Memo: What research evidence exists on the four-day school week (4DSW) at primary and secondary schools in the United States?

To:	George Mendoza, Superintendent, La Grande School District, Oregon
From:	Sean Grant, Research Associate Professor, HEDCO Institute for Evidence-Based Educational Practice, College of Education, University of Oregon
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This memorandum is a rapid response to a request for research evidence on the four-day school week (4DSW) at primary and secondary schools in the United States. The search term "four-day school week" was used in Google Scholar to find empirical studies: i.e., research that systematically collects and analyzes data on 4DSWs at the elementary, middle, and/or high school levels. The citation and abstract are provided for each relevant study that had a full-text report identified through the search. Studies are listed in chronological order, not necessarily in order of relevance. Given the rapid nature of this search, the quality of these studies has not been evaluated, and other relevant studies may exist.

The search identified 86 empirical studies:

- 24 peer-reviewed manuscripts (pages 2-10)
- 10 working papers (pages 11-14)
- 52 dissertations and theses (pages 15-40)

Peer-Reviewed Manuscripts

Morton, E. (2022). Effects of 4-Day School Weeks on Older Adolescents: Examining Impacts of the Schedule on Academic Achievement, Attendance, and Behavior in High School. *Educational Evaluation and Policy Analysis*. doi: 10.3102/01623737221097420

Four-day school weeks have proliferated across the United States in recent years, reaching over 650 public school districts in 24 states as of 2019, but little is known about their implementation and there is no consensus on their effects on students. This study uses district-level panel data from Oklahoma and a difference-in-differences research design to provide estimates of the causal effect of the 4-day school week on high school students' ACT scores, attendance, and disciplinary incidents during school. Results indicate that 4-day school weeks decrease per-pupil bullying incidents by approximately 39% and per-pupil fighting incidents by approximately 31%, but have no detectable effect on other incident types, ACT scores, or attendance.

Thompson, P. N., Tomayko, E. J., Gunter, K. B., & Schuna, J. (2022). Impacts of the four-day school week on high school achievement and educational engagement. *Education Economics*, *30*(5), 527–539.

Four-day school week schedules are being adopted with increasing frequency, particularly in rural areas. In this paper, we consider the academic implications of students in Oregon attending a four-day school week for the first time when they enter high school. We find 11th grade math achievement in 0.09 standard deviations lower among four-day school week students, with significant impacts driven by four-day school week students in non-rural settings. We also find a greater number of four-day school week students being classified as chronically absent. Finally, we find reductions in on-time graduation among four-day school week students compared to five-day students.

Thompson, P. N., & Ward, J. (2022). Only a matter of time? The role of time in school on four-day school week achievement impacts. *Economics of Education Review*, *86*, 102198.

Previous evidence has shown disparate achievement impacts of the four-day school week within specific states. This paper examines the effects of the four-day school week on achievement across 12 states to contextualize these four-day school week impacts nationally. We estimate these effects using a difference-in-differences design with data from the Stanford Educational Data Archive and a proprietary longitudinal national database of four-day school week use from 2009 to 2018. We find reductions in both math and English/language arts achievement when examining four-day school weeks nationally, but these aggregate effects appear to be masking important heterogeneity due to differences in overall time in school across districts. When stratifying four-day week districts into districts with low, middle, and high levels of time in school, we find statistically significant negative effects on math achievement for four-day school week districts with low time in school, but no statistically significant effects for four-day school week districts with middle or high time in school. Our findings suggest that maintaining sufficient overall time in school should be a key consideration for school districts contemplating four-day school week adoption.

Anglum, J. C., & Park, A. (2021). Keeping Up With the Joneses: District Adoption of the 4-Day School Week in Rural Missouri. *AERA Open*, *7*.

In recent years, rural school district adoption of 4-day school weeks has grown markedly. Despite this rapid growth, scant empirical evidence has documented the factors associated with district adoption and subsequent effects on student, labor, and economic outcomes. We examine the spread of the 4-day school week in rural Missouri, where over 10% of the state's districts have adopted the policy in the past decade, the majority over the past 2 years. To help policymakers understand why districts forgo a day of instruction and to contextualize post-policy effects, we conduct a survival analysis to assess student, district, and staff characteristics associated with policy adoption. We find that the presence of nearby 4-day school week districts most strongly predicts policy adoption. Adopting districts typically offer lower teacher salaries than nearby districts and have declining student enrollments. Our findings may inform policy focused on teacher recruitment and retention in rural locales.

Kilburn, M. R., Phillips, A., Gomez, C. J., Mariano, L. T., Doss, C. J., Troxel, W. M., Morton, E., & Estes, K. (2021). Does Four Equal Five? Implementation and Outcomes of the Four-Day School Week. RR-A373-1. RAND Corporation.

The four-day school week (4dsw) is growing in popularity, especially in rural areas across the western United States. RAND Corporation researchers addressed knowledge gaps about the 4dsw by conducting a large-scale study of the implementation and outcomes of the 4dsw that involved the collection of original data in numerous districts across Idaho, New Mexico, and Oklahoma, as well as administrative data from these and other states. The researchers analyzed both qualitative and quantitative data to compare the 4dsw and five-day school week (5dsw). The analyses resulted in mixed findings. Advocates of the 4dsw argue that the shorter week saves money, improves student attendance, and helps recruit and retain teachers in rural districts. Cost savings related to the four-day model were relatively small, but savings due to a 4dsw may be used to maintain the level of instructional expenses in the face of revenue shortages. There was no quantitative evidence that the 4dsw improved student attendance. Qualitative data supported the view that the model helps attract and retain teachers. Families and students reported highly valuing the extra time that the 4dsw allowed them to spend together, and the data showed that, overall, stakeholders experienced high levels of satisfaction with the 4dsw. However, a comparison of English language arts and math test scores showed that students on the 4dsw have lower scores, over time, when compared with peers on a five-day schedule. Given these mixed findings, communities are likely to make different choices about the 4dsw depending on their goals and the local context.

Key Findings

- On average, 4dsw districts had longer school days, but fewer of them and fewer instructional hours over the course of a school year.
- Students on 4dsw schedules in grades K–6 and 7–12 reported having 4 hours and 3.5 hours of more free time per week, respectively, than 5dsw students.
- Superintendents and school board members in districts visited by the researchers said that cost savings were the major motivation for adopting the 4dsw.

- Most teachers viewed the 4dsw only as a "job perk"; other stakeholders thought it gave them a competitive advantage in teacher recruitment and retention.
- School principals, teachers, parents, and students reported believing that students learned just as much or slightly more in the 4dsw than in a 5dsw, and that the difference in minutes of instructional time had no real effect on student achievement.
- Student achievement did not grow as fast in the 4dsw districts after the adoption of the 4dsw policy compared with similar 5dsw districts.
- Elementary students in 4dsw districts got more school-week sleep than their peers in 5dsw districts, but there was no difference in the amount of sleep that middle and high school students got during the school week in 4dsw and 5dsw districts.
- Formal modeling of survey results on elementary parents indicated no significant difference in the perceived stress of 4dsw and 5dsw parents. However, focus group parents across all 4dsw districts felt it allowed more flexibility in their schedules and made it easier to spend time together as family.

Morton, E. (2021). Effects of Four-Day School Weeks on School Finance and Achievement: Evidence From Oklahoma. *Educational Researcher*, *50*(1), 30–40.

Motivated by potential financial savings, 4-day school weeks have proliferated across the United States in recent years, reaching public schools in 24 states as of 2019. The consequences of the 4-day school week for students, schools, and communities are largely unknown. This article uses district-level panel data from Oklahoma and difference-in-differences research design to examine the causal effect of the 4-day schedule on school district finance and academic achievement. Results indicate that 4-day weeks decrease districts' federal revenues and their noninstructional and support services expenditures. Decreases are concentrated specifically in operations, transportation, and food services expenditures and amount to approximately 2.03% of the average 4-day district's budget. There is no detectable effect of the 4-day week on academic achievement.

Thompson, P. N., Gunter, K., Schuna, Jr., John M., & Tomayko, E. J. (2021). Are All Four-Day School Weeks Created Equal? A National Assessment of Four-Day School Week Policy Adoption and Implementation. *Education Finance and Policy*, *16*(4), 558–583.

Four-day school weeks are used in over 1,600 schools across twenty-four states but little is known about adoption and implementation of these types of school calendars. Through examinations of school calendars and correspondence with school districts, we have compiled the most complete four-day school week dataset to date. We use this unique database to conduct a comprehensive analysis of four-day school week policy adoption and implementation. We find adoption of four-day school weeks is often financially motivated and has generally remained a small, rural district phenomenon. These schedules feature a day off once a week—often Friday—with increased time in school on each of the remaining four school days that, on average, is nearly an hour longer than the national average among five-day schools. Four-day school week schedules average only 148 school days per year, resulting in less time in school than the national average for five-day schools (180 days per year) despite the longer school days. Substantial heterogeneity exists in the structure of these schedules across states, which may help

explain differential four-day school week effects on student outcomes across institutional settings in the previous literature.

Thompson, P. N. (2021a). Is four less than five? Effects of four-day school weeks on student achievement in Oregon. *Journal of Public Economics*, *193*, 104308.

The achievement impacts of educational input quality have been well documented, but the quantity of exposure to the school environment – as measured by instructional time – also has profound impacts on students. This study examines the achievement impacts of a key instructional time reducing cost savings policy – the four-day school week. Using 3rd through 8th grade test scores from Oregon from 2005 to 2019 in a difference-in-differences analysis, I find that math test scores decrease by between 0.037 and 0.059 standard deviations and reading scores decrease by between 0.033 and 0.042 standard deviations following the switch to the four-day school week. It appears that reductions in time in school, which amount to three to four hours per week, largely drive these achievement declines. Using four-day school week adoption as an instrument for weekly time in school, I find that a one-hour increase in weekly time in school leads to a 0.018 standard deviation increase in math achievement and a 0.006 standard deviation increase in reading achievement. Finally, I compare the cost savings-achievement trade-off of the four-day school week with other traditional cost savings approaches and find that the four-day school week yields a comparable cost savings-achievement trade-off to many of these other interventions.

Thompson, P. N. (2021b). Does a Day Lost Equal Dollars Saved? The Effects of Four-Day School Weeks on School District Expenditures. *National Tax Journal*, *74*(1), 147–183.

Although four-day school weeks often have financial justifications, researchers know little about whether they save school districts money. This study examines the dynamics of school district expenditures surrounding the adoption of four-day school weeks using a self-collected nationwide panel of four-day school week use from 1999 to 2017 combined with disaggregated school district expenditure data. The study finds that districts use the four-day school week in conjunction with preexisting instructional expenditure reduction policies and that the four-day school week reduces support services expenditures due to decreased educational service provision.

Tomayko, E. J., Thompson, P. N., Smith, M. C., Gunter, K. B., & Schuna Jr., J. M. (2021). Impact of Reduced School Exposure on Adolescent Health Behaviors and Food Security: Evidence From 4-Day School Weeks. *Journal of School Health*, *91*(12), 1055–1063.

Four-day school week (FDSW) use has increased substantially among US districts in recent years, but limited data exist on health impacts of this school schedule. This study examined associations of reduced school exposure via FDSWs with adolescent health and risk behaviors, obesity, and food security. Self-report data from 8th- and 11th-grade students from the Oregon Healthy Teens survey across 5 survey years (odd years 2007-2015, total N = 91,860-104,108 respondents depending on the survey question) were linked to a FDSW indicator. Regression analyses controlling for student and school characteristics compared outcomes between students in 4- and 5-day schools overall (without school fixed effects) and outcomes associated with switching to a FDSW (with school fixed effects). When controlling for multiple student- and

school-level factors, we observed adolescents in FDSW schools report they consume sugar sweetened beverages more frequently and water less frequently, have access to fewer days of physical education, are more likely to be food insecure, and are more likely to report the use of any drugs and specifically marijuana than 5-day school week students. Limiting exposure to the school environment via FDSWs may impact adolescent health behaviors, including diet, physical activity, and drug use.

