created no discernable impact on student learning, whereas one teacher indicated it created nothing but negative consequences.

Of the four teachers who described the four-day school week as providing positive impacts on student learning, two reported these improvements are a result of consistency. Teacher T8 described, “Students seem to be doing well academically,” and “Consistency has helped them be able to do well with their academics.” This viewpoint was shared by T5, who cited the “day is structured and the day is consistent and it makes it easy for teachers to plan week to week and to make the most out of their classroom time because there aren’t any surprises.” Teacher T5 went on to describe, “Their learning has improved just based on consistency and structure,” and this has been realized by eliminating half days and other challenges to allow the pace of each section of a class to remain intact without one class being days in front of another.

A different rationale was offered by T7 when she noted professional learning has been transformed within the district by allowing full-day professional development time twice a month. Teacher T7’s impression of the four-day school week’s effect was provided in the statement, “I think it’s had a positive impact on our learning, because it’s

had a positive impact on our professional development.” This teacher went on to describe it has created an environment which is “focusing more on instruction and talking about that and having those conversations,” allowing them to start “working with each other, working in small groups, creating student intervention teams, [and] talking about how we can best reach the students.” Teacher T7 concluded, “I think any time you allow teachers to collaborate and work together, you’re going to have a more successful classroom.”

In a similar vein of thinking, T1 felt the four-day school week created improvements to student learning because it has been an instrument for refocusing teacher instruction. This teacher reported, “It made everyone better teachers,” because they were forced to go “back to focusing on the most important skills and made every teacher in this building stop and look at what they're doing.” This teacher mentioned this adjustment took place in all teachers from 20-year veterans to brand-new teachers and really focused instruction and learning.

Some of the teachers supported the argument the four-day school week has been a catalyst for improvements in student learning with testing data. Teacher T5 relayed, “Standardized test scores has [sic] stayed the same or improved each year that we’ve been a four-day school week which definitely shows that student learning is benefiting.” A similar response was given by T8, who described, “They have looked at the data of our test scores and stuff and our students have done well.” Finally, teacher T7 reported, “The evidence is showing in the classroom and in the student performance” when describing how the four-day school week has influenced student performance on standardized tests.

Three of the participants reported the impact on student learning for the four-day school week is negligible. Teacher T4 responded, “On student learning specifically, I don’t know if it’s had a like a major positive or negative.” This teacher went on to describe, “I don’t think it’s had a really big impact either way necessarily. I don’t really know if it’s really affected like the students a whole lot.” This opinion was shared by A6, who felt there has been no impact within the classroom. She stated, “So if you look at their grades from year to year, I don’t think you’re going to notice any kind of change, you’re not going to see big improvements, you’re not going to see big downturns.” This belief was shared by T2, who noted:

I think it’s too early to say it’s really affecting over our learning that much.

Personally, I don’t really notice a difference with my students, if they learned much better with five days or with four days. I think that’s been about the same.

An interesting remark was provided by T4 that although she has not noticed any academic adjustments in learning within her classroom, she felt any positive or negative influence on student learning the district encountered has long been negated since teachers and students have had time to adjust to the new norm.

Anecdotal evidence the four-day school week has no impact on students was provided by one of the teachers, who noted originally there were community concerns about switching to the four-day school week and its effect on student learning. Teacher T4 indicated, “A lot of parents were concerned that everything would drop or our scores would drop or whatever, but we haven’t really seen that.” Similar fears were shared by stakeholders in T6’s district, but they found the four-day school week made no difference in their student achievement. According to T6, “You’re just going to see average student

grades, and I don't think you would know that we went to the four-day school week.”

Both educators T4 and T6 found apprehension about the four-day school week voiced within their community has almost completely disappeared. This normalizing of opinion on the four-day school week coupled with steady grades made each teacher feel the four-day school week's impact on student learning is nonexistent.

A contrary option was provided by T3, who asserted the four-day school week has actually negatively influenced her students' learning. This teacher rationalized she provides her students with the same amount of information and learning opportunities as before the district switched to the four-day school week, but knows others have consciously cut some of their curriculum. This was viewed as a negative, because not only are students missing out on a guaranteed curriculum, but the “fewer times you are exposed, the less likely you are maybe to gather the information.” Teacher T3 also rationalized learning is about the total amount of exposure and practice on a set of concepts or skills. She felt learning is better when “the experience [is] spread out over time versus a shorter amount.” Teacher T3 described this concept in terms of sports, rationalizing repetition is a significant part of sports and education. Teacher T3 went on to support the argument by giving the example no team reasonably chooses to move from practicing four days a week for an hour and a half each day to two days a week for three hours at a time. Although T3 acknowledged the illustration is not one in the same, T3 pointed out the mentality students can get the same results from the four-day school week as the five-day week is absurd.

Teacher interview question four. Have you had to adjust your daily learning expectations to accommodate the four-day school week? If so, how?

Five of the eight teachers interviewed reported they have made adjustments to their learning expectations based upon moving to the four-day school week. These adjustments are focused primarily on altering instruction to accommodate the length of the class periods and shortened calendar. The remaining three teachers expressed the structure of the day has created changes in the pace of daily learning but not in their expectations on content.

The most common response provided was that there is a need to change learning expectations from the instructional standpoint in order to adjust for the changes in time. This principle was reflected by T1, who described the new schedule has “just kind of made me rethink how I’m teaching, so yes it definitely, I’ve had realign my daily learning expectations.” Similarly, T7 felt it is unavoidable to change expectations, since the four-day school week is a fundamental change to the structure of the school day. It involves “just adjusting like schedule-wise” to make “sure that we’re not trying to do too much at one time and kind of just be more realistic.” Not only is the extended class time and number of days a concern, but also, as T7 described, teachers have to “really just take some time to kind of train and adjust” to the new schedule so expectations stay in line. Teacher T7 reported students and teachers “have done a great job adjusting to it and have met the expectations.”

Each of the teachers cited an initial reluctance or concern with change to the four-day school week in terms of how it would impact their learning expectations both daily and over the course of the year. This anxiety about converting to the four-day school week was summarized by T2:

Even with five days, I couldn't fit everything in that I was expected to teach, but I worried that with four days would I be able to do that and that is when I had to kind of change how much I planned on teaching in one lesson and that took a little bit of work.

The concern about covering material, along with changes in the schedule, led to teachers making adjustments to their daily learning expectations.

Teacher T4 described this process and stated she has to “go through and be very selective on what I present and what I feel like I really need to spend time on and maybe what I can maybe touch a little bit on and then move on so I can cover something else.” This strategy was also utilized by T1, who relayed, “I've always talked about factorization, and this year I looked at it and I said I can kind of just group in prime numbers and composite numbers with another lesson.” Teacher T2 felt these adjustments in expectations are a positive and noted, “My classes were either ahead of schedule or they're on phase with what I was able to do in five days so that was kind of a surprise to me.” This teacher went on to mention her fellow teachers described a similar change and realized two-day lessons can often be shortened to one while still maintaining the level of instruction and standards. Teacher T5 labeled the process as beneficial, because it makes teachers narrow the curriculum to the essentials. She noted, “My adjustments have all been for the positive” and have helped improve student learning.

Teacher T4 found this as a positive as well and stated, “The biggest thing I've had to change is being able to see what I can maybe combine together into different units. So I am able to cover more with the lesson.” In addition to these positives, T5 relayed the extra time in each class period has allowed time:

[To] differentiate to learn at different levels, just practice new skills and it has given me a chance to formally assess kids more in class so that by the time they get to their summative that I know those kids have a better depth of knowledge than they had before.

None of the teachers felt the adjustments to learning expectations have had a negative impact on student learning.

Three of the teachers reported they do not have to adjust their learning expectations to accommodate the four-day school week. Teacher T3 described as far as academics are concerned, “I have consciously got my expectations the same as the five.” Likewise, T8 asserted, “I haven’t had to adjust what I expect my kids to learn.” This distinction on how academics has not changed was also noted by T6, who stated, “As far as like all of the standards are concerned, I teach the same material that I’ve taught for the past 10 years, and we still cover the same subjects and the same material.”

Each of these three teachers did, however, indicate their overall expectations do not change but day-to-day expectations adjust based on the fact class periods are now longer. This was mentioned by T8, described, “[It’s] not really what I expect the kids to learn, it’s been more, I’ve had to adjust what I expect us to get done in a day.” Teacher T6 stated the district has “added several minutes onto each class” and ultimately this has allowed teachers to cover the “same amount of material in the same amount of time,” but condensed over a four-day period as opposed to five. It is important to note this restructuring of class time is viewed by these three individuals as purely format adjustment as opposed to altering learning expectations.

Although learning expectations for students have not been adjusted, T6 and T8 did feel the time constraints of the four-day school week have altered instruction. This was outlined by T8 in a description of how teachers have to become more focused on the destination than the journey. Teacher T8 relayed, “I used to be able to, you had that little bit of freedom of oh, you have a couple extra days, you can spend a little bit of time doing this.” This change in instructional technique was also communicated by T6, who found she has to trim “out some of that filler material and some of the stuff that you use between chapters or between quarters.” By doing this, it allows T6 to “focus on just the standards” in order to ensure teachers are “covering all of the stuff that we covered in the five-day school week.”

Teacher interview question five. Have you noted any differences in students’ attitudes or behavior toward school since switching to the four-day school week? If so, how are they different?

In response to this question, most of the teachers thought the four-day school week has created a positive change in student attitude or behavior toward school. One teacher also noted a change but views it as negative. No change, whether positive or negative, was observed by T8 when examining student attitude and behavior.

One of the most common changes in student attitude or behavior described by teachers is a consistently happier student body. This change in attitude was attributed to the switch to the four-day school week by T2, who expressed, “Well, I think they enjoy it more. I think they are happy that school is only four days. I guess just having that one long day off makes a big difference.” Teacher T4 verified the change in attitude and noted, “The biggest thing I see is the students, I think, enjoy having a four-day school

week.” This appreciation for the four-day school week was taken a bit further by T1, who asserted students “feel more rested; I think the kids are happier. They’ve had more time to play, they’ve had more time to be kids, and I think that’s really important for them.” A similar response was provided by T1, who claimed, “The kids truly enjoy it, and I think it really has made them like coming to school more.”

Opinions of improved attitude were often supported by teacher observation, and one teacher provided a specific example of how the four-day school week has worked to adjust student attitudes. This illustration was delivered by T4, who had one student leave the district after his parent became an administrator in another district. Shortly after, “he came back into our district for the four-day school week because he wanted to have Mondays.” Teacher T4 conveyed, “Overall, even though I don’t know how many kids really just are excited about getting out and coming to school. I think they enjoy it.” This improvement in attitude, though hard to quantify, could be traced back to opinions of the four-day school week.

An interesting piece of evidence that attitudes changed was described by T6, who felt from “week to week, I don’t think you would notice any differences in student behavior or student attitude. It’s only when you have to make one of those Mondays up that you really notice how good their attitude is in the four-day school week.” This teacher went on to state that in a five-day scenario, Thursday feels like Friday, and “their attitude kind of goes down a little bit, because you know you have to come back on the Friday.” This was confirmed by T4, who stated, “When we do have to have school on a Monday, you can tell that they’re really down and they’re tired and they don’t want to be here.” Additionally, T6 mentioned these days serve as a reminder of how far student

behavior and attitudes have improved under the four-day school week, because they bring to the forefront what is no longer noticed from week to week.