Israel, W., Mulitauopele, C., Ma, M., Levinson, A. H., Cikara, L., & Brooks-Russell, A. (2020). Adolescent Health Behaviors in Schools with 4- Versus 5-Day School Weeks. *Journal of School Health*, *90*(10), 794–801.

The adoption of a shortened school week from the traditional 5 to 4 days is increasing nationwide. Budgetary and staffing needs are driving the change, yet research on the effects on students is lacking, especially regarding student health. Our study examined student health in 4 vs 5-day schools in Colorado, a state with one of the highest numbers of schools with a 4-day week. Data are from a population-based survey of high-school students. Student responses were weighted to school enrollment, and schools were classified by length of the school week. Indicators of health behaviors and outcomes were compared between the two groups, adjusted for student and school characteristics. A 4-day school week was associated with several positive health outcomes (improved student engagement, decreased substance use behaviors, decreased non-school screen time, and increased physical activity) as well as several negative health outcomes (increased bullying, increased sexual activity, decreased sleep, and breakfast consumption). Our study found mixed health outcomes associated with attending schools with shortened weeks. The findings may be related to longer school days and a non-contact day, but further research is needed.

Maiden, J., Crowson, H. M., & Byerly, C. (2020). The Influence of the Adoption of a School District Four Day Instructional Week on Teacher Retention. *Journal of Education Finance*, *46*(2), 117–139.

A primary purpose of common education is to ensure high quality learning for all children, and a good education is predicated on high quality teachers in classrooms. An important goal of local school districts, therefore, is to both recruit promising teachers and also to retain outstanding teachers. Concomitantly, school districts in several states, including Oklahoma, have been adopting four-day instructional weeks. Anecdotally, the four-day instructional week is perceived as giving districts a competitive advantage in both recruiting and retaining teachers. Given this context, the purpose of the current study was to examine the relationship between local district characteristics and fiscal decisions and rates of teacher retention, with a focus of the effects of adoption of a four-day instructional week on teacher retention. Oklahoma serves as the context of the study for two primary reasons. First, teacher retention is particularly important in Oklahoma given the increasing severity of the teacher shortage. And second, an increasing number of school districts are adopting the alternative four-day instructional week, with approximately 20 percent of local districts operating under this calendar in 2018. Basically, the results indicate that the existence of the four-day instructional week had no significant interaction effects with other variables included in the model. The study provides no evidence

that implementation of the four-day week will improve teacher retention over time, controlling for other relevant predictive factors. It might be noted that a substantial number of districts did not adopt the four-day instructional week until 2017, which may affect the overall finding. Given this, additional study with a more robust number of districts operating under a four-day instructional week is needed.

Tomayko, E. J., Gunter, K. B., Schuna, J. M., & Thompson, P. N. (2020). Effects of Four-Day School Weeks on Physical Education Exposure and Childhood Obesity. *Journal of Physical Activity and Health*, *17*(9), 902–906.

Use of 4-day school weeks (FDSWs) as a cost-saving strategy has increased substantially as many US school districts face funding declines. However, the impacts of FDSWs on physical activity exposure and related outcomes are unknown. This study examined physical education (PE) exposure and childhood obesity prevalence in 4- versus 5-day Oregon schools; the authors hypothesized lower PE exposure and higher obesity in FDSW schools, given reduced school environment exposure. The authors utilized existing data from Oregon to compare 4- versus 5-day models: t tests compared mean school-level factors (PE exposure, time in school, enrollment, and demographics) and complex samples weighted t tests compared mean child-level obesity data for a state representative sample of first to third graders (N = 4625). Enrollment, time in school, and student–teacher ratio were significantly lower in FDSW schools. FDSW schools provided significantly more PE, both in minutes (120 vs 101 min/wk in 4- vs 5-d schools, $P < .01$) and relative to total time in school (6.9% vs 5.0%, $P < .0001$). Obesity prevalence did not differ significantly between school models. Greater PE exposure in FDSW schools was observed, and it remains unknown whether differences in PE exposure contributed to obesity prevalence in this sample of students. Efforts to better understand how FDSWs impact physical activity, obesity risk, and related factors are needed.

Turner, J., Finch, K., & Uribe-Zarain, X. (2019). Three Midwest Rural School Districts' First Year Transition to the Four Day School Week: Parents' Perspectives. *Rural Educator*, *40*(1), 1–15.

The four-day school week is a concept that has been utilized in rural schools for decades to respond to budgetary shortfalls. There has been little peer-reviewed research on the four-day school week that has focused on the perception of parents who live in school districts that have recently switched to the four-day model. This study collected data from 584 parents in three rural Missouri school districts that have transitioned to the four-day school week within the last year. Quantitative statistical analysis identifies significant differences in the perceptions of parents classified by the age of children, special education identification, and free and reduced lunch status. Strong parental support for the four-day school week was identified in all demographic areas investigated; however, families with only elementary aged children and families with students receiving special education services were less supportive than other groups.

Fischer, S., & Argyle, D. (2018). Juvenile crime and the four-day school week. *Economics of Education Review*, *64*, 31–39.

We leverage the adoption of a four-day school week across schools within the jurisdiction of rural law enforcement agencies in Colorado to examine the causal link between school

attendance and youth crime. Those affected by the policy attend school for the same number of hours each week as students on a typical five-day week; however, treated students do not attend school on Friday. This policy allows us to learn about two aspects of the school-crime relationship that have previously been unstudied: one, the effects of a frequent and permanent schedule change on short-term crime, and two, the impact that school attendance has on youth crime in rural areas. Our difference-in-difference estimates show that following policy adoption, agencies containing students on a four-day week experience about a 20% increase in juvenile criminal offenses, where the strongest effect is observed for property crime.

Turner, J., Finch, K., & Uribe-Zarain, X. (2018a). Staff Perspectives of the Four-Day School Week: A New Analysis of Compressed School Schedules. *Journal of Education and Training Studies*.

The four-day school week is a concept that has been utilized in rural schools for decades to respond to budgetary shortfalls. There has been little peer-reviewed research on the four-day school week that has focused on the perception of staff that work in school districts that have recently switched to the four-day model. This study collects data from 136 faculty and staff members in three rural Missouri school districts that have transitioned to the four-day school week within the last year. Quantitative statistical analysis identifies strong support of the four-day school week model from both certified educational staff and classified support staff perspectives. All staff responded that the calendar change had improved staff morale, and certified staff responded that the four-day week had a positive impact on what is taught in classrooms and had increased academic quality. Qualitative analysis identifies staff suggestions for schools implementing the four-day school week including the importance of community outreach prior to implementation. No significant differences were identified between certified and classified staff perspectives. Strong staff support for the four-day school week was identified in all demographic areas investigated. Findings support conclusions made in research in business and government sectors that identify strong employee support of a compressed workweek across all work categories.

Turner, J., Finch, K., & Uribe-Zarain, X. (2018b). The Economics of a Four-Day School Week: Community and Business Leaders' Perspectives. *Applied Economics and Finance*.

The four-day school week is a concept that has been utilized in rural schools in the United States for decades and the number of schools moving to the four-day school week is growing. In many rural communities, the school district is the largest regional employer which provides a region with permanent, high paying jobs that support the local economy. This study collects data from 71 community and business leaders in three rural school districts that have transitioned to the four-day school week within the last year. Quantitative statistical analysis is used to investigate the perceptions of community and business leaders related to the economic impact upon their businesses and the community and the impact the four-day school week has had upon perception of quality of the school district. Significant differences were identified between community/business leaders that currently have no children in school as compared to community/business leaders with children currently enrolled in four-day school week schools. Overall, community/business leaders were evenly divided concerning the economic impact on

their businesses and the community. Community/business leaders' perceptions of the impact the four-day school week was also evenly divided concerning the impact on the quality of the school district. Slightly more negative opinions were identified related to the economic impact on the profitability of their personal businesses which may impact considerations by school leaders. Overall, community/business leaders were evenly divided when asked if they would prefer their school district return to the traditional five-day week school calendar.

Strang, K., & Shimer, M. (2017). Compressed school week cultural bias against English Second Language student performance on standardized exams. *Global Journal of Human-Social Sciences-G: Linguistics & Education*, *17*(5), 37–48.

Financial constraints have driven K-12 schools in the isolated mountain regions of USA to reduce costs by shortening the teaching week. These regions have a high relative population of Hispanic Mexican immigrants who are English Language Learners (ELL). Hispanic immigrants come to USA to work but generally at low wages so it is a financial strain to pay childcare during the week to avoid losing a day of work. At the same time teachers are under pressure from the No Child Left Behind national initiative to ensure all students pass standardized tests. There is some evidence that shorter school weeks does not negatively impact student learning. However, we argue that a shorter school week negatively impacts ELL student performance on standardized exams, and if this were true it would be unfair to immigrants so the practice should be changed. We empirically tested the effectiveness of various school week formats using a large sample of rural schools in Oregon with a high concentration of ELL students from Hispanic Mexican cultures (N=628).

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.

School districts across the United States are implementing four-day school weeks. This study looks at the relationship between student achievement in the four-day school week compared to student achievement in the five-day school week. This analysis focused on a common criteria referenced test given to all students over a period of seven years in a single western state. The study provided conclusive evidence that students in the four-day week did not performed as well, over time, when compared to students in the traditional five-day week settings.

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.

School districts use a variety of policies to close budget gaps and stave off teacher layoffs and furloughs. More schools are implementing four-day school weeks to reduce overhead and transportation costs. The four-day week requires substantial schedule changes as schools must increase the length of their school day to meet minimum instructional hour requirements. Although some schools have indicated this policy eases financial pressures, it is unknown whether there is an impact on student outcomes. We use school-level data from Colorado to investigate the relationship between the four-day week and academic performance among elementary school students. Our results generally indicate a positive relationship between the four-day week and performance in reading and mathematics. These findings suggest there is little

evidence that moving to a four-day week compromises student academic achievement. This research has policy relevance to the current U.S. education system, where many school districts must cut costs.

Hewitt, P. M., & Denny, G. S. (2011). The Four-Day School Week: Impact on Student Academic Performance. *Rural Educator*, *32*(2), 23–31.

Although the four-day school week originated in 1936, it was not widely implemented until 1973 when there was a need to conserve energy and reduce operating costs. This study investigated how achievement tests scores of schools with a four-day school week compared with schools with a traditional five-day school week. The study focused on student performance in Colorado where 62 school districts operated a four-day school week. The results of the Colorado Student Assessment Program (CSAP) were utilized to examine student performance in reading, writing, and mathematics in grades 3 through 10. While the mean test scores for five-day week schools exceeded those of four-day week schools in 11 of the 12 test comparisons, the differences were slight, with only one area revealing a statistically significant difference. This study concludes that decisions to change to the four-day week should be for reasons other than student academic performance.

Richhurg, R. W., & Sjogren, D. D. (1983). The Four-Day Week—What Are the Advantages for Schools? *NASSP Bulletin*, *67*(459), 60–63.

Experience in 12 Colorado school districts suggests that implementation of a four-day school week can offer several benefits, including savings in fuel costs, decreased absenteeism, improved efficiency in activity-oriented classes, increased staff development time, and a flexible "fifth day" for extracurricular activities.

Richburg, R. W., & Sjogren, D. D. (1982). The Four-Day School Week. *The Phi Delta Kappan*, *63*(9), 622–625.

Twelve Colorado school districts changed to a four-day week during the 1980-81 school year. This article discusses the advantages of the move and offers some cautions.

Jenkins, J. R., & Gorrafa, S. (1973). The Four Day School Week: Scheduling Effects. *The Journal of Educational Research*, *66*(10), 479–480.

Using a time-series design, the effects of variations in the scheduling of were examined. A performance measure in reading indicated that children completed more work under a schedule of clearly demarcated enrichment and skill learning activities

Working Papers (papers shared without formal peer review)

Morton, E., Thompson, P., & Kuhfeld, M. (2022). *A Multi-State, Student-Level Analysis of the Effects of the Four-Day School Week on Student Achievement and Growth*. EdWorkingPapers (No. 22-630).

Four-day school weeks are becoming increasingly common in the United States, but their effect on students' achievement is not well-understood. The small body of existing research suggests the four-day schedule has relatively small, negative average effects (~-0.02 to -0.09 SD) on annual, standardized state test scores in math and reading, but these studies include only a single state or are limited by using district-level data. We conduct the first multi-state, student-level analysis that estimates the effect of four-day school weeks on student achievement and a more proximal measure of within-year growth using NWEA MAP Growth assessment data. We conduct difference-in-differences analyses to estimate the effect of attending a four-day week school relative to attending a five-day week school. We estimate significant negative effects of the schedule on spring reading achievement (-0.07 SD) and fall-to-spring achievement gains in math and reading (-0.06 SD in both). The negative effects of the schedule are disproportionately larger in non-rural schools than rural schools and for female students, and they may grow over time. Policymakers and practitioners will need to weigh the policy's demonstrated negative average effects on achievement in their decisions regarding how and if to implement a four-day week.

Nowak, A., Perrone, F., & Smith, P. S. (2019). *The Unintended Consequences of a Four-Day School Week on House Prices: Evidence from a Quasi-Natural Experiment in Colorado* (SSRN Scholarly Paper No. 3435674).

Faced with decreasing funds, increasing costs, and the inability to recruit and retain quality teachers, a growing number of school districts across the United States are switching to four-day school weeks. Because the four-day school week has historically been relegated to rural communities, no study has investigated how homeowners value the policy using market-based measures. Using housing transaction data from the first school district in a major metropolitan area to convert to a four-day school week, we examine homeowners' valuation of the policy change. We found that house prices decreased 2 to 5 percent relative to surrounding school districts soon after the policy was announced.

Ward, J. (2019). *The Four-day School Week and Parental Labor Supply* (SSRN Scholarly Paper No. 3301406).

In this study I explore effects of adoption of the four-day school week policy, a permanent reduction in annual days of schooling, on parental labor supply and related outcomes. Using a difference-in-differences empirical model, I estimate causal effects of four-day school week adoption on parental employment, hours worked, weeks worked, earnings, and location choice across four states—CO, ID, OK, OR—with large increases in the use of the policy in the last decade. Estimates indicate that, among mothers with children all between ages 5 and 13, increasing four-day week enrollment from zero to 25 percent of an area's students causes an 11% decrease in employment (7.6 percentage points) and decreases of a similar magnitude in hours and weeks worked, and the probability of reporting any wage or salary income, relative to

baseline levels. In contrast to these estimates, among single mothers I find no negative employment effects and also find that the policy led to an 18% increase in the incidence of working year-round relative to working fewer weeks per year. The labor supply of married fathers was not affected by adoption of the four-day school week in a statistically significant manner. Finally, I estimate small but precise increases in moving in response to the policy in subsequent years and show that there is significant heterogeneity in labor supply responses among married mothers according to educational level, with most of the negative effects accruing to mothers with a four-year college degree or greater.

Barber, A. (2018). *Four-Day School: Too Legit to Quit? Labor Supply Responses to the Adoption of Compressed School Weeks*.

This paper examines the effects of four-day school week adoption on teachers' labor supply decisions. Using data from Oklahoma employment records, I find preliminary evidence suggestive of this scheduling change reducing the attrition rate for teachers by 1 to 3 percentage points or roughly 7-20 percent following the year of adoption. This appears to be largely driven by new teachers with 0 experience. There is also evidence that the policy leads to an increase in the average experience of teachers teaching at four-day schools relative to similar untreated schools.

Mykerezi, E., & Nash, A. (2012). *The Impact of the Four-day School Week on Travel among Households with Children in Minnesota*. University of Minnesota Extension Center for Community Vitality.

Between 2008 and 2012, thirteen Minnesota school districts switched from the traditional five-day school week to a four-day week, giving students one additional day off each week. This study examined the impact that the adoption of a four-day school week has had on the travel patterns of households with children in Minnesota. The study found that the four-day school schedule caused statistically significant, sizable increases in "day trips"—trips that are at least 50 miles away from home but require no overnight stay. The number and nature of "weekend trips" remained unaffected by the four-day week. The study found that households in four and five-day districts took the same number of trips, with a similar number of travelers, had similar lengths of stay and spent similar amounts of money on weekend trips. The increase in day trips may, however, have come at the cost of longer vacation travel—trips of five days or longer. The study found a significantly smaller number of longer trips reported by parents in four-day districts than by similar parents in five-day districts. Approximately one in three families took one less long trip over a two-year period, due to the four-day week (a 27 percent change from the number of trips taken by the average family in this sample). This resulted in a similar percent drop in nights spent in hotels (nearly 1.5 nights for a 28 percent decline) and overall expenditures ($675 for a 29 percent decline). The long trips that four-day households skipped were disproportionally in-state. Four-day week families were nine percentage points less likely to take an in-state trip (a 40 percent drop from the average share of in state trips in the sample). Among households that traveled at least once, one in five took one fewer trip in-state (a 49 percent change from the sample average). This implied an 11 percentage-point (or 61 percent from the sample average) decline in the probability of having used a MN hotel over a two year period.

Sagness, R. L., & Salzman, S. A. (1993). *Evaluation of the Four-Day School Week in Idaho Suburban Schools*.

Findings of a study that investigated the impact of a 4-day school week in an Idaho suburban school district (Shelley School District) are presented in this paper. Data were derived from: (1) surveys of all district stakeholders, which included 2,039 K-12 students, 492 parents, 103 teachers, and 85 support staff; (2) a comparison of student-achievement scores with previous years; (3) classroom observations of engaged time; (4) an analysis of student, teacher, and staff absenteeism data; and (5) cost-factor analyses. Findings indicate that student achievement increased at some grade levels, and at other grade levels it was comparable with achievement for previous years. Other outcomes included high levels of student on-task behaviors, less disruption of instructional time, sustained student engagement, a decrease in employee and student absenteeism, and an approximate 1.6 percent savings in the district budget. However, the district abandoned the 4-day week after 1 year of implementation. Abandonment of the 4-day week is attributed to the district's lack of the following key elements of systematic change--vision, public and political support, cooperative networks, attention to teachers and learning, clearly defined administrative roles and responsibilities, and policy alignment.

Grau, E., & Shaughnessy, M. F. (1987). *The Four Day School Week: An Investigation and Analysis*.

Students in about 100 schools in 10 states attend classes 4 days a week, for all or part of the school year. A growing number of rural schools, faced with declining enrollments and diminishing state aid, are experimenting with this schedule. Benefits of the schedule include lower energy and transportation costs and lower absenteeism among students and teachers. Holding classes 7.5 hours a day, 4 days a week, provides the same amount of instructional time as the traditional schedule, but with more time-on-task and less wasted time. Students have had no real problems adjusting to the longer day. Teacher, student, and parent attitudes toward the 4-day week have been generally positive. The 10 New Mexico school districts operating on the 4-day week reported cost savings of 10-25% on fuel, electricity, and transportation; standardized achievement test scores comparable to state norms; and a collective dropout rate of 3.3% (versus 8.1% statewide). In the 12 Colorado districts on the 4-day schedule, students showed some gains and some losses in academic achievement, with no clear evidence that student achievement was suffering. This report contains 11 references and the third, fifth, and eighth grade scores on the Comprehensive Tests of Basic Skills for 16 small New Mexico school districts (including 7 on the 4-day schedule) from 1982-83 to 1985-86.

Reinke, J. M. (1987). *More with Four: A Look at the Four Day Week in Oregon's Small Schools*.

The 4-day school week offers solutions to the financial and instructional problems often faced by small rural schools. Two southern Oregon schools implemented the 4-day school week on a trial basis in 1982-83 and, along with five eastern Oregon districts, continue to use this schedule today. The primary purpose of the change to a 4-day week was reduction in cost. According to the enthusiastic responses of parents, staff, and students on annual surveys, the 4-day week produced: (1) a 15% to 23% reduction in transportation costs plus additional savings in energy costs and nonteacher salaries; (2) more actual learning time due to less set-up time and fewer

interruptions; (3) more time for staff development, extracurricular activities, and family business; (4) less student and teacher absenteeism; (5) higher teacher morale and student enthusiasm; (6) more parental involvement; and (7) no adverse effects on student achievement. The following disadvantages have been noted: (1) difficulties if restoration of the 5-day week is desired; (2) increased costs for some parents; (3) increased teacher stress; (4) tiredness in younger children; (5) the impact of holidays on the schedule; and (6) concerns about the national movement toward a longer school year. An additional three eastern Oregon districts have successfully implemented a four and one half-day week.

Daly, J. L., & Richburg, R. W. (1984). *Student Achievement in the Four-Day School Week*. Office for Rural Education, Colorado State University, 300 Education Bldg.

To gather longitudinal student achievement data from schools utilizing the four-day week, Iowa Tests of Basic Skills (ITBS) grade equivalent scores were obtained in 1984 from five rural Colorado school districts for four consecutive years—two years prior to and two years following the districts' change to the shortened week. A first analysis identified two groups of students: one (N=62) provided a sequence starting with grade three and going through grade six, and a second (N=45) started with grade four and went through grade seven. A second analysis examined the performance of a given grade level for each of the four consecutive years for grades three, four, five, and six. Analysis of the ITBS scales revealed that the change to a four-day school week had no effect on student academic achievement, although there was a suggestion that there might be some leveling of performance during the first year the schools were on the four-day schedule. Analysis of the same grade level across the four-year period also provided no clear evidence that the change had any effect on student achievement. The significant differences might be explained by the observation that one year or class of students performs quite differently from another.

Nelson, S. R. (1983). *An Evaluation of the Sheridan County School District Alternative School Schedule, 1982-83*.

During the 1982-83 school year, the Sheridan County School District implemented a 4-day school week alternative schedule. The alternative schedule was approved by the Wyoming State Board of Education on two conditions. First, the State Attorney General must affirm the State Board's right to permit alternative scheduling. Second, an outside evaluation of the approach must be made. The services of the Northwest Regional Educational Laboratory were contracted by the District to plan and conduct an impartial evaluation. The overall purpose of the evaluation was to provide information which would be of value in weighing the advantages and disadvantages of the alternative schedule. The most apparent effect of the four-day schedule was the generation of interest, enthusiasm and support for quality schooling on the part of all segments of the educational community—parents, teachers, students, and administrators. While the findings hint at benefits to be realized from the Sheridan plan, neither positive nor negative outcomes in student achievement could be shown. The community impact was split: most parents saw Fridays as positive opportunities for family activities, but families where both parents were working and the children were of elementary age viewed the four-day week negatively.

Dissertations and Theses

Doctoral Dissertations

Akins, B. (2022). Four-Day Modified School Systems in Rural Oklahoma. *Abilene Christian University.*

Over the past 40 years, school districts in rural areas have been forced to move to a modified four-day school schedule. As of 2019, 650 schools in over 25 states operate on a four-day modified school model. The purpose of this qualitative case study was to explore teachers' and administrators' perceptions of the four-day school week. Four research questions guided the study: (a) How do teachers and administrators perceive the four-day school system in Oklahoma?, (b) Why do teachers and administrators support or not support a four-day school system in Oklahoma?, (c) How do teachers and administrators perceive the impact of the four-day school system on students' academic performance?, and (d) What suggestions do teachers and administrators have for districts considering the implementation of the four-day school week? The participants were 15 teachers and five administrators from rural school districts in Oklahoma. Interviews and a focus group discussion were adopted as instruments for the study. Data were collected through Zoom and analyzed manually. The findings showed seven significant emergent themes. The significant themes for interviews were (a) increased teacher and student attendance, (b) increased student morale and decreased discipline issues, (c) increased teacher morale and retention, and (d) more time for family and personal business. The significant themes for the focus group discussion consisted of (a) increased teacher and student attendance, (b) increased student morale and decreased discipline issues, and (c) school finance benefits. Recommendations were included.