Another piece of evidence behavior has improved was provided by T7, who relayed, “Our attendance is up, we know, I mean we still have kids who struggle with attendance, but overall it’s been good. I think the kids like having an extra day.”

According to T7, there is a correlation between improved attitudes toward school because some of the students feel more inclined to attend school.

Another difference in attitude or behavior was described by T5, who reported the four-day school week has provided the district with an opportunity to promote the off day as a day of enrichment and work. Teacher T5 described, “I think the big difference in their attitude is that Monday is a workday and Monday is kind of a prep day to get everything ready and get my week lined out and to be successful.” According to T5, teachers within the district make a conscious effort to promote this mindset by assigning “extension-type projects that allow for a little deeper meaning” and by encouraging students to prepare for the week. In addition, the district provides access to research databases and other resources on Mondays. This has created a student mentality as follows:

Monday is a workday even though technically not in the building. It has got to be the biggest attitude change that I’ve noticed where it’s not three days off, it’s two days off and a workday, and that’s the way that most kids look at their weekends now.

The shift, according to T5, has been a net positive in student behavior and attitude.

In terms of behavior, T1 reported a noticeable difference. Teacher T1 commented, “I think overall that they are better behaved. I do not have behavioral issues like I used to.” She explained some of this is a product of being in school fewer total days while the remainder is caused by changes to teaching style brought on by the four-day school week. Teacher T1 stated, “They’re only here four days. Yes, we are still longer each day but we’re moving so quickly to get everything in and I’m keeping them so focused and so on task, they don’t have time to mess around.” Admittedly, the teacher has changed her practice by increasing independent research, conferring with students, keeping them moving, and reducing busy time, but noted the four-day school week is in part responsible for this shift in behavior.

Not all changes in attitude and behavior are positive, as T3 noticed with her own children, “Getting back to school on a Tuesday is a little bit harder because you’ve had three days in a row at least off.” This teacher expressed it is more difficult, especially for younger children, to establish routines within the four-day school week, which can create attitude and behavior issues. Teacher T8 declared there is no noticeable change in student attitude and behavior toward school since switching to the four-day school week. This teacher asserted due to teaching younger students, the four-day school week is the only thing her students have ever known. Teacher T8 explained, “First graders enjoy school no matter what, they tend to just want to come to school so I haven’t noticed a difference in my first graders’ attitudes.” Additionally, T8 pointed out the district has been practicing the four-day school week for a few years, so “these kiddos have spent a life, the whole time pretty much that we’ve done four-day school week, so they don’t

know that school can go five days.” This teacher pointed out, “It’s just kind of the norm, so with my first graders I haven’t really noticed a change in their attitudes.”

Teacher interview question six. Do students seem to like or dislike the four-day school week? What factors play into that decision?

All eight of the teachers interviewed felt the majority of students within their school districts are in favor of the four-day school week. This position was supported in T1’s statement, “They do like it. I 100% think that they like it.” Supporting this characterization was T3’s opinion, “I think generally they like the four-day school week.” Teacher T8 described students’ opinions of the four-day school week, “I have two boys, one is in third and one is in first grade, and they seem to like it. So all the kids seem to yeah, like it.” In addition to direct observations, T5 noted every year since the district implemented the four-day school week, survey data were collected from teachers, students, and the community. Stakeholders have presented an overwhelmingly positive response. Furthermore, T5 described how these data are measurable and support what they continuously observe in the classroom and through conversations with students.

The desire to maintain the new status quo was often cited as evidence by teachers of student favorability toward the four-day school week. Some of these responses were summarized in a statement by T4, who recalled, “I’ve heard many of them say that they wouldn’t want to go back to a five-day school week. Overall, I know the kids wouldn’t want to go back. I’ve heard many of them say that.” A similar response was provided by T5, who as a coach found when talking with players, “I haven’t talked to any kids that would want to change. I would say that 100%, it’s kind of hard to throw out there, but almost 100% of our kids love it.” Teacher T7 noted, “They love this setup, they like the

Monday off.” This teacher added in the unique situation as a K-8 school, they have students transition back into the five-day school week for high school, and when they come back to visit, they “talk about how they miss that and just the things that they liked about it. It’s been a pretty positive reaction all around.” To T7, this singular act is assurance enough the four-day school week is student-friendly.

Some of the interviews revealed the four-day school week is held in high regard by students for a variety of reasons. These reasons are generally centered on providing the benefits of more free time, being job friendly, and reducing stress of students with after school activities. Universally, extra free time was noted as an important component of why students favor the four-day school week. A continuation of this theme was found in T1’s account, “I think they enjoy it because they get more free time on the weekends.” Teacher T6 felt strongly this additional time is beneficial to each student in the four-day school regardless of the circumstances. Monday provides an opportunity to catch up on everything, and “they have more time to enjoy the weekend, they have time to have a job, they have time to spend with their families and their friends, and it just has been nothing but positive for families in the community.”

Teacher T2 cited the time is valued by each of the students because a two-day weekend often is too short for students to complete all of their obligations. Furthermore, after moving to the four-day school week, when teachers hand out an assignment “on Friday, then they don’t have to kind of cram in their weekend, they have all Monday to work on it, too, and I think they enjoy that.” This was also described by T5, who declared, “They like time, it’s theirs to be responsible if they need it and if they don’t need the time to work then it’s just an extra day off.” Teacher T2 mentioned, “I think,

they don't complain as much," signifying students like the four-day school week as it provides extra time.

Students with jobs were another focus detailed by four of the teachers, as a four-day week provides students with more opportunities to hold a part-time job while not feeling overloaded. Teacher T2 stated, "I know that some of our students worked on Mondays and that's kind of handy." This viewpoint was shared by T1, who shared, "The kids in high school really enjoy it because they can work on Mondays, they can earn extra money on Mondays." Furthermore, T4 stated, "Having that one day where they can work, whether it's a part time job," is a great benefit to students. Teacher T5 noted many have chores, and "it's helpful to kids that have jobs. It's helpful to kids that have responsibilities at home, and I would say over 90% for sure of our students definitely love it and wouldn't want to switch." Although there is a large population of students who are not utilizing this time for jobs or chores, teachers still felt the impact is significant among those who do need the extra day.

A final benefit teachers mentioned might contribute to the positive response of students to the four-day school week is the increased flexibility for students with activities. This improved flexibility was described by T2, "[For] some of the kids involved in a lot of activities, I think they like having that time to kind of catch up with things." This was also noted by T6, who acknowledged, "I think students love it because like a lot of our students are athletes and they have after school activities and they have church on Sundays." Under a five-day school week, "they're busy all week long, and they don't really have any down time." Similarly, T8 mentioned many of her students value the four-day week since Mondays give them time "to get homework done, because

the weekends are so busy with sports and activities, that on Monday, if they don't have that then they can just have that down time to get homework and stuff done.”

Teacher T6 found student athletes have more opportunities, because “with the four-day school week, they go to school Tuesday through Friday, [and] they have Saturday and Sunday to either have a job or get schoolwork done or hang out with their friends.” A different benefit for athletes was mentioned by T4, who stated on Mondays, students are “able to have practice during the day instead of before or after school if they are in sports.” They can then utilize the rest of the day for any additional needs.

Teacher interview question seven. How do you think the change in the length of the school day has impacted students? What are some indicators that validate this opinion?

A majority of the teachers concluded the impact of extended days on students is minor to nonexistent. Some teachers noted the resiliency of students, whereas others reported creative scheduling and planning minimizes fatigue and other issues. Three of the remaining teachers asserted there is a notable impact on students due to lengthening the school day and creating cognitive fatigue and hunger.

One common theme that emerged within the teacher interviews was that the onset of fatigue is avoidable because the length of the school day has only increased by a few minutes. As an example, Teacher T4 articulated, “I personally haven't noticed a lot of difference in their cognitive fatigue because really our hours are only a few minutes longer than they were previously.” This teacher then stated, “They seem to adapt pretty quickly,” but T4 emphasized the district only had to add 30 minutes to each day, which extended each class from 55 minutes to 60 minutes. Similarly, T6 felt the increment of

time tacked onto the end of the day is small enough that it does not present a significant challenge. According to T6:

At the high school, we don't notice any kind of lag in student cognition, because for a high schooler, for a teenager that 45 minutes is no big deal... We just don't notice that kind of drop off in the afternoon. It just hasn't been an issue.

Likewise, T2 found, "In high school levels, I don't think it has bothered them too much," again mentioning, "Once they get used to it, there's just a small period of adjustment and then it is just normal, that's what they come to expect." Although T2 has conference at the end of the day, she recalled in previous years under the four-day school week, "They were doing just fine when I had students at the end of the day and it wasn't a problem." Teacher T2 added, "I haven't really heard any major complaints from the students like, 'Oh, the day is so long.'" Teacher T2 felt after a period of adjustment, fatigue went away.

With the younger students, the adjustment seemed to take a bit longer. Teacher T2 reported, "We first saw that there is maybe a difference in younger kids. The kids that hadn't come to school, they've been to like a half-day preschool." In the first year of implementation, the consensus in the district was that "after about the first month or so it was normal. They were focused until the end of the day and they would sit normal like they would have been during a normal school year." Finally, this pattern was also addressed by T8, "Once they get a few weeks in, it becomes their norm." According to T1, this adjustment period described by five of the teachers actually seemed to get easier and become less pronounced with each passing year.

Some of the teachers who did not note any impact associated with extending the school day described how the district has put in place elements in the schedule to combat cognitive fatigue. According to the teachers, these measures were instituted prior to the switch to the four-day school week and continue to be an important component of their school day. Teacher A7 explained, “That was a big concern, especially for the primary kids, because we’re K-8, you know, a kindergartner going that long.” Teacher T7 described being mindful of fatigue and making sure each student has physical education class every day in addition to adjusting “our schedule to give the breaks that are needed but yet still meet academic standards and needs and requirements.” The teachers shifted focus to “cognitive breaks and brain breaks and activity” to meet the needs of students.

Teacher T5 noted with the school day being extended by 66 minutes, there was a significant concern about class length and fatigue. She reported, “Our biggest positive to offsetting that fatigue with kids at the end of the day” was the development of a daily advisory period to give students a chance to “conference with teachers if they need to while some kids get a chance to complete homework.” This teacher felt this advisory period had been essential in curbing fatigue. Another way in which the schedule was altered in order to prevent fatigue was described by T8, who mentioned they reworked the sequencing of courses to counteract fatigue at the end of the day for lower elementary students. This adjustment focused on placing reading and math at the beginning of the day, followed by specials to create a cognitive break, and then a return to “science and social studies stuff that’s not going to require them to be as focused. It’s more the fun learning things.” Finally, T1 stated the district took measures to prevent fatigue by focusing on teaching strategies to keep students engaged and moving.