Crook, R. W. (2022). *A Quantitative Study of the Impact of Four-Day School Weeks on Teacher Retention in Rural Public School Districts*. Charleston Southern University.

The purpose of this quantitative investigative examination was to look at how the four-day school week impacts teacher retention, specifically in Idaho rural school districts. The research question studied was what is the relationship between the four–day school week and teacher retention in rural school districts? Within the quantitative research design, the causal–comparative design was the selected procedure. The sample in this study was public educators teaching in rural public-school districts with a four-day school week as compared to teachers with a five-day school week from the state of Idaho. This data was collected in the Fall of 2021 into the Spring of 2022 from databases in the West and Midwest regions of the United States. Next, descriptive statistics were employed, including independent sample t-tests to investigate the discrepancies in teacher retention rates among rural public schools with four-day school weeks and those five-day school weeks by a variety of variables. The research compared teacher retention in rural school districts on the four-day school week to the rate of teacher retention in rural school districts on the five-day school week. Three years of historical teacher retention data was collected from the Idaho Department of Education beginning with the 2017-2018 school year and ending with the 2019-2020 school year. While results indicate that school districts on a five-day school week consistently had a higher rate of teacher retention when compared to districts on a four-day school week, there was no statistically significant impact (p>_.05).

Mitchell, T. G. (2022). *A Qualitative Study Examining the Perceptions of Special Education Team Members Regarding the Impact of the Four-Day School Week on Students Who Receive Special Education Services*. Evangel University.

The four-day school model is gaining popularity in rural districts across the United States. The four-day model has been touted as a model that produces benefits for rural communities. The four-day school week has been cited as creating benefits as well as consequences, however, there is limited research into the area of special education. The purpose of this study was to describe and analyze the effects that a four-day school week has on students who receive special education services. It also aims to explore the perceptions of the special education team of the impact the four-day school week has on the achievement and regression of learned material for students who receive special education services. The design of the study included the collection of perceptual data through surveys and semi-structured interviews. Data and discussion to the findings would be beneficial to district leaders seeking to implement the four-day model in the future.

Whipple, M. A. (2022). *A Comparison of Academic Achievement for the Four-Day and Five-Day School Week in New Mexico*. Grand Canyon University.

The popularity of the four-day school week trends upward each year, and policymakers are concerned about the lack of literature on the shorter school and its effect on academic outcomes. The purpose of this causal-comparative quantitative study was to investigate if academic achievement differences existed between four-day and five-day weeks in New Mexico. Standardized test scores were compared to determine if a difference existed between two independent groups of students, those attending four-day schools and those attending five-day schools. A sample of standardized test scores from the 2018-2019 school year for New Mexico's 89 public school districts showed test scores for English (N = 1,093) and math (N = 860) were statistically similar amongst the two groups of students: four-day students (English: M = 747.35, SD = 34.20; and Algebra II: M = 708.65, SD = 28.187); and five-day students (English: M = 748.86, SD = 36.43; Algebra II: M = 706.88, SD = 30.952). Results of the independent-samples t-test showed the independent variable (length of the school week) had no statistical impact on the dependent variable (academic achievement) and the samples were statistically similar.

Baker, D. K. (2021). Modernizing the School Calendar to Fit the Needs of the 21st-Century Student. Lindenwood University.

Ever since the 1983 landmark study, A Nation at Risk, was released, educators have been examining the effectiveness of instructional time in American schools (Pedersen, 2012). However, school calendars have remained stagnant and seemingly a product of society and economy, tied to agriculture, for over 100 years (Turner & Finch, 2018). In Missouri, a growing number of schools are reevaluating the five-day school week and implementing a four-day school week in response (Turner & Finch, 2018). As stated by Thompson (2020), the impact of the four-day school week on student achievement requires more study. This study involved investigating the impact of the four-day school week on student academic achievement by examining 7th-grade and 8th-grade MAP data provided by the Missouri Department of Elementary and Secondary Education in the areas of math and ELA prior to and following the

implementation of the four-day school week. Additionally, the perceptions of principals and teachers who work within the four-day school were collected to examine teacher morale, school finance, student discipline, and overall attendance (teachers and students). Quantitative data were analyzed to investigate pre- and post-implementation patterns. Furthermore, qualitative data in the form of interview responses were analyzed using coding methods to identify common phrases, keywords, and themes. The study findings revealed the four-day school week produced a negative impact on 7th-grade ELA, according to MAP data analysis, whereas 7th-grade math, 8th-grade ELA, and 8th-grade math indicated an insignificant impact. Additionally, the perceptions of principals and teachers indicated the four-day school week was an overall benefit to the school climate.

Estes, K. (2021). *An Exploration of Unintended Effects of Education Policies in the United States*. The University of New Mexico.

The work in this dissertation examines unintended consequences from various public policies in education. The first policy examined is the adoption of the four-day school week schedule by public-school districts across the United States. Concerns over the additional weekend night for students are explored by examining teen traffic safety within the school district before and after adoption of the four-day schedule. The second policy examined is the usage of academic probation by universities. Student responses to being placed on academic probation vary, and financial implications for the student are a potential mechanism behind these responses. Student responses segmented by Pell status is explored throughout this chapter. The final policy examined is the introduction of charter schools throughout the United States. The effect of charter school competition on public-school district finances is explored and important differences are found depending on who establishes the charter school.

Rowden, A. (2021). *Impact of a Four-Day School Week on Student Discipline and Attendance in Missouri: A Quantitative Study*. Missouri Baptist University.

The quantitative study examined 24 four-day schools in Missouri with three years of five-day school week data and three years of four-day school week data. This study collected comparative data of the five-day school week to the four-day school week. The archival data of student attendance rates and discipline incident rates were from districts with the adopted four-day calendar from the years 2012-2018. The goal of this study was to add to the body of existing knowledge regarding the impact of the four-day school week on students. The purpose of this two-way repeated measures of ANOVA quantitative study was to analyze the transition of Missouri four-day public school districts and determine if the four-day school week impacted student attendance and student discipline incidents. The quantitative research found the four-day school week does not significantly impact student attendance or student discipline incident rates. Implications for policy and practice included researching the variety of ways to implement a compressed school and workweek and creating an action plan to track school district data, including student attendance and student discipline incidents, because the success of the four-day school week depends on the school community.

Streeter, R. L. (2021). *A Comparison of the Four-Day School Week to the Five-Day School Week and Reading Achievement of Third, Fourth, and Fifth Graders*. William Woods University.

As more and more rural school district leaders and communities have considered the pros and cons of moving to the four-day school week schedule, this study was conducted to provide further research on whether student reading achievement of 3rd through 5th grade students differed from their five-day school week counterparts. In addition, the purpose of this study was to further investigate district leaders reasoning of making the move to the four-day school week schedule and their perceptions. Plus, there was inquiry to validate if teacher's perceptions were mostly positive or negative in regard to teaching reading, teacher collaboration and student reading achievement utilizing the four-day school week schedule. For the student data portion of the study, there were nine independent sample t tests administered between 13 four-day and demographically matched five-day school districts to determine if there were any significant differences between 3rd through 5th grade students MAP reading proficiency mean scores from 2017 to 2019. The results of the t tests indicated there were no significant differences in reading proficiency mean scores between any of the matched four-day and five-day school districts. There were 31 superintendent surveys gathered which indicated that the main reason for moving to the four-day week schedule was to recruit and retain quality teachers and the consensus to continue with the four-day week schedule was unanimous. There were 55 teacher survey responses collected which stated teacher's perceptions of the four-day school week had an overall positive impact on the amount of reading instruction time, teacher collaboration, and altogether student reading achievement. The findings of this study have implications for rural school district leaders, staff, and communities that are interested in switching from a five-day to the four-day school week. Also, rural school district leaders and communities should consider the findings of this study in regard to teacher recruitment and retention, teacher collaboration opportunities, and elementary student reading achievement. Recommendations for further research could include a larger sample size of student data by adding 6th grade through 12th grade comparisons of reading proficiency scores between four-day and five-day school week districts. It is recommended that further survey research could be conducted through a qualitative study with more detailed survey questions to superintendent and staff by means of short answer response.

Wright, C. A. (2021). *Day Five of the Four-Day School Week: Meeting the Comprehensive Needs of Students and Families*. Saint Louis University.

Schools that operate on a four-day schedule typically shorten the school week by eliminating either Monday or Friday and add more time to each day to provide the same number of instructional hours as a traditional five-day week. In 2011, former governor of Missouri, Jay Nixon, signed the optional four-day school week into law. The bill moved from requiring 174 days of instruction to a total of 1,044 hours for districts that wanted to go to four days. This project sought to find out what the 33 Missouri school districts that operated on a four-day school week during the 2018-2019 school year were doing on the fifth unscheduled day to address the comprehensive needs of the families and students they served. The project focuses on

childcare, food insecurities and academic deficiencies and/or supplemental and extracurricular activities.

Barzee, S. (2020). *Academic Impact of Rural Idaho Schools on the Four-Day School Week: A Quantitative Research Study*. Northwest Nazarene University.

A number of school districts throughout the nation have changed their delivery method of a five-day school week to a four-day school week. Between 2009 and 2015, 27 Idaho school districts transitioned to a four-day school week, bringing the total number of school districts on a four-day week to 44 by 2015. This number increased to 45 by 2018. As school districts have become more comfortable with the four-day week schedule, school employees and constituents alike have increased satisfaction. A four-day school week results in about 20% fewer days of student and teacher contact days. This leads to a concern of how a four-day school week impacts academic performance. The purpose of this quantitative research study was to look at student achievement scores, specifically in Idaho rural public schools. The research compared standardized test scores of rural school districts on the four-day school week to the same test scores of rural school districts on the five-day school week. Additionally, sub populations with similar demographics were analyzed. These demographics included economically disadvantaged (free and reduced lunch percentages) and the percentage of Hispanics/Latinos. School districts that had an economically disadvantaged population of at least 45% were also analyzed. Five years of historical standardized test scores were gathered from the Idaho Department of Education beginning with the 2014-2015 school year and ending with the 2018-2019 school year. The standardized test scores that were analyzed included the Idaho Reading Indicator (IRI) and the Idaho Standards Achievement Test (ISAT). While results indicate that school districts on a five-day school week consistently had a higher percentage of proficient/advanced students on standardized tests when compared to four-day week school districts, there was no statistically significant impact ($p \geq .05$) on the academic performance, as determined by the previously mentioned standardized metrics. Only one year (instead of five years) of the Hispanic/Latino sub population was able to be compared because of the significant redactions that took place in order to be compliant with privacy laws.

Daleske, W. G. (2020). *Comparing Student Achievement and School Climate in Four-Day and Five-Day Secondary Schools in Missouri*. Lindenwood University.

This quantitative study was conducted to determine whether a significant difference existed between secondary schools that observed the four-day school calendar and the five-day school calendar when comparing secondary schools' Annual Progress Report (APR) scores of academic achievement levels and attendance levels, as well as the secondary school teachers' perception of school climate. Five of the participating schools observed the four-day school week and five schools observed the five-day school week. The first portion of the study consisted of taking the average APR scores for attendance from both the four-day and the five-day schools and comparing them in an independent t-Test. The second portion of the study consisted of taking the average APR scores for academic achievement levels and comparing them in an independent t-Test. The final step in the study was to determine teachers' perceptions of school climate by administering the Organizational Climate Index, which was created by Hoy, Smith, and

Sweetland (2002). The school climate portion of the study consisted of teacher participants from the 10 participating schools. This survey was administered to 70 teacher participants using Survey Monkey (Survey Monkey, 2018); 35 teachers were employed at a four-day secondary school, and 35 were employed at a five-day secondary school. The responses were scored and an average score was found for the both the fourday teacher responses and the five-day teacher responses. The scores were compared in an independent t-Test. The results of the t-Test in each case did not provide proof that a significant difference existed between the four-day school week and the five-day school week.

Jenkins, J. M. (2020). *Teachers' Experiences with Professional Development when Working in a Four-Day Instructional Week: A Qualitative Case Study.* Northcentral University.

This study addresses the problem of math teachers not having adequate time for professional development. Allocating time for professional development throughout the day and school year can be challenging, often resulting in teachers forgoing professional development altogether. As a result, teacher efficiency in the classroom is impacted, with a resulting impact on student achievement. The purpose of this qualitative case study was to examine math teachers' experiences attending professional development during a four-day instructional week in East Texas. This alternative schedule provided for a full day of professional development for math teachers during the work week. Qualitative data was collected through semi-structured interviews with six math teachers and triangulated with interviews from three other staff members working in this setting at a middle school. Data analysis occurred through open coding and axial coding resulting in four themes. This study found that teachers felt a need to be supported by their administration, and that teachers felt that a day of professional development was overall more beneficial to them and their students in lieu of an additional day of instruction. Implications for the findings and recommendations include teachers and administrators working together to help teachers feel supported, teachers finding time to make sure professional development is a priority, and teachers attending professional development they feel will help them be more effective.

Reyes, L. M. (2020). *Multicase Exploration of Teachers' Perceptions of Experience of Working in a 4-Day Work Week School System Compared to a 5-Day Work Week School System*. Keiser University.

Public school districts across the United States (U.S.) are adopting the 4-day school week system in an effort to decrease budget expenses. However, teachers were not included in the decision-making process nor encouraged to give feedback on the implemented transition of the 5-day to 4-day school week system. A multi-case study was conducted to understand elementary, middle, and high school teachers' shared perceptions of their experiences while transitioning from a 5-day school system to a 4-day school system. Teachers experienced changes in personal time use, reduction in student engagement, and improvement in attendance. With the experiences, teachers developed feelings of being overwhelmed, disconnected from administration, and unable to adapt to the change. Policymakers and administration are encouraged to foster an environment that generates a feeling of inclusion among all stakeholders. Data from the current study could be

utilized for future comparative studies on public school districts currently functioning under or considering the adoption of the 4-day school week system.

Smelser, B. M. (2020). Survey of the Effects of a Four-Day School Week on Music Programs. Southern Illinois University at Edwardsville.

This study looked to gauge the effects of the four-day school week on music programs and aims to provide a broad range of resources and strategies for music educators to integrate into their existing practices. A 28 question online survey was administered using mixed item types (Likert-type, multiple choice and open-ended) to music educators from across the United States who are representative of school districts in all educational settings (i.e., rural, semi-rural, suburban and urban). Section I (questions 1-8) collected music educators and program demographic data to determine if they comprise a representative sample. Questions 9-13 discussed the personal impact the schedule has had on the music teacher, their opinions on it and their personal perception of the schedule. Next, questions 14-16 reviewed how the transition to the four-day work week has affected the instruction and preparation for the music classroom. Lastly, questions 17-19 addressed the impact the modified schedule has had on student participation and success. The final question (20), was an open ended answer that allows band directors to leave any important information that they think the researcher should know. The results of the survey found that the frequency of instruction and decrease in instructional time creates limitations on curriculum, ensembles and concert literature. However, many teachers found the schedule to have personal benefits. Music programs must in turn adapt to the circumstances in creative ways to engage students on a consistent basis. The findings also showed that to be successful on the shortened schedule, results indicated that educators must maintain high levels of student's engagement, adjusting repertoire to fit the realities of less instructional time, extra review time and by having a strong student assessment system in place. The implications of the four-day school week on school music programs are discussed fully in the final chapter.

Byerly, C. (2019). *The Impact of the Four-Day School Week, District Financial Decisions, and Characteristics on Teacher Retention*. University of Oklahoma.

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

Dailey, H. (2019). *Effects of the 4-Day School Week on School Performance in Missouri High Schools*. Baker University.

As an increasing number of school districts across the nation implement the 4-day school week,

the possible impact on student academic performance and school performance needed to be considered. The purpose of this study was to determine if there is a difference in academic achievement, subgroup achievement, college and career readiness, attendance rates, and graduation rates between Missouri high schools with a 4-day school week and matched Missouri high schools with a 5-day school week. The independent variable in this causal-comparative study was the length of a school week. The dependent variable, school performance, was measured by MSIP 5 performance standards: academic achievement, subgroup achievement, college and career readiness, attendance rate, and graduation rate. The sample included Missouri high schools that attended a 4-day school week and matched Missouri high schools that attended a 5-day school week. The results of the study indicated that schools utilizing the 4-day school week have significantly lower academic achievement scores on English language arts (ELA) and mathematics EOC assessments than schools utilizing the traditional 5-day schedule. The results of the study also indicated that schools operating on the 4-day school week score significantly lower in subgroup achievement scores on ELA and mathematics EOC assessments than schools operating on the 5-day school week. Finally, the results of the study indicated that there are no significant differences in college and career readiness, attendance rates, and graduation rates between schools utilizing the 4-day school week and schools operating on the traditional 5-day school week. The study has implications for the educational community and policymakers making decisions regarding education funding and the use of the 4-day school week. School districts that are currently utilizing the 4-day schedule and school districts considering a future implementation of the schedule should review the results of this study to determine the future of the 4-day school week within their communities. It is recommended that additional research be conducted, perhaps examining school performance indicators in a school district for the two years before the implementation of the 4-day schedule compared to school performance indicators for the two years after the 4-day schedule was in place. It is also recommended that further research be conducted on potential cost-savings of the 4-day schedule as well as the other possible impacts the 4-day schedule may have on a school and community that are not measurable by school performance indicators.

Fay, P. D. (2019). *The Four-Day School Week: Teacher Retention and Recruitment, Perceptions, and Achievement*. Lindenwood University.

In order to explore various issues with the four-day school week in rural, Missouri school districts, the researcher conducted a mixed-methods study which utilized both quantitative and qualitative research techniques. The researcher was primarily interested in the ability of the four-day model to attract and retain teaching staff, although he was also interested in the impact on student achievement. The purpose of this study was to investigate the possible effects of the four-day school week model on teacher attraction and retention in a rural school district in Missouri. The researcher conducted interviews with seven principals of schools that had adopted the model. He also deployed a survey consisting of closed- and open-ended questions to collect the opinions of respondents working at those seven schools. Additionally, he retrieved assessment data from the state's public education website. First, the researcher collected data from the human resources department about teacher retention rates and the number of applicants who applied for teaching positions in the district for a period of three year prior to becoming a four-

day school week district. Second, the researcher sent out anonymous surveys to all teachers in the school district to collect information from open-ended questions about the reasons they either joined or stayed with a four-day school district. Lastly, the researcher collected data from the human resources department about teacher retention rates and the number of applicants who applied for teaching positions in the district for each school year since implementing the four-day school week. Secondary data was analyzed to determine if MAP scores were affected by the four-day school week. The researcher suggests rural, Missouri schools struggling with retaining and attracting teaching staff to implement the four-day school week in order to increase teacher retention and teacher candidates for open positions.

Reynolds, T. (2019). *The Impact of Capital Outlay Inequities on School District Cost Saving Measures in a Climate of Budget Reductions*. University of Oklahoma.

The purpose for conducting this study was to determine whether inequitable capital outlay capacity, as defined by district valuation, was associated statistically with the following cost-saving measures: implementation of a 4-day school week, reduction in instructional time, or increasing class sizes. Traditionally, these cost-saving measures are associated with expenditures in a schools district's general fund; however, the current study builds upon previous research by Hime and Maiden (2017) who documented an advantage for districts with healthy capital outlay from "crossover funding," which are expenditures allowable from multiple revenue sources. The utilization of crossover funding creates a disequalizing effect on equitably distributed revenue. When budget reductions occur in state aid, logic follows all districts should be equally impacted because the revenue is distributed equitably. Therefore, district wealth should not be associated with these operational cost-saving measures. This study found statistically significant relationships between schools districts' per-pupil valuations, a 4-day school week, reductions in instructional time, and increased class sizes, indicating that inequitable capital funding in Oklahoma was associated with a decrease in equity for state aid revenue. Specifically, class sizes were inversely associated with district wealth across all years of the study. The results indicate the more than 600,000 Oklahoma students in districts with low property values are disadvantaged by larger classes, a 4-day school week, and a decreased amount of instructional time compared to their peers in wealthier districts.

Schultz, S. C. (2019). *Impact of a Four-Day School Week on Teacher Preparation*. William Woods University.

Four-day school week calendars, although prevalent in the United States for nearly 40 years, is a relatively new concept for Missouri public school districts. Public school districts have implemented a four-day school week for multiple reasons including financial reasons and teacher recruitment and retention. This qualitative study seeks to determine if an impact exists on teacher preparation following implementation of a four-day school week by answering the research question, what are the perceptions of elementary building principals of the impact of a four-day school week on their teachers' instructional preparation. To better understand a four-day school week this study includes a brief history of public school calendars and alternative calendar types. This study also researches other areas within public schools that might be impacted in a four-day school week change. Missouri public school elementary building principals were interviewed

and this data was analyzed by the researcher to determine if an impact existed on their teachers following a four-day school week implementation. Research data in this qualitative study showed that in the represented schools teacher preparation was affected in four areas, time management, curriculum awareness, collaboration and teacher morale. The intent of this study is to assist public school districts in decision-making regarding implementation of a four-day school week calendar.

Braun, L. (2018). *The Impact of a Four-Day School Week on High School Student College Readiness and District Financial Savings*. Baker University.

As school district budgets have declined and districts looked to find solutions to budget shortfalls, the four-day school week schedule has become more popular. The effects of this shortened schedule, however, are not well known. The first purpose of this study was to determine the effect of a four-day school week schedule on college-readiness, as measured by the average ACT composite scores of school districts in the state of Kansas utilizing a four-day school week. The second purpose of this study was to determine if cost savings were realized when a school district switched from a five-day school week to a four-day school week. Using average ACT composite scores as a measure of college-readiness, school districts utilizing a four-day school week were compared to districts with similar demographics that utilized a five-day school week. The results showed that switching to a four-day school week negatively impacted ACT composite scores, an indicator of college readiness. Using school district budget expenditures from two years before the district switched to a four-day school week and two years after the district made the switch, savings in the areas of utilities (heating and electricity), transportation, classified staff personnel costs, and food service personnel costs were examined. School districts that switched to a four-day school week showed significant savings in the areas of heating, transportation, and food service personnel costs. Savings in the areas of electricity and classified personnel costs were not realized. The study has implications for school districts that are currently using a four-day school week as well as those districts that are considering its use in the future. While more than one set of data should be collected to ultimately guide the decision to stay with or implement a four-day school week schedule, the results of this study could help guide this decision. It is recommended that future research include additional measures of college readiness, perhaps examining longitudinal effects of a four-day school week schedule on students' future endeavors. It is also recommended that a larger number of school districts be examined to increase the power of the statistical analyses garnered from a larger sample size.

Lewis, M. E. (2018). *Comparing Professional Learning Practices of Missouri's Four and Five Day Schools*. Southwest Baptist University.