Three of the eight teachers felt the four-day school week and the increase in the length of the school day has created a noticeable impact on students within their buildings. One issue these teachers run into with the increased length of day is student hunger by the end of the day. Teacher T5 stated, “Early on we found that our kids were not so much tired but just hungry,” and this problem was compounded by the fact lunches were staggered to accommodate elementary, middle school, and high school in the same cafeteria, causing some students to eat lunch pretty early. This same impact was witnessed in T3’s school, where they found “by the end of the day there are slight hunger issues,” because “we have three lunch periods [and] by the time we hit the end, then that extra 30 minutes to an hour depending on when your lunch is it starts to affect them.” This teacher indicated these hunger problems occurred during the five-day school week but are exasperated by adding 40 minutes to the school day

Teacher T1 recalled this concern is not apparent within her classroom, but some of the younger students’ parents are upset “that they would be on the bus until 4:30, 4:45,” and “they would be starving by the time they got home.” In order to curb this problem, T1’s district instituted a snack schedule for younger kids, along with pushing back lunch in order to make lunch times “a little later than they used to be so it’s not such a stretch after lunch till they go home.” Another interesting solution to this issue was provided in T5’s district, which allows “middle school and high school kids what they call a second chance breakfast that after their first class of the day, gives the kids a chance to through.”

Another impact addressed by two of the teachers was fatigue. Each of these teachers noticed fatigue with students involved in extracurricular activities. Teacher T3

described the challenges for students involved in practices and noted, “Instead of starting practice at 3:30 or 3:45, then all of sudden you’re at 4:15, so it lasts longer.” This same issue was found within T5’s district, where T5 observed “fatigue with our student athletes.” With the “extended school day, practices get them done closer to six o’clock in the evening instead of five o’clock.” Teacher T3 stated this issue also extends to morning practices, as some coaches “try and practice before school getting them some pretty early practice times.” This only compounds the problem for multisport athletes with longer nights and earlier mornings.

This pattern was also observed by T4, who related:

The only time I really see a lot of fatigue is when we have kids that are in sports.

They’re either getting up early for practice or they have really late games.

They’re the ones that usually end up seeming like by the end of the day they’re pretty worn out.

As an additional impact, T5 also commented on the fact although these issues are more prevalent in student athletes, they are also witnessed in students working jobs. To counteract some of these concerns, T5’s district instituted an advisory period which “really helps them with finishing up their day” and gives students more time to get help and finish work.

Teacher interview question eight. Has your discipline been impacted by the change to the four-day school week? If so, how?

When discussing this question, seven of eight teachers indicated they have not noticed any positive or negative adjustments to the frequency of discipline occurrences since implementation of the four-day school week. One teacher, T1, noted some

improvements in discipline levels after moving to the four-day school week.

Additionally, all eight teachers observed no changes in the behavior or type of discipline they encountered after switching to the four-day school week. All eight teachers indicated they have not had to make adjustments to their classrooms in order to produce similar behavioral results.

When discussing the impact of the four-day school week on discipline, seven of the eight teachers indicated they have observed no changes to the rate of discipline occurrences. This apparent consistency in the frequency of discipline was addressed by T7, who stated:

The four-day week has not had any impact one way or the other. Like, I don't think we don't have a lot of issues because of the four-day week, but I don't think when we have had them it's been because of the four-day week.

This feeling that the four-day school week is irrelevant in regard to school discipline was shared by T6, who responded, "No, we haven't seen any kind of a discipline change." In addition, T8 reported, "I haven't noticed more discipline issues now that we're on four-day." Teacher T4 was in agreement and stated, "I haven't noticed anything better or worse." This teacher also noted, "We've been at the four-day school week long enough that if there was a difference then we would be able to know." She then expressed, "I haven't noticed a difference in the behavior of my classroom really."

These observations were supported by T3, who described discipline before and after the switch to the four-day school week as nearly perfect. Teacher T3 went on to state, "I never send anybody to the office, so discipline has not affected me at all one way or another." Based on her experience, T3 asserted the four-day school week has not

impacted the discipline whatsoever in her building. According to T3, “In general observation from other teachers or students getting in trouble or having even better discipline from a four-day, I don’t really see any difference one way or another on that.” The four-day school week’s unapparent impact on discipline was rationalized by T2, who noted:

We still have the kids who are great all the time and kids who might be in the principal’s or something a little bit of the time, and then you’ve got the kids who are typically troublesome so I don’t think anything has changed from five days to four days.

Teacher T2 further explained since the clientele has not changed, only the amount of days present, it would stand to reason the discipline should remain the same.

With seven of the eight teachers reporting no improvements, T1 did note the four-day school week has offered a positive adjustment in discipline levels. This was backed up by the observation, “Most of our discipline has improved,” and “I would say, most but not all have experienced less discipline issues.” Teacher T1 attributed this to time in class and the fact “most of our children’s attitudes are more positive.” Teacher T1 also explained for some students, nothing, including the four-day school week, will impact their discipline. Although T6 did not observe changes in discipline within the classroom, she thought the four-day school week could have an impact on the frequency of discipline in a manner similar to that described by T1. Even though T6 could not attribute an improvement in discipline to the four-day school week, this individual expressed, “When you improve student morale and you improve teacher morale and you shorten the amount

of time that students are there, I don't think you're going to do anything except improve discipline.”

Most of the teachers relayed that within their classrooms or schools, discipline was not an issue before or after the switch. When it came to the types of misbehaviors within the classroom, there was no indication of change by the teachers due to the four-day school week. Teacher T2 even stated, “I think that it's all about the same.” This was supported by T6, who described discipline in her building, “For the most part, our detentions and our Friday schools are there because students are tardy to class.” She continued, “There's not a lot of fights, there's not a lot of disrespect.” Teacher T6 went on to mention these issues are unrelated to the four-day school week, as they were present at similar levels before and after the switch. Another interesting perspective was provided by T7, who reasoned within a classroom and school, “Discipline issues probably vary from year to year.” This wide level of variance T7 pointed out made it difficult to speak to anything other than the frequency of discipline.

Another commonality in the responses to the question posed about discipline was that all eight of the teachers indicated they have not had to make adjustments to their classrooms in order to address behaviors. This consistency in the classroom was described by T8, who outlined, “I don't really feel that it changed how I discipline or what we did.” Teacher T8 continued, “I know at the beginning of the year, and I would have done this even with five days, you have to teach them a lot of the structure and the rules and expectations.” This lack of adjustment in classroom discipline was restated by T1, who responded, “Honestly, I have ran [sic] my classroom in the same way as I always have.” The only adjustment in discipline was related to the structure of the school

and not individual classrooms. This change was cited by T4, who revealed the four-day school week has given administrators the ability to assign Monday school to students. Teacher T4 went on to mention that although “they really don’t want to be here on a Monday,” Monday school just provides more options.

Summary

This mixed-methods study was conducted to determine the impact of the four-day school week on school districts by comparing performance data in the areas of attendance, dropout rates, and ACT scores before and after the switch, along with examining administrator and teacher perceptions of four-day weeks. Through analysis of interview responses, insight was gained about the impact of the four-day week on school climate in terms of teacher morale, teacher attendance, finance, student learning, student morale, student discipline, and cognitive fatigue.

In this study, all of the administrators valued the four-day school week and gave it positive remarks from a personal standpoint but noted varying degrees of importance in regard to teacher morale, student morale, student attendance, teacher attendance, discipline, and finance. Seven of the eight teachers also described the four-day school week in a positive light, whereas one teacher felt the four-day school week’s negatives outweighed the positives. Each of these opinions varied in regard to the benefits, challenges, impact on student learning, learning expectations, student morale, cognitive fatigue, and discipline.

This chapter consisted of the perceptions of eight administrators and eight teachers working within a four-day school week in a Missouri public school. Each of the individuals interviewed were current teachers and administrators who had transitioned

from a five-day to a four-day school week at their current schools. These responses were transcribed and then analyzed to establish commonalities and differences.

Chapter Five includes the findings of this study. Each of the five research questions are reexamined, and conclusions are drawn. Additionally, implications for practice are discussed, and recommendations for further research concerning the four-day school week are addressed.

Chapter Five: Summary and Conclusions

The four-day school week has gained a degree of popularity in recent years. This popularity can be attributed to a number of factors including budget cuts, financial crisis, and increased costs in education (Sauter et al., 2012). Despite a number of attempts throughout the United States over the last century to establish four-day schools, Missouri is relatively new to the process (Johnson, 2013). With this recent acceptance as an alternative to the traditional five-day school week, many Missouri schools are now considering switching to the four-day school week, making it all the more important to study the impacts, both perceived and actual.

The purpose of this mixed-methods study was to assess the overall impact of the four-day school week by collecting performance data along with the perceptions of teachers and administrators. To measure performance, quantitative data in the form of attendance rates, dropout rates, and cumulative ACT scores before and after the switch to the four-day school week were collected for a number of schools and were analyzed. Perceptions of administrators and teachers were then gathered to determine the perceived impact of the four-day school week. The findings of the study are provided within this chapter. This chapter also includes conclusions, implications for practice, and recommendations for future research on the four-day school week.

Findings

This mixed-methods study was designed to examine the impact of the four-day school week on Missouri school districts. In order to accomplish this, performance data before and after the switch to the four-day school week were collected. Additionally, perception data from administrators and teachers were gathered and transcribed in order

to gain insight on the practice. The study was designed to answer five guiding research questions. Data from each portion of the study were then analyzed to provide understanding on the real and perceived impacts of the four-day school week. In the following section, the findings are summarized. These findings are then applied to the corresponding research questions, in addition to supporting literature from Chapter Two, in order to deliver additional contrasts with this study's findings.

Research question one. What difference exists, if any, between attendance rates for schools before and after switching to a four-day school week?

Johnson (2013) concluded student attendance plays a major role in school operations, as achievement, funding, and state performance criteria are directly tied to classroom time. As a vital component of Missouri schools, attendance rates were collected for nine school districts operating under the four-day school week for four or more years to determine whether or not the four-day school week made an impact on student attendance. Due to the fact some of the schools utilized the four-day school week longer than others, the data were treated to consider attendance rates for only three years prior and three years after implementation. These data were then examined to establish whether or not a difference exists between attendance rates and the four-day school week.

The findings of this study indicate mean attendance rates improved by 0.56% among the nine schools. Utilizing a two-tailed *t*-test, it was determined a difference did exist and thus a significant improvement in attendance rates could be attributed to the move from a five-day to a four-day school week. When examining the literature, a majority of the researchers concluded the four-day week improves attendance rates of students (Cardinale, 2013). The outcome of this portion of the study is consistent with

this research, specifically in regard to Anderson and Walker (2015), who found a similar 0.6% improvement in Colorado school districts that implemented the four-day school week.

When examining three-year aggregate attendance rates before and after the switch to the four-day school week, eight of the nine districts experienced varying degrees of improvement. Increases ranged from 0.133% to 1.1%, with one school actually experiencing a decrease of 0.066%. These results reflect an improvement in attendance well within range of prior research. Following an investigation of attendance records, Feaster (2002) reported an improvement in overall attendance of 3%, while Thomason (2013) encountered a more modest increase of 0.7% when utilizing the four-day calendar. None of the literature reviewed established an actual decrease in attendance, although Delisio (2004) determined the four-day school week did not impact student attendance.

Research question two. What difference, if any, exists in ACT scores for schools before and after switching to the four-day school week?

As one of the performance indicators for measuring student achievement in Missouri, the ACT has become increasingly important to school districts across the state (Knapp, 2014). To determine the impact of the four-day school week on ACT performance, composite score data were analyzed for seven Missouri school districts before and after the switch to the four-day format. This study included only schools that utilized the four-day school week for at least four years. Data from three years preceding and three years after the four-day school week was implemented were averaged in order to establish if a difference in ACT scores occurred. Some fallibility was built into these data due to a policy change that occurred during the 2014-2015 school year, when the

Missouri State Board of Education mandated all students in 11th grade take the ACT (MODESE, 2015). In prior years, the ACT was primarily taken by college-bound students in various grade levels (MODESE, 2015).

Despite these challenges, this study resulted in a composite score change from 20.313 to 20.514, or a 0.2 increase. Through a *t*-test for each paired sample, it was determined this improvement in composite ACT scores was not statistically significant. Furthermore, only five of the seven districts studied saw an increase to the three-year mean ACT composite. These improvements ranged from 0.833 to 0.100. Conversely, two schools saw decreases in mean ACT scores. These results were analogous to previous literature by Knapp (2014), who also examined Missouri schools to determine if there was an influence on ACT scores when transitioning from the traditional schedule to the four-day school week. Much like this study, Knapp (2014) produced mixed results and ultimately determined the impact of the four-day school week on ACT scores was insignificant. A similar study conducted on the Miami R-1 School District in Missouri contradicted these findings, as it showed an increase in ACT scores to the highest levels in over a decade after switching to the four-day school week (Preston et al., 2013).

Research question three. What difference, if any, exists between dropout rates for schools before and after switching to four-day school week?

Data were collected on dropout rates for all seven districts which implemented the four-day school week within their high schools for four or more years. Three years of data prior to and after the transition were compiled and averaged, producing average dropouts of 2.567 to 1.919. This accounted for an average decrease of 0.648 among the sample. Through a *t*-test, it was determined this change was not statistically significant.

These results were contradictory to those of Muir (2013), who cited declines in dropout rates throughout school districts that implemented the four-day school week.

Analysis of each individual school district's three-year mean before and after implementing the four-day school week revealed a wide range of results. Four school districts saw decreases in dropouts, one was stagnant, and two saw increased dropouts after switching to the four-day school week. Again, these results did not support the research, as Roeth (1985) found each of the four-day schools studied reported significantly lower dropout rates. Hale (2007) produced results a bit more consistent with this study, as he revealed a range of dropout rates with as many as half of the participating school districts showing an increase in their dropout percentage.

Research question four. What are the perceptions of school administrators who work in a four-day school week related to teacher morale, teacher attendance, discipline, and finance?

Each of the eight participants were current Missouri administrators who had transitioned to the four-day school within their districts. These administrators were asked to give their perceptions of the four-day school week and its impact on school climate. Three of the interview questions centered on building morale, seeking to gain insight on how the four-day school week impacted student, teacher, and administrator morale. Three more questions were aimed at understanding whether attendance of teachers and students adjusted after switching to the four-day school week. Participants were also asked to provide their perceptions on whether or not discipline changed due to the four-day school week. Finally, all participants were asked to share their perceptions about the impact of the four-day school week on school finance.

Each of the eight participants involved in the study described the four-day school week as beneficial to their school districts as a whole. Although specific positive influences of the four-day school on district culture were varied, all confirmed it has created a notable improvement in at least one area of morale, attendance, or discipline. When discussing teacher morale, six of the eight participants indicated the switch to the four-day school week as a key factor to creating positive change. Administrator A2 stated, “We had a pretty positive building climate in the past but since our four-day school week, teachers just, I don’t know, they seemed more energized, they smile a little bit more.”

Hale (2007) showed similar results when conducting a study with administrators and found one of the perceived advantages of the four-day school week is improved teacher morale. In addition to teacher morale, participants were also asked to describe any perceived changes in student morale. Of the eight administrators, seven felt the four-day school week has been positive for student morale. These administrators described an overall happier student body. This claim was supported by the findings of Leiseth, (2008) who demonstrated through a questionnaire that student attitudes and morale did appear to improve after implementation of the four-day school week.

The last component of morale examined dealt with administrator perceptions of the four-day school week. All eight of the respondents to this question felt the switch was a positive for them personally. An example of this was provided by A7, who noted, “It’s been fantastic, and I wouldn’t want to go back to a five-day-week if it keeps continuing the way it is.” Based upon the responses of the administrators to all three of

these questions, it appears the four-day school week provides a morale boost for teachers, students, and administrators.

Another component of culture examined was attendance. When asked to describe the impact of the four-day school week on teacher attendance, six of the eight administrators reported an improvement, while the other two saw no noticeable difference. One administrator presented data showing 8-10% fewer absence days were taken by teachers. These assertions seem to support the work of Skogen (2012), who conveyed significant increases in student and teacher attendance. The 8-10% improvement in faculty attendance cited by A7 does not align to reports by Sagness and Salzman (1993), who reported a 2% increase in staff attendance. All but two of these administrative perceptions seem to stand in stark contrast to the research of Delisio (2004), who found no improvement in staff attendance correlated to four-day school weeks.

The administrators were also asked to consider changes to student attendance under the four-day school week. Although a majority of the research describes the four-day school week as a positive change agent when it came to student attendance rates, only five of the eight administrators described an improvement. Despite contradicting a majority of studies, these results actually mirror those of Hale (2007), who revealed only 60% of the schools which adopted the new schedule saw improvements in attendance. Although five of the administrators described improvements, these varied significantly among the group. Many of the participants also mentioned other variables come into play when monitoring student attendance, thus making it difficult to provide anything

other than individual perceptions. Others, however, felt a correlation has been established between the four-day school week and improved student attendance.

Administrators were also asked whether or not they have changed their attendance policies to accommodate the four-day school week. Six out of eight declared their districts have changed attendance policies after switching to the four-day school week to maintain a continued focus on attendance rates. These administrators expressed the amendments were used to align their policies to reflect the new number of school days with the percentage of allowable absences. After analyzing administrator responses to attendance questions, it became clear the perception of the four-day school week is that it creates an environment of improved attendance for teachers while providing a mixed result for students.

Perception data were also collected from administrators on the impact of the four-day school week on discipline. The responses of the administrators showed only three of eight viewed the four-day school week as reducing the number of discipline issues within their buildings. These results seemingly contradict the available literature, which describes fewer discipline problems after implementation of the four-day school week (Muir, 2013).

Administrator perceptions were collected in order to gauge financial adjustments encountered after implementation of the four-day school week. All eight of the administrators noted their school districts have saved money through the switch to the four-day school week. Although each school appeared to save approximately the same 1-2% of their overall budgets, the perception of the value attributed to these savings was inconsistent. Only three of the eight administrators described these savings as significant,

while the other individuals viewed it as supplementary. This interpretation seems in alignment with Griffith's (2011) statement that a school district with a smaller overall operating budget provided with a similar percentage of savings might not view the savings as favorably as those with larger operating expenses or tight budgets.

In all, the perceptions of the eight administrators regarding the impact of the four-day school week on school culture revealed it has had a positive influence school climate. Examining teacher, student, and administrator morale showed the perception among administrators is that the four-day school week has created an improvement. In regard to attendance, the perception was that teachers have reduced their absenteeism due to the four-day school week, whereas some districts saw mixed results. Finally, based on the perceptions of administrators, the impact of the four-day school week on discipline and finance was negligible.

Research question five. What are the perceptions of school teachers who work in a four-day school week related to student learning, student morale, cognitive fatigue, and discipline?

All eight of the participants were current Missouri teachers who had taught within school districts before and after the switch to a four-day school week. All of the teachers were asked to provide their perceptions on the impact of the four-day school week on their schools. Five of the interview questions were designed to gain insight into benefits, challenges, impact on student learning, daily learning expectations, and cognitive fatigue. Two more questions were asked to gain an understanding of how the four-day school week impacts student morale. Participants were also given the opportunity to discuss if they felt discipline changed due to the four-day school week.

Of the eight teachers involved in the study, seven provided perceptions of the four-day school week that were mostly positive, while one teacher had negative opinions of the format. Despite the fact a majority of the participants reported the four-day school week is a positive for their school districts, each teacher had considerably different opinions in terms of its impact on learning, morale, and discipline. When determining the impact on student learning, seven of the eight teachers felt there are a variety of benefits the four-day format offers students. These key academic benefits include focused instruction, improved attendance of staff and students, increased consistency, extra time for students, and improved morale.

Such a wide range of perceived benefits, with very little consistency, resonates with current literature on the four-day school week. Some of the perceived benefits of the four-day school week often include increased attendance, increased planning time, and financial savings (Plucker et al., 2012). Thomason (2013) also mentioned a perception exists that the four-day school week provides additional professional development time, higher graduation rates, reduction in referrals, increase in teacher morale, and improved attitudes toward school.

Further examination of student learning led to the collection of perception data on the challenges associated with the four-day school week. Much like the benefits, the challenges reported by all eight of the teachers resulted in a variety of responses. These challenges centered on classroom issues such as reworking curriculum, community needs, and dealing with Tuesday morning apathy. Five of the eight teachers identified curriculum and lesson planning as the greatest challenge. Difficulty identifying the challenges associated with the four-day school week stemmed from the benefits and

drawbacks of the four-day school week often being discussed as one in the same. An example of this was provided by T1, who described reworking lessons and curriculum as a challenge, only to say it benefits teachers because it made them choose “what’s more important for my kids to know, and I think it made my lesson, my curriculum, and my entire class better.” These issues seem prevalent in the current literature, along with a myriad of other concerns such as shortage of research, inconclusive or conflicting results, and little agreement on how to optimize student learning (Tharp, 2014).

An additional factor examined was the impact of the four-day school week on student learning. Four of the eight teachers reported the four-day school week has been beneficial to learning within their buildings, while three teachers felt it has no discernable impact, and one teacher expressed it negatively affects students. This wide range of perceptions closely mimics the current literature and public opinion of the four-day school week. Plucker et al. (2012) described how inconsistencies are the norm when collecting data about the four-day school week, noting, “Existing data on the effect of the four-day week on student achievement have been inconclusive. Some districts report student academic gains after moving to a four-day schedule, while others report only slight increases or no change at all” (p. 5). Unfortunately, such a wide variance presents a challenge when trying to determine how student learning is impacted by the four-day school week.

To produce a greater depth of understanding about how the four-day school impacts student learning, teachers were also questioned on whether or not they adjusted their daily learning expectations. Five of the eight teachers indicated they made some adjustments to their learning expectations, whereas the other three teachers indicated they

only restructured lessons to fit in content. Without this distinction, all eight of the teachers had to adjust their daily learning expectations. This process of adjusting daily learning expectations was described by T2:

Even with five days, I couldn't fit everything in that I was expected to teach, but I worried that with four days would I be able to do that, and that is when I had to kind of change how much I planned on teaching in one lesson, and that took a little bit of work.

Feaster (2002) found teachers are able to provide 20% more instruction on the adjusted schedule due to longer periods and a drop in absences.

Finally, in order to gauge the impact on student learning, perceptions from each of the eight teachers were elicited to determine whether or not the length of the day impacts students in the four-day school week. Five of eight teachers concluded the impact on students has been minor to nonexistent, while the remaining three felt there is a notable effect on students due to lengthening the school day. Many of the five teachers discussed their districts have taken steps to try and prevent cognitive fatigue. Research indicates this inconsistency in reports about cognitive fatigue may stem from the countermeasures schools develop such as providing students with the appropriate frequency and duration of breaks to help them overcome cognitive fatigue (Sievertsen et al., 2016).