The role of quality professional learning for teachers has become a top priority due to legislative changes including the Every Student Succeeds Act (ESSA). Research has shown a lack of dedicated time is among the issues that hinder effective professional learning. While the four-day school week is typically used to address budget issues for rural schools, the schedule's flexibility may be uniquely able to aid professional learning efforts. The purpose of this study was to determine the differences between professional learning practices in Missouri's four- and five-

day schools. The Standards for Professional Learning, created by Learning Forward, served as the theoretical framework. The researcher obtained permission from Learning Forward to collect data using the organization's Standards Assessment Inventory (SAI) survey instrument. Teachers from 18 Missouri four-day schools and 21 comparable five-day schools based on size, RPDC region, and free and reduced lunch population were included in the study. The teachers responded via online survey distributed by email. Statistical analysis included independent sample two-tailed t-tests adjusted for unequal sample sizes at the $p < 0.05$ level. Missouri four-day teachers rated the Learning Communities, Leadership, and Data standards significantly higher than their five-day counterparts did. The findings of this study add to the sparse body of literature related to the four-day school week and professional learning practices. The study concluded that the four-day school week may help schools improve professional learning practices due to the unique availability of professional development time on the off-day.

Marion, K. S. (2018). *The Perceived Impact of the Four-Day School Week on Teacher Recruitment, Teacher Retention, and Job Satisfaction*. Lindenwood University.

As school districts consider transitioning from a traditional five-day school week to a four-day school week, administrators and school boards seek information about the four-day school week to assist in making the best decision possible. This collective case study was undertaken to examine the perceptions of administrators, school counselors, and teachers on the four-day school week and the impact of the new calendar format on teacher recruitment, teacher retention, and job satisfaction. Three school districts were studied; each began implementation of the four-day school week during the 2015-2016 academic year. A total of 21 school personnel were interviewed, including three superintendents, three building administrators, three school counselors, and 12 teachers. Participants overwhelmingly identified the four-day school week as a benefit to them personally, citing the ability to balance work and family as positive. Employees of two of the three school districts reported improved ability to recruit potential candidates for teaching positions. Educators from all three districts reported an improvement in teacher retention, as the four-day schedule is very popular with teachers. Also noted as valuable and important to the teaching staff is the additional time for professional development and collaboration built into the school calendar. Given the difficulties small rural school districts frequently face when securing and retaining a highly qualified teaching staff, the findings of this study point to an unintended, yet powerful outcome of implementation of the four-day school week–the ability to recruit and retain teachers.

Savage, R. M. (2018). *A Case Study of the Influence of the Four-Day School Week on an Arizona School District*. Grand Canyon University.

The purpose of this qualitative, case study was to understand how the four-day school week influenced a school district in Northern Arizona, over five years. Research Questions 1 through 3 addressed district performance including teacher/staff and student attendance, achievement on the state assessment in reading and math, and costs on utilities. Research Question 4 addressed stakeholder perception. Maslow's hierarchy of needs theory and collective impact theory served as the foundation for this study. The purposive sample included 40 internal and external stakeholders. Data collected included archival documents, semistructured interviews, and a

structured questionnaire. A quantitative trend analysis was conducted on archival documents. Qualitative thematic analysis was conducted on interview perception data and structured questionnaire data was recoded for frequency. Archival data revealed natural gas costs decreased, student attendance improved, teacher/staff attendance declined, math scores dropped, reading scores were flat, and water/electricity costs increased. Perception data revealed stakeholders felt a positive impact on student attendance; saving money on utilities; teacher PD time; part-time employment; family time; and morale and staff retention. Stakeholders felt negatively towards teacher collaboration time; student achievement; the longer school day; lack of structure, supervision, and nutritious meals on the off day; and the Monday federal holidays causing school to be in session only three days per week. Overall, data revealed that while perceptions varied, stakeholders preferred the four-day regardless of any negative impacts to the district. The implications for this study are a resource and lessons learned for district personnel seeking to eliminate a day of instruction for the purposes of saving money.

Vernon, A. (2018). *Teachers' Perceptions of the Impact of a 4-Day Week on School Culture*. Southwest Baptist University.

The American public school system has used the same agrarian-based calendar for the past century despite drastic changes to the educational system. In recent years, some schools have come under financial burdens associated with poor test scores that correlate with funding under legislation. These financial burdens have impacted rural school districts that allocate up to 5% of their budget to transportation. Some schools seek to alleviate these burdens by implementing nontraditional schedules. Among these schedules, the 4-day week has become increasingly popular since the 1970's. Research on the 4-day week has primarily been focused on its impact on financial saving and student achievement. School culture is an important factor in any school building as it impacts teacher satisfaction and student achievement. The researcher sought to understand teachers' perceptions of the impact of a 4-day week on school culture as little research had been done in this area. The researcher used Steve Grunert's School Culture Survey (SCS) as a quantitative tool to collect data from participants utilizing a 4-day school week and participants in similar schools utilizing a 5-day school week in Oklahoma. This tool can be divided into 6 categories that promote a positive, collaborative culture: collaborative leadership, teacher collaboration, professional development, unity of purpose, collegial support, and learning partnership. The data from the SCS showed statistical significance in the areas of collaborative leadership, teacher collaboration, and learning partnership.

Gower, M. L. (2017). *Interpreting the Impact of the Four-Day School Week: An Examination of Performance Before and After Switching to the Four-Day School Week*. Lindenwood University.

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.

Hanson, H. (2017). *An Examination of the Four-Day School Week Schedule in Select Minnesota School Districts*. St. Cloud State University.

Each year public school districts throughout the United States experience difficult decisions about how to allocate their limited educational funds. When the economy weakens, heightened consideration is given to methods by which school districts can more efficiently use their financial resources to make up for decreased funding (Gaines, 2008). One cost cutting method that some states and school districts have adopted is to retain the number of instructional hours in each school week but to shorten the length of the school week from five days to four days (Griffith, 2011). Minnesota districts applying for authorization to employ a four-day week option have encountered opposition from state leadership and the education commissioner (Steward, 2015). An investigation of the literature reveals that no recent studies of the four-day school week have been conducted in the state of Minnesota. Additionally, national research on this topic is scarce (Idaho Education News, Dec. 2015).

The purpose of this study was to examine two rural Minnesota school districts that were employing a four-day school week during the 2016-17 school year: to ascertain support among school board members, administrators, teachers, and parents for the four-day schedule. Further, the study intended to gather perceptions from these stakeholder groups regarding advantages of, disadvantages of, and changes (if any) in their school districts' four-day school week. The following research questions were designed to support these aims:

1. How supportive were school board members, administrators, teachers, and parents of select school districts' four-day school week?
2. What did school board members, administrators, teachers, and parents perceive as advantages of their school districts' four-day school week?
3. What did school board members, administrators, teachers, and parents perceive as disadvantages of their school districts' four-day school week?
4. What changes, if any, would the school board, administrators, teachers, and parents identify that would increase their support of the school districts' four-day school week?

In order to address the research questions, the researcher created an online survey that gathered data from two school districts, totaling over 450 respondents' perceptions of the advantages and

disadvantages of the four-day school week schedule. In order to enrich study findings, one-on-one interviews were conducted with seven respondents who volunteered to expand upon survey questions with the researcher. Although the four-day school week began as a means for school districts to reduce costs and save money, the study indicated there were other advantages to the four-day school week for both teachers and families, including providing additional time for teacher/lesson planning, allowing families more quality time together, and increased school attendance.

Amys, R. D. (2016). *The four-day school week: Research on extended weekends*. Montana State University.

With restrictions being made on state budgets, "the four-day school week has been an increasingly attractive option for legislators seeking to cut education costs" (NCSL, 2014). Research has shown the beneficial and adverse aspects of an alternative school calendar through monetary interest, attendance of students and staff, morale, and academic scores (Donis-Keller & Silvernail 2009). However, there is limited information regarding the influence shortened school weeks have on students' social choices, particularly the choices they make with activities on weekends. As a result of lengthened weekends, the purpose of this case study was to examine the perception four-day school weeks has left on the various stakeholders of a rural Montana high school, with an emphasis on extended weekends, and to investigate the specific activities high school students participate in during three-day weekends. In order to investigate this topic further, the following research questions were directed to stakeholders from a rural Montana school district that recently shifted to a four-day schedule: 1.) As a result of a four-day school week, how do rural school stakeholders view the choices made by students on extended weekends?; 2.)What choices do students make on their extended weekends, and, according to stakeholders, what influences those choices?; 3.) In what ways is the four-day school week contributing to or detracting from student well-being? Data collection was achieved through individual interviews of administrators, teachers, and coaches, a focus group was held with parents of high school students, and insight from senior students was collected through a text-messaging system called Remind. Remind provided an innovative data collection technique that maintained anonymity of adolescent participants. The findings of this case study emphasize the importance and advancement in adolescent involvement with extracurricular activities, workforce, time spent with family and peers, and religious practices. However, the findings also bring forth further questions about adolescents not involved in athletics, clubs, religious endeavors, and the workforce.

Hegwood, J. F. (2016). *Scheduling adolescent achievement: Eighth-graders and the four-day school week*. University of West Georgia.

Faced with extreme budget cuts, district administrators in a rural Appalachian school system made the decision to move to a four-day school week in 2010. Initially a cost-saving measure, school leaders hoped that the move to an amended calendar would not compromise the quality of education that students receive in the system. This study examines student achievement data from eighth-graders in the pseudonymous Rockbridge County Schools to determine if there was any change in student performance after the changed calendar structure. Using reading and math

scores from Georgia's standardized summative assessment, this study compares historical student achievement data on the traditional five-day school week to achievement data on the four-day school week over a six-year period. Data from students with disabilities were also compared and examined separately to determine if there was a disproportionate change in performance for this subgroup. The researcher found no significant difference in student achievement for any Rockbridge County students (including those students with disabilities), and student performance actually increased after the change to the amended calendar.

Hanson, C. M. (2014). *Superintendent perceptions of professional development quality in South Dakota school districts implementing a four-day school calendar*. University of South Dakota.

School district calendars built around a four-day week have been in existence for decades. Early research cited savings in energy and transportation costs prompting the increase in schools adopting the four-day week. In recent years, studies have focused on the instructional benefits of making the switch from a five-day to four-day school week. Effective use of time as an instructional resource plays a meaningful role in educational leadership activities of school district superintendents. This multisite case study sought to describe the perceptions of 10 South Dakota superintendents employed in school districts using a four-day calendar regarding the quality of their professional development programs. Data were collected using a semi-structured interview based on the McREL Professional Development Audit. Additional data gathered by the researcher included school district demographics, professional development planning documents, school calendars, and district websites. Superintendents believed the four-day school week calendar provided the time to make a positive impact on the vision and goals, planning, design, resources, and evaluation components of a high quality professional development program. The study supported current research that district planners should provide professional development time that is organized, structured, and purposefully driven. Common themes among respondents included (a) articulate and set as a strategic goal during the calendar adoption process the importance of implementing a high quality professional development program for teachers and set specific dates within the calendar assigned for professional development (b) incorporate student remedial activities into the calendar (c) provide fiscal resources to support the professional development program, and (d) demonstrate effective administrative leadership to ensure fidelity in the design and implementation of the district's professional development program.

Tharp, T. W. (2014). *A comparison of student achievement in rural schools with four and five day weeks*. University of Montana.

The purpose of this non-experimental, quantitative, causal comparative study was to examine the relationship between student achievement scores on the Montana statewide standardized assessment (MontCAS) from schools that use a four day school week in Montana to student achievement scores on the MontCAS from schools across the state of Montana that follow a traditional five day school week. The MontCAS is the standardized assessment in reading, mathematics, and science adopted by the Montana Office of Public Instruction as a result of mandates from the No Child Left Behind Act of 2001. In the spring of 2005, the Montana

Legislature approved changes to the accreditation standards in Montana by allowing a school to be accredited based upon a total number of contact hours instead of the previous requirement of a minimum number of contact hours and a minimum number of days of instruction. Ten schools made the conversion to a four day week beginning in the 2006-2007 school year. By 2008-2009 there were 22 schools following a four day week calendar and over the next several years, this number doubled every two years. By the 2012-2013 school year, there were over 100 schools in Montana with a four day week. Data was provided by the Montana Office of Public Instruction on every student from every school in Montana that utilized the four day school week from implementation through the 2012-2013 school year. This data was analyzed by cohort based upon the year of implementation of the four day week in addition to being considered in the composite as the number of students tested in schools with the four day week grew from just over 200 in the spring of 2007 to 2685 in the spring of 2013. The total percentage of students identified as proficient and advanced was compared to state-wide averages disaggregated by cohort and in composite over the academic years of 2006-2007 through 2012-2013. Findings indicate that student achievement may increase the first year of implementation of the four day week, but over time, student achievement decreases, compared to the rest of the students in the state of Montana.

Carter, G., Hull, L. S., Odneal, B., & Roling, T. (2013). *The school leader and policymaker's guide to a four-day school week: Considerations, implementation, tools, and best practice*. Saint Louis University.

This product development report addresses the components for an operations manual, which will serve as a guide for school districts pursuing or implementing a four-day school week. The product will provide school districts with a resource to address their needs, questions, and concerns around all aspects of the transition to a four-day school week, including policy, community relations, human resources, scheduling, finances, and student achievement. Over the past five years, weakening economic conditions have wreaked havoc across the country in most industries. Missouri public school districts have not been spared the hardship, as decreases in property tax subsidies and state budget shortfalls create lasting deficiencies in funding. With the passage of four-day school week/alternative calendar legislation, this economic crisis has spurred school districts in Missouri and across the nation to investigate options for an alternative calendar or four-day school week in order to reduce spending. The need for an operations manual surfaced as the team examined four-day school week research and during the interviews of state department leaders from many states expressing limited guidance existed for districts investigating or making the transition to a four-day school week. District leaders considering this change have been forced to conduct their own research and develop an implementation plan without any guidance. As more and more districts consider this option, it will be beneficial for them to have a guide with the resources needed to implement the four-day school week. The purpose of this study was to identify what school leaders and policymakers need to know when considering or implementing a four-day school week. An expert panel, consisting of school leaders and state education officials knowledgeable in educational policy and in the research and practice of school district administration reviewed the operations manual as part of the pilot. Following the expert panel review, the manual was refined based on recommendations and

submitted to another expert panel for field test feedback. A complete evaluation of the final field-test recommendations and revisions were incorporated into the manual.

Farris, B. (2013). *The four-day school week: Teacher perceptions in a rural/secondary setting*. Idaho State University.

The purpose of the study was two-fold: (a) to explore teacher perceptions about the four- versus five-day school week in terms of its impact on teacher/student attendance, and student achievement; and (b) to examine whether or not differences have been evidenced in teacher/student attendance, student achievement within a single school district that previously employed a five-day school week and changed to a four-day school week. The researcher conducted a census during the fall of 2012, distributing a demographic survey to all 23 of the high school teachers teaching in the target high school in a small rural school district in the western United States which had adopted the four-day school week in 2005. The researcher interviewed eight of the high school teachers who met the inclusion criteria regarding experience with both the four- and five-day school schedule. The focus of the study was on the qualitative data, with aggregate quantitative data regarding student and teacher attendance and ISAT scores collected from the District through the State's Department of Education website, used to explicate the qualitative findings. The overall feeling among interviewees regarding attendance of both students and teachers was that it either improved permanently, improved temporarily, or there was no change. All eight interviewees felt that at worst there had been no change, or that student achievement improved with the move to the four-day school week schedule. The researcher also included teacher perceptions regarding other areas such as schedule transition, teacher morale, use of instructional time, teacher planning and collaboration, and professional development. The interviewees felt pleased with their school's transition to a four-day school week schedule and felt that teacher morale had improved with the change. It was perceived that the four-day week allowed for more quality instructional time, with more time to plan and coordinate lesson plans. While the quantitative data trends implied student achievement fluctuation more so than strong positive achievement gains, like the qualitative findings, negative or downward trends were not evidenced. These findings contribute to the overall empirical body of knowledge regarding the four-day school week schedule.

Johnson, C. (2013). *The four day school week: A case study examining three stages of implementation*. University of Missouri - Columbia.

The four day school week is one option rural schools are considering when trying to preserve financial stability in a time of restricted budgets. This case study examines a rural school in the Midwest in its first year of implementing the four day school week. Staff was interviewed through focus groups, building administrators through email, and the district administrator was interviewed one-on-one. The following question drives this research: How did a small school district install and implement a four day school week as it relates to school leadership, students, parents, and community? A subquestion that will be looked at is: Did the school look at the four day week calendar as a type of school reform or did they view it as just a calendar change? A qualitative case study design is used for this research study. Interviews and document collection drive the data collection. This study will use the stages of implementation from National

Implementation Research Network (NIRN) for the conceptual framework. Using the stages of implementation as the guide to analyze the findings allows for attention to data pertinent to this study.

Bell, J. L. (2011). *Can the 4-day school week work: An analysis of the impact of the 4-day school week on a rural Georgia school district*. Capella University.

Due to budget cuts in 2009, a school district in a county located in the middle of a South Atlantic state changed from the traditional 5-day school to the 4-day school week. The purpose of this study was twofold: (a) to determine what the job satisfaction was for teachers and administrators whose schools had changed from the 5-day school week to the 4-day school week; (b) document a relationship between changing from the 5-day school week to the 4-day school and teacher, administrator, and student attendance. A total of 183 teachers and 11 administrators from the school district were surveyed using the Teacher Job Satisfaction Questionnaire (TJSQ) (Lester, 1982). The analysis of the data revealed that the job satisfaction of teachers and administrators was positive following the change from the 5-day school week to the 4-day school week. The analysis of the attendance data showed a decrease in the number of absences of teachers, administrators and students after changing from the 5-day school week to the 4-day day school week. This study could have implications for school districts with similar demographics.

Duchscherer, B. (2011). *A Case Study: Transitioning From A Five-Day School Week To A Four-Day School Week*. University of North Dakota.

For over a century, most PK-12 schools across the United States have been using the same format of five days of school a week for approximately 9 months a year. The discussion of a four-day school week is being considered as many school districts try to balance their budgets each school year. Some schools in the past 30 years have begun changing to a four-day school week. The four-day school week can create controversy within a community, concerns among parents and students, and benefits for the school district as well as for parents and students. The researcher studied one rural school district transitioning from a five-day school week to a four-day school week. The purpose of the study was to identify what made a rural school district decide to transition to a four-day school week, how the school district accomplished this new delivery of PK 12 education, and to identify perceptions regarding this transition. The case study was completed with one rural Minnesota school district. The researcher conducted on-site interviews with school administration and one school board member, and gathered school district data from the past three years to review and identify how the school district changed to a four-day school week. The results from the data collected indicated the school district transitioned to a four-day school week because of financial reasons. The school district did not want to reduce educational opportunities for students by eliminating class offerings or cutting teaching positions. The data indicated, after experiencing the four-day school week, most students, parents, and teachers favored the new four-day school week compared to the previous five-day school week. The main concerns identified by the participants and data reviewed were younger students adapting to the longer school day, extracurricular adjustments, upset classified personnel, how much money would the district save, and tired employees at the end of the four-day week.

Leiseth, B. J. (2008). *A case study of the four-day school week: An alternative schedule for public schools*. Capella University.

With the pressures of global competition and the adoption of the No Child Left Behind Act, many school districts across the United States are experimenting with alternative school calendars in an attempt to raise student achievement. This poses a dilemma for many school districts as they face societal pressures to increase student achievement with limited funding to do so. In an effort to improve, some schools have adopted a four-day school week schedule in hopes of saving money while improving classroom instruction and raising student achievement. This study gives insight to the impact of the change to a four-day school week schedule on students, teachers, and parents in a particular community through an illustrative case study. Both quantitative and qualitative research methods were used to gather data. Analysis of the data revealed mixed results for the four-day school week schedule. The perceptions of the responding groups pointed toward a positive and overall beneficial impact of the four-day school week. The research provides opportunities for further study and observations. This study could have implications for other school districts with similar demographics.

Hale, R. (2007). *A case study of the four-day school week in five South Dakota prekindergarten-12 public schools*. University of South Dakota.

The purpose of this study was to describe the processes followed in implementing a four-day week and the perceptions of stakeholders in five South Dakota school districts that have chosen to operate a four-day school week. Four-day school week school districts in South Dakota rose over the course of 11 years from one in 1995 to 16 in 2006; this generated interest. Information was gathered and compared for the 16 school districts for the year preceding implementation and the 2005-2006 school years. Areas of interest included student enrollment, certified staff numbers, attendance, drop-out and graduation rates, discipline incidents, achievement, and transportation budgets. Five school districts were selected for an in-depth study. The selection was based on the following criteria: the superintendent was present in that position at the time that the school district implemented their four-day school week schedule, the school districts were not in their first year of implementation, the school districts represented eastern and western areas of the state, the school districts represented districts with large and small student populations, and the chosen school districts represented districts with a range of areas (as measured in square miles). The researcher conducted 60 on-site interviews of stakeholder groups including superintendents, principals, teachers, students, and parents to learn about their perceptions concerning the four-day week. Processes followed in planning and implementing a four-day school week schedule varied among the school districts. The advantages most often mentioned by stakeholders were improvement of morale, achievement, attendance, more family time, and supplementary programs. The disadvantages most often mentioned by stakeholders were the intensity or length of the school day and child care on the non-attendance day (Friday). Student enrollment, the number of certified staff members, and graduation rates decreased in the majority of the 16 four-day week school districts during the time of comparison. Attendance, achievement, drop-out rates, and transportation costs increased in the majority of the sixteen four-day school weeks for the same time frame.

Fagergren, P. J. (2003). *The Four-Day School Week: An Examination of Long-Term Student Achievement at the Middle and Secondary Levels*. Taft University.

Academic achievement under a four-day school week is compared to the traditional five-day school week. Test scores from the CAT [California Achievement Test], ITBS [Iowa Test of Basic Skills], TASK [Stanford Test of Academic Skills], SAT [Stanford Achievement Test], TAP [Tests of Academic Proficiency], and MAT [Metropolitan Achievement Test] were analyzed for a fifteen year period: the five years before the four-day school week, five years on the four-day school week, and then the five-years immediately off the four-day school week. Adequate Yearly Progress (AYP) was measured in grades eight, eleven, and twelve in reading, mathematics, and language subject areas. The data support the interpretation that the majority of students made AYP across the fifteen year period, with no detrimental effects to standardized test score results.

Feaster, R. A. (2002). *The effects of the four -day school week in Custer, South Dakota*. University of South Dakota.

The purpose of this study was to determine current perceptions of Custer School District 16-1 stakeholders (students, parents, instructional staff, business and community members, and non-certified staff) regarding the effects of the four-day school week on the district educational program, student, teacher, and staff performance, and out-of-school activities. Secondly, the study determined to what extent perceptions had changed since the four-day school week was implemented. Thirdly, the study determined if there were any changes in student attendance and achievement associated with the four-day school week. Finally, to compare present and past stakeholder satisfaction regarding the four-day school week schedule. The review of literature focused on the history of the four-day workweek, the history of alternative school schedules in the United States, and the implementation of the four-day school week in Custer School District 16-1 in South Dakota. Survey research was conducted that duplicated a similar survey study that was conducted after the 1995–96 four-day school year. Descriptive and inferential statistics, including means, standard deviations, and t-tests were used to determine significant differences between the 1996 and the 2002 surveys. Analysis of the data suggested that students, parents, business and community members, non-certified staff, and instructional staff perceive that the effect of the four-day school week has been positive on curriculum and instruction, student behavior, self and/or family, and school schedules for lunch and snacks. Secondly, student attendance has improved and student achievement has experienced very little change since the four-day school week has been implemented. Finally, the survey indicated students, parents, instructional staff, business and community members, and non-certified staff have all indicated satisfaction with the four-day school week. Comments regarding what the instructional staff, parents, and students do on Fridays are included. Also, positive and negative comments concerning the four-day school week are discussed.

Brunjes, P. K. (1996). *A study of alternative high school scheduling*. Seattle University.