Perception data were also collected from teachers on student morale. Participants were asked to share their perceptions on any differences in students' attitudes or behavior toward school that occurred since switching to the four-day school week. In response to this question, six of the eight teachers reported the four-day school week has created an improvement in student attitudes and behavior. One teacher indicated no change, while

another felt there has been a downturn in attitudes and behavior. The majority sentiment was captured by T1's statement, "The kids truly enjoy it, and I think it really has made them like coming to school more... I think overall that they are better behaved. I do not have behavioral issues like I used to." A survey provided to students in Custer School District generated similar results showing teachers' perceptions about student attitudes and behaviors after implementation of the four-day school week increased in the first two years by 62% and 50% (Leiseth, 2008). Likewise, many districts have reported improved behavior among students as a result of the shortened week (Donis-Keller & Silvernail, 2009).

Teacher perception data were also collected to gain a glimpse into whether students appear to like or dislike the four-day school week. All eight of the teachers interviewed thought the majority of students are in favor of the four-day school week. Evidence of this was provided by T5, who noted besides personal observations, the district collects yearly survey data with overwhelmingly positive response from students. This reaction is not unique to the eight districts studied, as Roeth (1985) and Muir (2013) both found student morale is higher under the four-day school week.

Lastly, perceptions were collected from each of the eight teachers to determine the impact of the four-day school week on discipline. Seven of the eight respondents indicated they have not noticed any positive or negative adjustments to the frequency of discipline occurrences since implementation of the four-day school week. Teacher T7 found the four-day school week is a nonfactor in discipline. A review of literature seems to contradict this viewpoint, with Roeth (1985) finding a reduction in discipline and vandalism issues and Plucker et al. (2012) indicating a number of districts saw an

immediate decline in referrals the semester after implementation of the four-day school week.

In all, the perceptions of the eight teachers regarding the impact of the four-day school week on student learning, student morale, and discipline were varied. Blakesley (2013) highlighted some of these challenges in evaluating the four-day school week, citing a myriad of variables within the scope and limitations of each study that make it difficult to determine if it has an overall positive, neutral, or negative impact. Based upon the responses provided by the respondents, the four-day school week did impact some districts in regard to student learning while producing little to no influence in others. As for student morale, the four-day school week seemed to act as a positive for students, whereas it produced no discernable change in student discipline.

Conclusions

Conclusions were based on analysis of attendance data, ACT scores, and dropout rates in addition to the responses provided by administrators and teachers to interview questions. Each of the interview questions were guided by the research questions of the study. This section presents common themes that emerged from the quantitative and qualitative data analysis.

A difference exists between attendance rates for schools before and after switching to the four-day school week. According to Rowlands (2005), the sole focus of the interpretivist framework should be to produce an understanding of the circumstances surrounding a social phenomenon and how the associated processes impact the phenomenon. This study utilized an interpretivist framework in order to examine the four-day school week through multiple perspectives and to provide an interpretation of

the impact in participating Missouri schools. Therefore, associated literature, quantitative data, and the perceptions of administrators and teachers were utilized so a complete story could be developed in regard to the four-day school week.

The first lens of investigation included examination of the four-day school week's actual and perceived impact on attendance. A majority of the current literature supports the idea the four-day school week improves student attendance rates (Anderson & Walker, 2015). This increase ranges as high as 3% according to Feaster (2002) to the less dramatic 0.6% indicated by Anderson and Walker (2015), with a number of studies lying somewhere in-between. A brief analysis of the four-day school week's impact on student attendance revealed there was a statistically significant amount of growth after switching to the shortened school week. For each independent school district, the measured attendance impact ranged from a high of 1.1% growth to a decrease of 0.066%.

Roeth (1985) found perceptions collected from administrators also indicated one benefit of the four-day school week is an improvement in student attendance. While this growth in attendance noted in literature and in this study is a welcome benefit of the four-day school week, perceptions of administrators within the state showed a slight disparity. Of the eight administrators interviewed, only five felt student attendance has been influenced in a notable way, while the remaining three believed there has been no impact whatsoever. This disconnect may be due to the quantitative and qualitative portions of the study not involving a one-to-one comparison of schools, meaning those who consented to the interview process were not necessarily the same four-day schools which fulfilled the criteria of three years post-implementation data in the quantitative study.

Another possible reason for the conflict in perception and data could be the result of each individual administrator's definition of noteworthy improvement.

Between the data and the perceptions of administrators rests the outlook of the teachers, six of whom named improvements in attendance as one of the primary benefits of the four-day school week. The disparity in these results provided a mosaic of responses which Taylor and Medina (2013) mentioned was a product of interpretivism in the educational setting. The preponderance of evidence both in this study and in the research indicates the four-day school week improves attendance rates in participating schools. The perceptions of the participants show another layer of interpretation that these improvements may be statistically significant but not to a degree they have become meaningful within the district.

The four-day school week produces mixed results in student performance as measured by ACT scores and perceptions. When conducting an analysis of the four-day school week's impact on ACT performance, it was determined there was a not a statistically significant difference in ACT scores before and after the switch to the four-day school week. Meager improvements were revealed in the composite scores for five of the seven school districts, while the remaining two saw score reductions. This created a cumulative composite score increase of 0.2 points.

The 2014 state mandate that all juniors take the ACT presented one challenge to this portion of the study, as it fundamentally changed the clientele who took the ACT within some of the school districts. This makes a straight before and after comparison less reliable, thus muddying the interpretation of the impact of the four-day school week on ACT scores. Despite this fact, the data suggest there is no measurable impact on ACT

scores within this study, meaning student achievement was not influenced by the four-day school week.

As stated in Andrade (2009), the interpretivist role in educational research is vital, as purely statistical approaches hardly provide the subjectivity and quality arguments necessary when involving people. As outlined in this remark, the utilization of the interpretivist approach sometimes reveals data and perspectives do not align, thus making it essential to examine educational programs through as many perspectives as possible. This was displayed in the stark contrast between the quantitative data and the perceptions of administrators and teachers who perceived the four-day school week has helped build academic success within their buildings.

Examination of the literature revealed a similar trend, indicating the four-day school week's impact on performance within each individual school may be less of a true outcome and instead may be more site-specific. An example of this can be found in two independent studies conducted in Missouri on ACT performance. Knapp (2014) determined the four-day school week's impact on ACT scores was insignificant, while Preston et al. (2013) determined the four-day school week was the primary reason for an increase in ACT scores. These dissimilarities are likely accounted for in site-specific structures and processes; for example, teachers indicated their schools made an assortment of adjustments before implementing the four-day school week. This individuality, along with a range of other differences, more than likely accounts for the same process yielding dissimilar achievement results.

The four-day school week does not appear to impact dropout rates. After analyzing data collected through the MODESE, the researcher was able to establish the

0.648 average decrease in dropout rate was not statistically significant. This contradicts most of the literature in this area, with Roeth (1985) and Muir (2013) attributing decreases in dropouts to the four-day school week. Individual results varied greatly, with four schools seeing improvements, one remaining stagnant, and two decreasing over the three-year period immediately following implementation of the four-day school week. The results of this study support Hale (2007), who pronounced the four-day school week did not improve dropout rates among member schools and actually revealed some increases in dropouts after switching to the four-day school week. Understanding the risk factors which lead to high school dropouts and examining whether or not the four-day school week offers any actionable control over these factors would likely provide more insight into why the majority of the literature did not align to the results of this study.

School administrators who currently serve in a four-day school week perceive the structure as a net positive. Utilizing the interpretivist framework, a search for patterns in the school climate was undertaken through elicitation of the direct experiences of eight school administrators. All eight of the participants in this study described the four-day school week as a positive and concluded benefits create a favorable school climate within their districts. However, a variance of responses on individual indicators such as morale, attendance, discipline, and finance did exist. A strong majority of administrators supported the idea the four-day school week has brought about improvements in personal morale, student morale, and financial savings. These claims are also found extensively throughout the literature (Muir, 2013). One investigation conducted by Hale (2007) involved interviews of administrators and parents

to determine the four-day school week was perceived to improve teacher and student morale (Hale, 2007).

A smaller majority of administrators reported improved teacher morale, teacher attendance, and student attendance directly linked to the four-day school week. Finally, discipline was one area where most administrators felt they had not seen an improvement because of the four-day school week. This stood in contrast to current literature, which indicated the four-day school week decreases student discipline problems (Plucker et al., 2012). The perception data indicated all eight of the administrators believed the four-day school week provides some tangible benefits that did not exist within their districts during the five-day school week. Existing literature seems to support these claims with financial gains and satisfaction levels among administrators, teachers, and students generally accepted as benefits of the four-day school week (Tharp et al., 2016). On the other hand, debate within the literature still surrounds the four-day school week's influence on factors such as discipline and attendance.

Teacher perceptions of the four-day school week present this option as mostly positive for themselves and their students. Seven of the eight teachers who discussed their perceptions of the four-day school week described this structure in a positive light. Although the majority (seven of eight) agreed the four-day school week has created positives within their districts, there was a diversity of opinions when it came to benefits, challenges, student learning, student morale, cognitive fatigue, and discipline. All eight teachers were in agreement the four-day school week is a structure students enjoy.

A majority of teachers agreed there are benefits to the four-day school week which include attitude improvement and students liking the structure for a variety of reasons. This idea was reinforced by Leiseth (2008), who found through surveys 62% of teachers felt student attitudes and behaviors improved, while only 6% reported worsened attitudes or behaviors. Teachers also felt no discipline changes occurred due to transitioning to the four-day school week. Less agreement occurred in terms of the challenges and impact on student learning due to the extended learning day. The diversity in these responses echoed the perception and quantitative findings displayed throughout the literature and often encompassed many of the same themes. Although the teachers incorporated a number of viewpoints, overall it appeared they felt the four-day school week is a better delivery format than the five-day.

By examining the four-day school week through an interpretivist perspective, a wide range of viewpoints from a variety of sources including current literature, perceptions of both administrators and teachers, and quantitative data were collected and analyzed to try and develop a more complete understanding of the four-day school week. When reviewing the responses provided by the eight teachers and eight administrators, it became clear the four-day school week is generally held in high regard. These perceptions did reveal some potential negatives when compared to the five-day school week, but they appeared to be school-dependent factors. With that said, some of the qualities attributed to the four-day school week by the literature proved to be unverifiable. Altogether, perceptions coupled with data revealed positive impacts in student attendance, whereas no discernable changes in dropout rates and student performance were found. Based on the information from this study and the surrounding

literature, the four-day school week appears to be a feasible alternative to the traditional five-day calendar.

Implications for Practice

The eight teachers and eight administrators interviewed for this study provided a wide range of opinions about the impact of the four-day school week within their respective schools. Despite this variety in thought, the consensus was that implementing the four-day school week resulted in some positive consequences for their districts. The number of positives and the degree to which they impacted each teacher and administrator's school remained understandably inconsistent. These perceptions were diverse, and the supporting literature produced a range of opinions involving the effectiveness of the four-day school week while drawing no reliable conclusions (Mykerezzi & Nash, 2012). Even with this discrepancy, the perceptions of most of the participants show confidence in this format and its ability not to impede education and perhaps even to improve learning.

Although no statistically significant improvements were identified in the analysis of ACT data, only seven of 18 respondents provided a similar opinion. A majority of the respondents (10 of 18) pointed to measured improvements in standardized testing as rationale the four-day school week is creating advances in student achievement. Administrator A8 provided insight into why such a discrepancy exists, because there are so many ways to measure student gains. Administrator A8 rationalized, "I look at our test scores from last year, and the four-day week was not entirely due to that, but I'd like to think it played a role." To ensure academic success, it is essential all districts involved with the four-day school week continuously monitor and evaluate the system to identify

district and classroom strengths and weaknesses. It is also critical school districts work to address any weaknesses through professional development or other program adjustments as deemed necessary.

The quantitative and qualitative data collected in this study illustrate an improvement in regard to teacher and student attendance will likely follow the implementation of a four-day school week. On average, the nine school districts involved in the quantitative portion of this attendance study saw a 0.56% increase in student attendance, which was found to be statistically significant. This change was considerably close to the findings of Thomason (2013), who reported a 0.7% increase in student attendance.

Some of the research and perception data collected during this study indicate this improvement can be transitory without proper education of staff, students, and the community. Administrator A8 described the importance of continued education and stated as the focus has decreased on staff attendance, the district has seen improvements dip from a high of 20% down to merely an 8% increase in attendance. Schools currently implementing or considering implementing the four-day school week have to continuously establish the importance of regular attendance in order to retain any improvements experienced after the transition. Stressing the importance of scheduling appointments on the nonattendance day for parents and teachers goes a long way toward maintaining attendance gains (Donis-Keller & Silvernail, 2009). These attendance improvements are all the more important for four-day schools compared to five, because every absence under the four-day system represents a loss of 25% of the weekly instructional time as opposed to 20% (Miles, 2012).

The quantitative data collected from ACT scores in this study suggest cognitive fatigue may not be a concern for students in the four-day school week, since these scores closely match those earned under the five-day week. These data reveal ACT composite scores within the seven districts studied improved by 0.2%, which was found to be statistically insignificant. The four-day school week did not significantly increase or negatively impact those schools involved within the study. These results are contrary to much of the current literature that suggests cognitive fatigue is a concern for four-day school weeks (Blakesley, 2013).

On the other hand, the qualitative data collected provide less of a distinction, since many of the participating teachers pointed out students underwent an adjustment period. Some teachers indicated their districts completely changed how they did business in order to avoid cognitive fatigue, including strategies such as brain breaks, moving more difficult subjects to the beginning of the day, adding advisory periods, changing teaching strategies, and adjusting breakfast, lunch, and snack times. Sievertsen et al. (2016) indicated measures such as these to provide breaks in cognition at frequent intervals with appropriate durations can completely negate the onset of cognitive fatigue. With this in mind, it is essential to note districts considering or currently utilizing the four-day school week will likely, in the short term, experience some degree of cognitive fatigue. It is important teachers be taught the signs of cognitive fatigue and strategies to combat its effects to avoid losing any valuable learning time.

Finally, the data collected in this study revealed that although research has been conducted over a variety of components of the four-day school week, no details concerning best practices have been established. Educational researchers, policymakers,

four-day school week administrators, and their associated school boards should begin evaluating the four-day school week in order to determine the best educational practices for extended learning days. This would involve creating benchmark assessments, continuously analyzing data, and researching educational trends to produce the highest quality instructional practices for four-day school districts.

Recommendations for Future Research

This mixed-methods study was designed to examine how switching from the five-day school week to the four-day school week impacts student attendance, dropout rates, and ACT performance. Additionally, perceptions of administrators and teachers were solicited to gain an understanding of how the four-day school week is viewed in regard to student learning, student morale, cognitive fatigue, discipline, teacher morale, teacher attendance, and finance. Through the research and investigative process, some gaps were identified that could help produce a greater understanding of the impacts associated with transitioning to the four-day school week.

A study examining student perceptions about learning in the four-day school week would be particularly informative as it would help to assess if student, teacher, and administrator perceptions on the four-day school week are in alignment with one another. This would provide first-hand insight on learning and instruction along with the perceived benefits and challenges for students entering the four-day school week.

Further research on the impact of the four-day school week on student achievement is also necessary. Evidence of this need can be glimpsed through prior research which shows a high degree of variance on the impact of the four-day school week on achievement. Additionally, the findings of this study revealed no statistically

significant improvement on the ACT, while administrators and teachers indicated increases in performance on a variety of other standardized tests. A longitudinal study comparing performance on state assessments of students in cohorts of five-day schools and four-day schools could help determine the impact on achievement.

Another gap identified during this study dealt with discipline. Previous research indicated schoolwide discipline improves when districts adopt the four-day school week. This study relied solely on administrator and teacher perception data in regard to discipline. Although most of the participants described no change in discipline, there were a few who provided conflicting reports. The reliance on perception could be avoided by collecting data on discipline statistics such as frequency and type before and after implementation of the four-day school week. Another variation of this type of research could focus on the number of office referrals and suspensions.

Determining the impact of the four-day school week on professional learning should also be a focus of future studies. This could be achieved by examining the average number of yearly dedicated professional learning hours each school district provided before and after the switch. This investigation would address the claims by teachers and administrators that the four-day school week has provided their districts with additional uninterrupted professional development time. With this information, districts interested in the four-day school week could see how it impacts professional development.

An additional study that might be useful in understanding the impact of the four-day school week would be to examine rates of teacher retention in four-day schools and compare rates to those of five-day schools. Throughout the research and this study an

indication was given that the four-day school week is vital to retaining staff members and attracting new applicants. No empirical evidence was provided to support these claims, so a study would provide a better understanding of the overall influence of the four-day school week on teacher retention. Since the four-day school week is not only supposed to create an impact on teacher retention but also attract more qualified applicants, a quantitative study could be conducted in order to determine how many applications districts receive per posting to determine if there has been a statistically significant change.

Summary

The purpose of this study was to examine the impact of the four-day school week on a variety of performance indicators. For the quantitative portion of this study, attendance, dropout rates, and ACT scores were examined for Missouri school districts which had switched to the four-day school week prior to the 2014-2015 school year. For each individual school, the data from the five-day and four-day school week were compared. In addition to these quantitative data, this study was also designed to collect perception data from administrators and teachers. These perceptions were utilized to gain a greater understanding of the real and perceived impacts of the switch to the four-day school week. Eight administrators and eight teachers were interviewed for this part of the study. These interviews were recorded, transcribed, and analyzed.

Analysis of the quantitative data from this study indicated switching to the four-day school week did not influence ACT performance within the districts studied. Likewise, dropout data prior to and after the implementation of the four-day school week showed no statistically significant difference. Analysis of the data regarding student

attendance did reveal the four-day school week created a notable positive change to attendance patterns within the districts studied. These quantitative findings confirm earlier research indicating attendance rates often improve under the four-day school week. Claims attributing achievement improvements were not verified by ACT data, and similarly, improvements in dropout rates were not supported by this study.

Findings from the perception data showed, as a whole, the four-day school week is regarded as a positive culture piece by administrators. Primarily, the positive changes noted were in regard to morale and attendance of both students and teachers, whereas the administrators indicated discipline was mostly unaffected. Although each of the eight administrators acknowledged a financial benefit from moving to the four-day school week, there was quite a diversity in methodologies for achieving these cost savings.

Teacher perceptions were generally in agreement with administrators when describing the four-day school week as positive. Teachers reported enjoying the new format and described improvements in student attitudes and morale. This was coupled with many of the teachers describing positive academic results while maintaining standards and classroom rigor. Much like the administrators, the majority of the teachers reported discipline was not impacted by switching to the four-day school week.

Understanding the true benefits and challenges associated with the four-day school week is important to maintaining a high-quality education in Missouri schools. This study provided a qualitative and quantitative analysis of a variety of claims made by supporters and detractors of the four-day school week in order to gain a better understanding of the impact of the four-day school week. In analyzing the data collected throughout this study, the novel concept of the four-day school week appears to be not

without merit. Increases in student attendance were supported both through perception data and the quantitative approach. Concerns about student achievement and cognitive fatigue appear to be unjustified, as the ACT data showed similar results before and after the switch. Furthermore, administrators and teachers described maintaining similar scores or even gains in standardized test scores within their districts. Although every district is different, the four-day school week does appear to be a feasible alternative to the five-day structure for many districts in Missouri.

Appendix A



DATE: September 1, 2016

TO: Matt Gower

FROM: Lindenwood University Institutional Review Board

STUDY TITLE: [934869-1] Interpreting the Impact of the Four-Day School Week: An Examination of Performance Before and After Switching to the Four-Day School Week

IRB REFERENCE #:

SUBMISSION TYPE: New Project

ACTION: APPROVED

APPROVAL DATE: August 22, 2016

EXPIRATION DATE: August 22, 2017

REVIEW TYPE: Expedited Review

Thank you for your submission of New Project materials for this research project. Lindenwood University Institutional Review Board has APPROVED your submission. This approval is based on an appropriate risk/benefit ratio and a study design wherein the risks have been minimized. All research must be conducted in accordance with this approved submission.

This submission has received Expedited Review based on the applicable federal regulation.

Please remember that informed consent is a process beginning with a description of the study and insurance of participant understanding followed by a signed consent form. Informed consent must continue throughout the study via a dialogue between the researcher and research participant. Federal regulations require each participant receive a copy of the signed consent document.

Please note that any revision to previously approved materials must be approved by this office prior to initiation. Please use the appropriate revision forms for this procedure.

All SERIOUS and UNEXPECTED adverse events must be reported to this office. Please use the appropriate adverse event forms for this procedure. All FDA and sponsor reporting requirements should also be followed.

All NON-COMPLIANCE issues or COMPLAINTS regarding this project must be reported promptly to the IRB.

This project has been determined to be a minimal risk project. Based on the risks, this project requires continuing review by this committee on an annual basis. Please use the completion/amendment form for this procedure. Your documentation for continuing review must be received with sufficient time for review and continued approval before the expiration date of June 20, 2017.

Please note that all research records must be retained for a minimum of three years.

Appendix B

Permission Letter

Date

Name

Address

City State

Dear Name,

I am currently enrolled at Lindenwood University in St. Charles, MO, and am in the process of writing my dissertation for a doctoral degree in Educational Administration. This letter is to formally request permission for your school district to participate in a study on the four-day school week. The goal of this study is to provide insight on the impact of the four-day school week on a variety of different indicators within school districts in Missouri.

This mixed-methods study is designed to incorporate both qualitative and quantitative data in the investigation of the four-day school week. For the quantitative portion of the research, historical data will be utilized to examine high school attendance, dropout rates, and ACT data for schools that have transitioned to the four-day calendar. These secondary data will be collected from the Missouri Department of Elementary and Secondary Education (MODESE) and utilized to determine how the switch to a four-day school week has impacted each performance indicator. Data from the last year of the five-day school week will also be examined to create a baseline and compare data to each of the subsequent years following the implementation of the four-day school week.

The second portion of this mixed study will involve qualitative research where primary data will be collected through personal interviews with administrators and teachers to determine their perceptions of the four-day school week. An administrator from each participating school will be asked to comment on the four-day school week as it relates to school climate, specifically teacher morale, teacher attendance, discipline, and finance. A teacher from each participating school will also be interviewed on how the four-day school week has impacted student learning, student morale, cognitive fatigue, and discipline. Teachers and administrators willing to participate in the interview process will meet two simple selection criteria. The criteria necessary for the selection of interview participants includes the following: (1) experience within school before and after the transition to the four-day school week and (2) be a certified staff member.

If approval is given, a principal within your school will be contacted via email. The administrators will be informed of the research email, and if they agree to participate in the research, a brief interview via phone or in person will be conducted. Each of the questions will be sent to each of the participants prior to the interview. No one will be

forced to participate, and the interview will remain anonymous. No cost will be incurred other than the time the interview will take. Input from the administrator will be used to contact a teacher willing to participate in the study.

Approval to conduct this study will be greatly appreciated. Please do not hesitate to contact me with any questions or concerns about participation at 417-██████████ or ██████████. You may also contact Dr. Shelly Fransen at 417-██████████ or ██████████. A copy of this letter and your written consent should be retained by you for future reference.

Thanks you for your consideration,

Matt Gower
Doctoral Candidate

Permission Letter

I, Name, grant permission for Matt Gower to interview an administrator and teacher within the district in order to study perceptions in regard to the four-day school week. By signing this permission form, I understand the following safeguards are in place to protect the participants:

1. I may withdraw my consent at any time without penalty.
2. The identity of the participants will remain confidential and anonymous in the dissertation or any future publications of this study.

I have read the information above, and any questions I have posed have been answered to my satisfaction. Permission, as explained, is granted.

Superintendent (Name)

Date

Appendix C

Letter of Participation

Date
Title
Position
School District or Organization
Address

Dear (Participant Name),

Thank you for participating in my research study, *Interpreting the Impact of the Four-Day School Week*. I look forward to discussing your perceptions on the four-day school week with you on (Month, Day, Time). I have allocated an hour for the interview to provide an ample amount of time to discuss the questions surrounding my study.

Enclosed you will find the interview questions to provide you time for reflection before our interview. I have also enclosed the Informed Consent Form for your review and signature. By signing this form, you agree to participate in the study.

Your participation in this research study is voluntary, and you may withdraw at any time. Confidentiality is assured. If you have any questions, please call [REDACTED] or email [REDACTED]. After the study has been completed, the results will be available at your request.

Sincerely,

Matt Gower
Doctoral Candidate
Lindenwood University

Appendix D

INFORMED CONSENT FOR PARTICIPATION IN RESEARCH ACTIVITIES

Interpreting the Impact of the Four-Day School Week: An Examination of Performance Before and After Switching to the Four-Day School Week

Principal Investigator Matt Gower Telephone: [REDACTED] E-mail: [REDACTED]

LINDENWOOD

Participant _____ Contact info _____

1. You are invited to participate in a research study conducted by Matt Gower under the guidance of Dr. Shelly Fransen. The purpose of this research is to determine the impact of the four-day school week.
2. a) Your participation will involve
 - Participating in an interview of open-ended questions regarding the four-day school week.
 - b) The amount of time involved in your participation will be approximately 30 minutes.
 - c) The interviews will be audio recorded and conducted in person or by phone. Approximately eight public school teachers and eight administrators will be involved in this research.
3. There are no anticipated risks associated with this research.
4. There are no direct benefits for you participating in this study. However, your participation will contribute to the knowledge about the four-day school week.
5. Your participation is voluntary and you may choose not to participate in this research study or to withdraw your consent at any time. You may choose not to answer any questions that you do not want to answer. You will NOT be penalized in any way should you choose not to participate or to withdraw.
6. We will do everything we can to protect your privacy. As part of this effort, your identity or personal details will not be revealed in any publication or presentation that may result from this study, and the information collected will remain in the possession of the investigator in a safe location. The investigator will protect your identity by coding each individual response. All hard copies of materials including audiotapes, notes, informed consent forms, and transcripts will remain in a locked

filing cabinet for three years after the conclusion of this study when all records will be destroyed. The electronic copies of data pertinent to this study will be saved and stored to a secure server located on the Primary Investigator's personal password-protected network and encrypted network. These files will also be deleted at the conclusion of three years. All master lists developed in the coding process will be kept in a separate locked location to ensure confidentiality.

7. If you have any questions or concerns regarding this study, or if any problems arise, you may call the Investigator, Matt Gower, [REDACTED] or the Supervising Faculty, Dr. Shelly Fransen, [REDACTED]. You may also ask questions of or state concerns regarding your participation to the Lindenwood Institutional Review Board (IRB) through contacting Dr. Marilyn Abbott, Provost, at mabbott@lindenwood.edu or 636-949-4912.

I have read this consent form and have been given the opportunity to ask questions. I will also be given a copy of this consent form for my records. I consent to my participation in the research described above.

Participant's Signature Date

Participant's Printed Name

Signature of Principal Investigator Date

Investigator Printed Name

Appendix E

Interview Questions – School Administrators

1. What differences, if any, have you noted in teacher morale since the switch to the four-day school week has occurred?
2. What changes in student morale have you noticed since the switch to the four-day school week?
3. What is your overall impression of the four-day school week?
4. Have you noticed any changes to teacher attendance patterns since the implementation of the four-day school week? If so, how do they differ?
5. How have student attendance rates been impacted since the four-day school week has been implemented?
6. Have you changed any of your attendance policies as a result of the four-day school week? If so, how?
7. How has discipline been impacted by the change to the four-day school week?
8. What savings or additional costs has the district encountered as a result of the four-day school week?

Appendix F

Interview Questions – School Teachers

1. What are some benefits you noticed in the four-day school week compared to the five-day school week?
2. What are some of the challenges associated with the four-day school week?
3. What impact do you think the four-day school week has had on student learning within your building?
4. Have you had to adjust your daily learning expectations to accommodate the four-day school week? If so, how?
5. Have you noted any differences in students' attitudes or behavior toward school since switching to the four-day school week? If so, how are they different?
6. Do students seem to like or dislike the four-day school week? What factors play into that decision?
7. How do you think the change in the length of the school day has impacted students? What are some indicators that validate this opinion?
8. Has your discipline been impacted by the change to the four-day school week? If so, how?

Appendix G

Phone Script for Contacting Participants for Interview

Hello, this is Matt Gower. I am calling you in regard to the research I am conducting in fulfillment of the requirements for the doctoral program at Lindenwood University. My study will involve examining the perceptions of administrators and teachers on the four-day school week throughout Missouri. I am requesting your participation, in the form of an interview, to gather your perceptions about the four-day school week within your school district. Thank you for your time.

References

- Abou-Assali, M. (2014). The nature of educational inquiry: Is one approach better? *IRCLR*, 3(2), 71-76.
- ACT, Inc. (2015). *The condition of college and career readiness: Missouri*. Iowa City, IA: ACT, Inc.
- Allen, J. (2013). *Updating the ACT college readiness benchmarks* (ACT Research Report Series). Iowa City, IA: ACT, Inc.
- Al Riyami, T. (2015). Main approaches to educational research. *International Journal of Innovation and Research in Educational Sciences*, 2(5), 412-416.
- Alves, I. (2017, April 9). Four-day school weeks aid rural Missouri districts. *Columbia Missourian*. Retrieved from http://www.columbiamissourian.com/news/k12_education/four-day-school-weeks-aid-rural-missouri-districts/article_17a4c7fa-1b19-11e7-97b9-6b36fd274421.html
- American Psychological Association. (2010). *Publication manual of the American Psychological Association* (6th ed.). Lancaster, PA: Author.
- Amys, R. D. (2016). *The four-day school week: Research on extended weekends* (Doctoral dissertation, Montana State University).
- Anderson, D. M., & Walker, M. B. (2015). Does shortening the school week impact student performance? Evidence from the four-day school week. *Education Finance and Policy*, 10(3), 314-349.
- Andrade, A. D. (2009). Interpretive research aiming at theory building: Adopting and adapting the case study design. *The Qualitative Report*, 14(1), 42.

- Antwi, S. K., & Hamza, K. (2015). Qualitative and quantitative research paradigms in business research: A philosophical reflection. *European Journal of Business and Management*, 7(3), 215-225.
- Baker, S. E., Edwards, R., & Doidge, M. (2012). *How many qualitative interviews is enough? Expert voices and early career reflections on sampling and cases in qualitative research*. Southampton, UK: National Centre for Research Methods.
- Blakesley, M. (2013). Exploring the relationship between time and learning. *Adminfo*, 26(1), 4-7.
- Bluman, A. (2013). *Elementary statistics: A step by step approach* (7th ed.). New York, NY: McGraw-Hill.
- Bradley, D. (2013, September 6). Could the four day week mean better students? *MSN News*. Retrieved from <https://newsela.com/articles/school-fourday/id/1000/>
- Camara, W., O'Connor, R., Mattern, K., & Hanson, M. A. (2015). *Beyond academics: A holistic framework for enhancing education and workplace success* (ACT Research Report Series). Iowa City, IA: ACT, Inc.
- Cardinale, N. (2013). *Examining the transition to a four-day school week and investigating post-change faculty/staff work-life balance: A community college case study* (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses database. (UMI No. 3596425)
- Chowdhury, M. F. (2014). Interpretivism in aiding our understanding of the contemporary social world. *Open Journal of Philosophy*, 4, 432-438.
- Creswell, J. (2012). *Research design: Qualitative and quantitative approaches* (4th ed.). Thousand Oaks, CA: SAGE Publications.

- Davy, W., & Hall, P. (2015). Four day school week: Literature review. Retrieved from <http://archive.azcentral.com/persistent/imagenes/news/PUSD%204-day%20school%20week%20report.pdf>
- Delisio, E. R. (2004). Could four-day weeks work for you? *Education World*. Retrieved from http://www.educationworld.com/a_admin/admin/admin279.shtml
- DeNisco, A. (2014). Four-day week will cut absences, superintendent says. *District Administration*. Retrieved from <https://www.districtadministration.com/article/four-day-week-will-cut-absences-superintendent-says>
- Dixon, A. (2011). *Focus on the alternative school calendar: Year-round school programs and update on the four-day school week*. Atlanta, GA: Southern Regional Education Board.
- Donis-Keller, C., & Silvernail, D. L. (2009). *Research brief: A review of the evidence on the four-day school week*. Portland, ME: Center for Education Policy, Applied Research and Evaluation, University of Southern Maine.
- Ellerson, E. (2015). *Education cuts have yet to heal: How the economic recession continues to impact our nation's schools*. Alexandria, VA: AASA.
- Ely, T., & Teske, P. (2014). *School transportation in Colorado: Implications for expanded learning time*. Denver, CO: University of Colorado.
- Farbman, D., Davis, J., Goldberg, D., & Rowland, J. (2015). *Learning time in America: Trends to reform the American school calendar: A snapshot of federal, state and local action: Spring 2015 update*. Denver, CO: Education Commission of the States.

- Feaster, R. A. (2002). *The effects of the four-day school week in Custer, South Dakota* (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses database. (UMI No. 3055138)
- Fillmore, I., & Pope, D. (2012). *The impact of time between cognitive tasks on performance: Evidence from Advanced Placement exams* (NBER Working Paper No. 18436). Retrieved from www.nber.org/papers/w18436.pdf
- Fischer, S., & Argyle, D. (2016). *Juvenile crime and the four-day school week* (No. 1606). Retrieved from <http://www.cob.calpoly.edu/undergrad/files/2016/07/paper1606.pdf>
- Fraenkel, J. P., Wallen, N. E., & Hyun, H. H. (2012). *How to design and evaluate research in education* (8th ed.). New York, NY: McGraw-Hill.
- Furrer, C. J., Magnuson, L., & Suggs, J. W. (2012). Getting them there, keeping them there: Benefits of an extended school day program for high school students. *Journal of Education for Students Placed at Risk (JESPAR)*, 17(3), 149-164.
- Fusch, P. I., & Ness, L. R. (2015). Are we there yet? Data saturation in qualitative research. *The Qualitative Report*, 20(9), 1408.
- Giger, M. (2012). *The impact of the four-day school week on student achievement* (61-683 Research Paper). Maryville, MO: Northwest Missouri State University.
- Griffith, M. (2011). *What savings are produced by moving to a four-day school week?* Denver, CO: Education Commission of the States.
- Hale, R. R. M. (2007). *A case study of the four-day school week in five South Dakota prekindergarten-12 public schools* (Doctoral dissertation, University of South Dakota).

- Hanson, C. M. (2014). *Superintendent perceptions of professional development quality in South Dakota school districts implementing a four-day school calendar* (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses database. (UMI No. 3640265)
- Hedtke, J. T. (2014). *The four-day versus the five-day school week: A comparative study of South Dakota schools* (Doctoral dissertation, North Dakota State University).
- Hewitt, P. M., & Denny, G. S. (2011). The four-day school week: Impact on student academic performance. *The Rural Educator*, 32(2), 23-31.
- Hill, P., & Heyward, G. (2015). *The four-day school week in rural Idaho schools*. Boise, ID: Rural Opportunities Consortium of Idaho.
- Johnson, C. (2013). *The four day school week: A case study examining three stages of implementation* (Doctoral dissertation, University of Missouri-Columbia).
- Klaassen, E. B., Plukaard, S., Evers, E. A., de Groot, R. H., Backes, W. H., ... Jolles, J. (2016). Young and middle-aged schoolteachers differ in the neural correlates of memory encoding and cognitive fatigue: A functional MRI study. *Frontiers in Human Neuroscience*, 10, 148.
- Knapp, K. (2014). *The influence of a four day school week on ACT scores* (Doctoral dissertation, Northwest Missouri State University).
- Kordosky, D. L. (2013, December 24). Most-read of 2013: #9, the four-day school week. *Crosscut*. Retrieved from <http://crosscut.com/2013/12/9-most-read-2013-four-day-school-week-why-less-rea/>

- Leachman, M., Albares, N., Masterson, K., & Wallace, M. (2016). *Most states have cut school funding, and some continue cutting*. Washington, DC: Center on Budget and Policy Priorities.
- Leiseth, B. J. (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. (UMI No. 3320532)
- Mann, R. (2016). Many Missouri school districts cite benefits of four-day weeks. Retrieved from <http://www.kttm.com/many-missouri-school-districts-cite-benefits-of-four-day-weeks/>
- Mattern, K., Burrus, J., Camara, W., O'Connor, R., Hanson, M. A., ...Bobek, B. (2014). *Broadening the definition of college and career readiness: A holistic approach* (ACT Research Report Series 2014). Iowa City, IA: ACT, Inc. Retrieved from http://www.act.org/research/researchers/reports/pdf/ACT_RR2014-5.pdf
- Maxwell, J. A. (2013). *Qualitative research design: An interactive approach* (3rd ed.). Thousand Oaks, CA: Sage Publications.
- McNeish, D. M., Radunzel, J., & Sanchez, E. (2015). *A multidimensional perspective of college readiness: Relating student and school characteristics to performance on the ACT* (ACT Research Report Series 2015). Iowa City, IA: ACT, Inc.
- 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.

- Missouri Department of Elementary and Secondary Education. (2013). School calendar requirements. Retrieved from <https://dese.mo.gov/sites/default/files/sf-BSchoolCalendarRequirements.pdf>
- Missouri Department of Elementary and Secondary Education. (2015). More Missouri graduates take the ACT exam. Retrieved from <https://dese.mo.gov/communications/news-releases/more-missouri-graduates-take-act-exam>
- Missouri Department of Elementary and Secondary Education. (2016a). ACT. Retrieved from <https://dese.mo.gov/college-career-readiness/assessment/act>
- Missouri Department of Elementary and Secondary Education. (2016b). ACT. Definitions for school report card pages. Retrieved from <https://dese.mo.gov/data-system-management/definitions-school-report-card-pages>
- Missouri School Calendar Act, Mo. Stat. §§ 171-029-1 (2016).
- Muir, M. (2013). *The four day school week* (Research Brief). Southfield, MI: Education Partnerships, Inc.
- Mullette-Gillman, O. A., Leong, R. L. F., & Kurnianingsih, Y. A. (2015). Cognitive fatigue destabilizes economic decision making preferences and strategies. *PLOS*. Retrieved from <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0132022>
- Mykerezi, E., & Nash, A. (2012). *The impact of the four-day school week on travel among households with children in Minnesota*. St. Paul, MN: University of Minnesota Extension Center for Community Vitality.

- National Conference of State Legislatures. (2013). Four-day school weeks. Retrieved from <http://www.ncsl.org/issues-research/educ/school-calendar-four-day-schoolweeksoverview.aspx>
- Oliff, P., Mai, C., & Leachman, M. (2012). *New school year brings more cuts in state funding for schools*. Washington, DC: Center on Budget and Policy Priorities.
- Pedersen, J. M. (2012). The history of school and summer vacation. *Journal of Inquiry and Action in Education*, 5(1), 4.
- Penn, J. (2016). *The four-day school week information manual*. Denver, CO: Colorado Department of Education.
- Plucker, J. A., Cierniak, K., & Chamberlin, M. (2012). *The four-day school week: Nine years later* (Education Policy Brief). Bloomington, IN: Center for Evaluation and Education Policy, Indiana University.
- Preston, J. P., Jakubiec, B. A., & Kooymans, R. (2013). Common challenges faced by rural principals: A review of the literature. *Rural Educator*, 35(1), 1-12. Retrieved from <http://files.eric.ed.gov/fulltext/EJ1022612.pdf>
- Reed, S. J. (2016). *Identifying learning acquired during debriefing* (Doctoral dissertation, University of Nevada-Las Vegas).
- Ritchie, J., Lewis, J., Elam, R. G., Tennant, R., & Rahim, N. (2013). Designing and selecting samples. In J. Ritchie, J. Lewis, C. M. Nicholls, & R. Ormston (Eds.), *Qualitative research practice: A guide for social science students and researchers* (pp. 111-146). Thousand Oaks, CA: Sage Publications.
- Roeth, J. E. (1985). *Implementing the four-day school week into the elementary and secondary public schools* (Doctoral dissertation, Ball State University).

- Rose, R. (2016). Learning from each other: Respecting cultural differences in an international research agenda. *Revista Brasileira de Educação Especial*, 22(2), 167-174.
- Rowland, J. (2014a). *How does education in my state compare? What every governor, chief, legislator, or other elected official needs to know*. Denver, CO: Education Commission of the States.
- Rowland, J. (2014b). *Number of instructional days/hours in the school year*. Denver, CO: Education Commission of the States.
- Rowlands, B. H. (2005). Grounded in practice: Using interpretive research to build theory. *The Electronic Journal of Business Research Methodology*, 3(1), 81-92.
- Sagness, R. L., & Salzman, S. A. (1993, October). *Evaluation of the four-day school week in Idaho suburban schools*. Paper presented at the Annual Meeting of the Northern Rocky Mountain Educational Research Association, Jackson, WY.
- Sanchez, M., London, R., & Castrechini, S. (2015). *The dynamics of chronic absence and student achievement* (SSRN 2743041). Rochester, NY: Social Science Research Network.
- Sauter, M., Allen, A., Hess, A., & Nelson, L. (2012). Eight states slashing local funding. Retrieved from <http://247wallst.com/special-report/2012/06/20/eight-states-slashing-local-funding/>
- Schreier, C. (2013). *Student achievement in a four day school week vs. five day school week* (Doctoral dissertation, Northwest Missouri State University).

- Sheehy, K. (2012, October 15). *4 day school week statistics: Pros and cons debate* [Web log post]. Retrieved from <https://www.usnews.com/education/blogs/high-school-notes/2012/10/15/educators-at-some-high-schools-tout-benefits-of-4-day-week>
- Sievertsen, H. H., Gino, F., & Piovesan, M. (2016). Cognitive fatigue influences students' performance on standardized tests. *Proceedings of the National Academy of Sciences, 113*(10), 2621-2624.
- Skogen, M. (2012). *Four-day school week: A viable option for small public schools*. Great Falls, MT: University of Great Falls.
- Taylor, P. C., & Medina, M. N. D. (2013). Educational research paradigms: From positivism to multiparadigmatic. *The Journal of Meaning-Centered Education, 1*(2), 1-13.
- Tharp, T. W. (2014). *A comparison of student achievement in rural schools with four and five day weeks* (Doctoral dissertation, Washington College).
- Tharp, T. W., Matt, J., & O'Reilly, F. L. (2016). Is the four-day school week detrimental to student success? *Journal of Education and Training Studies, 4*(3), 126-132.
- Thomason, B. (2013). *Effectiveness of the four day school week on end of course exam scores in both communication arts and math* (Doctoral dissertation, Northwest Missouri State University).
- United States Bureau of Labor and Statistics. (2012). BLS spotlight on statistics: The recession of 2007-2009. Retrieved from http://www.bls.gov/spotlight/2012/recession/pdf/recession_bls_spotlight.pdf
- Venkatesh, V., Brown, S. A., & Bala, H. (2013). Bridging the qualitative-quantitative

divide: Guidelines for conducting mixed methods research in information systems. *MIS Quarterly*, 37(1), 21-54.

Woods, J. (2015). *Instructional time trends*. Denver, CO: Education Commission of the States.

Yanow, D., & Schwartz-Shea, P. (2015). *Interpretation and method: Empirical research methods and the interpretive turn*. Abingdon, UK: Routledge.

Yazan, B. (2015). Three approaches to case study methods in education: Yin, Merriam, and Stake. *The Qualitative Report*, 20(2), 134-152.

Vita

Matthew L. Gower completed his undergraduate studies at Missouri State University in 2006. He earned his Bachelor of Science degree in Earth Science Education. He then extended his education by earning a Master of Science degree in Educational Administration in 2011 from Missouri State University.

Matthew began his career in public education as a high school science teacher at Kickapoo High School in Springfield, Missouri, from 2006 to 2015. Following this nine-year period at Kickapoo High School, Mr. Gower accepted an administrative position as a secondary principal at Purdy R-II in Purdy, Missouri. Matthew is currently a member of the Missouri Association of Secondary School Principals and is involved in the Administrator Mentoring Project (AMP) and Project LINC.