This study examined three different scheduling patterns presently used in high schools across the country. The four-day week, flexible/modular scheduling, and the four-period day were explored from the perspective of time, the change process, leadership, curriculum and instruction, and

effective schools and culture. The basic technique employed for this study was qualitative. One hundred and ten schools were surveyed and/or interviewed. Common themes were found and advantages and disadvantages of each scheduling type were noted. The study gives administrators and teachers insights into the process of changing a schedule and the types of problems that must be confronted in order to make effective schedule changes.

Richards, R. L. (1990). *A comparative study using selected characteristics of four-day week schools and five-day week schools in rural New Mexico*. Texas Tech University.

This study was a comparative study using selected characteristics of four-day week schools and five-day week schools in rural New Mexico. In recent years, reform efforts have called for an increase in the number of school days per year. However, little research has been done about the comparisons of four-day and five-day week schools. This study contributed to the research concerning student achievement and variable school calendars. The purpose of the study was to compare student achievement, student satisfaction, and faculty satisfaction in K-12 rural four-day and five-day New Mexico school districts. All school districts in the study had enrollments of 400 average daily membership or less. Student achievement was analyzed over an eight-year period. Student and faculty member satisfaction was correlated with 1989 student achievement. Several analyses were used to compare the variables. Student achievement in small rural schools was analyzed by a three-way ANOVA using grade level, days per week, and the Comprehensive Test of Basic Skills (CTBS) scores as variables. The 1989 CTBS scores were compared to student and faculty satisfaction, as measured by-the National Association of Secondary School Principal's (NASSP) Comprehensive Assessment of School Environments, using multiple regression techniques. Using discriminant analysis, student satisfaction and student achievement also predicted the number of days per week that students were in school. The study indicated that CTBS scores of students in grades five and eight were significantly different (<0.05) between small rural four-day week schools and small rural five-day week schools in New Mexico. The four-day week student scores were significantly higher than the five-day week scores over an eight-year period. Indicators of student and faculty satisfaction, as determined by the NASSP Satisfaction Surveys, showed no significant correlation with CTBS scores for the 1989 school year. When predicting student membership in a four-day or five-day week school, the discriminant analysis technique was accurate approximately 66% of the time. As a result of this research, recommendations were made to study community and parental attitudes toward four-day week schools. Further research was also recommended concerning expenditures to improve direct instruction by four-day week schools.

Roeth, J. (1985). *Implementing the Four-Day School Week into the Elementary and Secondary Public Schools*. Ball State University.

The purpose of the study was to provide school administrators information about implementation of the four-day school week. Advantages and disadvantages were discussed in addition to reviewing specific areas of cost effectiveness, student achievement, and staff development. Questionnaires were mailed in April, 1984 to sixty-two public school officials throughout the United States representing eight states that operated the four-day school week. Fifty questionnaires were returned yielding an 80.6 percent return. A review of the literature revealed

that the four-day school week was a relatively new concept in school scheduling, having been in existence since the early 1970s. The primary reasons for implementing the four-day school were overcrowdedness, conserving energy, and reducing overall operating costs.

Some of the findings and conclusions based on the analysis of data follow: (1) Colorado is the leading state in the United States which has school districts operating on the four-day school week, followed by New Mexico and Minnesota. Other states reporting experience with the four-day schedule include Maine, Massachusetts, New Hampshire, Oregon, and Utah. (2) One-hundred percent of the responding schools implementing the four-day schedule were from rural communities with seventy-six percent of the districts having enrollments of less than 1000 students. (3) The non-school day most frequently chosen was evenly divided between Monday and Friday. The four school days were commonly extended sixty or ninety minutes to equal the same amount of instructional time as the five-day schedule. (4) Although teacher salaries remained the same, cost savings from five to twenty percent in transportation, food service, custodial supplies, and heating costs were realized by implementing the four-day school week. (5) Ninety-seven percent of the superintendents indicated that the four-day school week had improved or not affected student achievement during the first year of implementation.

Conclusions. (1) The four-day school week is perceived as being successful in reducing operating costs, maintaining student achievement, reducing student and staff absenteeism, and improving morale of students and faculty. (2) The disadvantages of the four-day school week may be the supervision of students in the community on the non-school day and the longer school day for small children.

Master's Theses

Maxey, M. R. (2018). *Future of Failure? Studying the Effects of a Shortened Schedule on the Academic Success of Students*. University of Oklahoma.

This study examines the effects of changing from a five-day to a four-day school week on academic achievement for public schools in Oklahoma, a state which ranks high on poverty and near the bottom on educational quality compared to other states. Yet since 2013, Oklahoma school districts have increasingly adopted the four-day school week in response to less state spending on education. We use clustered-regression analysis and a sample of 1,336 schools from public-use Oklahoma State Department of Education (OSDE) data to examine the effect on the measure, a school's academic report card score, for those who have experienced the shift from a five-day to a four-day school week over the period 2012 to 2016. This research finds a negative relationship between the change to a four-day school week and school report card scores, compared to schools that maintained a five-day school week. These results differ from those found in similar studies in other states, highlighting the importance of considering unique socioeconomic factors inherent to a state when implementing policy changes that affect our vulnerable future. And for Oklahoma, the switch to a four-day school week has for the most part been felt by children in rural schools, who are already economically challenged, so this may widen the already existing academic achievement gap between richer and poorer students.

Hedtke, J. T. (2014). *The Four-Day versus the Five-Day School Week: A Comparative Study of South Dakota Schools*. North Dakota State University.

The purpose of this study was to determine what impact the four-day school week had on the Dakota STEP test by comparing four-day schools to themselves three years before their switch to their Dakota STEP test scores in 2009 – 2011. The four-day schools were then compared to similar five-day schools' performance on the Dakota STEP test to determine if four-day schools were outperforming their five-day counterparts. In addition to these quantitative comparisons, a survey was sent to four-day school administrators to discover what perceptions principals had of the four-day school week, what perceptions superintendents had of the four-day school week, and how teachers utilize the non-contact day.

Knapp, K. (2014). *The influence of a four day school week on ACT scores*. Northwest Missouri State University.

This study was completed to find if there is a significant difference in ACT test scores on the standardized assessment when students attend a four day school week versus a traditional five day school week. Research shows that students learn at different rates and this should be considered when preparing students for standardized tests. Students typically prepare for the ACT assessment. After collecting and analyzing the findings of this study, current research, and the statistical data from the Missouri Department of Elementary and Secondary Education it is found that there is not an impact on test scores based the number of days in a school week. Student achievement was similar on the ACT assessment for those students that remained in five day school week when compared with the achievement of students placed in the four day school week. The ACT focuses on Mathematical and English Language Arts. After collecting and analyzing the findings of this study, current research, and the statistical data from the ACT exam, it is found that there is not an impact on test scores based on the length of the school week.

Thomason, B. (2013). *Effectiveness of the Four Day School Week on End of Course Exam Scores in Both Communication Arts and Math*. Northwest Missouri State University.

The purpose of this study was to determine if there is a difference in student achievement of students that attended school in the traditional five-day school week as compared to those students that attend school using a four-day school week format. After the 2009-2010 school year a rural school district in the Midwest United States instituted a four-year school calendar in order to reduce operating costs of the district. One of the tools that would be used to evaluate the new schedule and determine its value was student achievement on EOC exams. If it was found that student achievement on these exams had decreased after the adoption of the four-day school week, the district would more than likely re-evaluate their decision to change the schedule and might transition back to the traditional five-day format. This study compares student scores on the Algebra I and English II EOC exams from a four year period; two years prior to the institution of the four-day school week and the two years following the adoption. After conducting a t-test analysis of student scores on these two tests over the four year period it was determined that there was no significant difference in student achievement on these two exams. Students performed nearly the same on required accumulative state exams while using the four-day school week calendar as they did while going to school using the five-day school week

model. There is limited research that supports the findings of this study but as more studies are conducted and more districts begin adopting the four-day school week, we will begin to determine the validity of the four-day school week in terms of student achievement and performance.

Giger, M. (2012). *The Impact of the Four-day School Week on Student Achievement*. Northwest Missouri State University.

The purpose of this study was to indicate whether or not implementing a four-day school week instead of a five-day school week affects elementary (grades 3-5) MAP scores. The research includes findings that answer the question, "Is there a difference in elementary (grades 3-5) student achievement between a four-day school week and a five-day school week?" The research was conducted by collecting MAP (Missouri Assessment Program) scores from the DESE (Missouri Department of Secondary and Elementary Education) website for grades 3-5 from three years previous to switching to the four-day school week when the traditional five-day school week was used to the MAP scores the year the school district implemented the four-day school week. The findings were analyzed through Microsoft Excel and A Statistical Program (ASP) software. Findings from this research indicate that there is not a significant difference in Communication Arts MAP test scores based on a 4-day or 5-day school week. This research also showed the students on the 4-day school week schedule scored higher on the MAP Math assessment than on the five-day school week schedule. However, the rise in math MAP test scores could have been due to a number of factors. With limited test scores available so far from the four-day school week, more data is needed to make further indications of how the four-day school week affects student achievement.

Miles, K. (2012). *A Brief Analysis of the Possible Impact of a Four Day School Week on Student Performance in Colorado Schools*. Northwest Missouri State University.

This study contains information about the history of the four-day school week and how it has been implemented throughout the United States. It looks at which states currently have school with a four-day school week and reasons behind changing to this style. The main idea behind this study was to determine if changing to a four-day school week from the standard five-day school week would affect overall student academic achievement. The study focused mainly on the state of Colorado where there are currently sixty-two school districts operating on the four-day school week. Results from the Colorado Student Assessment Program (CSAP) were used as well as research by Paul Hewitt and George Denney from the University of Arkansas. The results of the study conclude that reasons to change to a four-day school week do not drastically effect student academic achievement.

Wilmoth, S. E. (1995). *The four-day school week and how it affects student achievement*. University of Arkansas.

The purpose of the study was to investigate the efficiency of the four-day school week program in relation to the cost of operation and effectiveness of curriculum. The study attempted to gather information for the benefit of school districts and administrators that may want to adopt a four-day program in the future. Advantages and disadvantages are discussed. Procedures for implementation are also included for evaluation in reducing effective schools. School

superintendents of four-day programs were surveyed to gain current information. The survey included demographic questions, cost efficiency questions about the school, and student achievement. Open ended questions were included to solicit responses as to the strength and weaknesses of four-day programs. The findings indicated that school superintendents generally agree four-day programs are successful primarily in small rural areas. Schools do apparently show a reduction in operational costs. In comparing student achievement, the large majority of schools surveyed are performing as average or above both at their state level and nationally. The rankings are based on standardized achievement tests. A list of advantages and disadvantages were compiled from surveys completed. The advantages were numerous and the disadvantages were limited. The most frequent advantages were lower costs, higher academics, and improved morale among students and staff. The advantages implied outweigh the disadvantages indicating a future for the four-day program in select regional areas.

Roadifer, W. (1983). *Attitudes and perceptions of voters, teachers and students toward the four-day school week at Sheridan County School District no. 1 West.* Montana State University.

The purpose of this study was to determine the acceptance of the four-day school week as an alternative scheduling concept by the voters, teachers, and students of ,Sheridan County School District No. 1 West. It was necessary to conduct this study because this was the first four-day school experiment attempted in a Wyoming school district. District No. 1 addressed the improvement of the academics of education, while other four-day schools throughout the United States established the alternative scheduling concept to alleviate economic burden. A questionnaire was developed asking the respondents to compare the traditional five-day week to the four-day school week. The questionnaire was validated by a group of individuals similar to those included in the population. Voter response yielded a total of 76 questionnaires for a 42.6 percent return. Sixty-three teachers replied for an 85 percent return and 281 of the students responded for a 75 percent return. The survey was divided into four major categories: (1) academic, (2) attitude, (3) scheduling, and (4) extracurricular activities. Of the four statement categories on the survey rated by the three groups, the attitude category elicited the greatest number of assenting responses. Of those surveyed, 404, or 64.6 percent (625 total) returned questionnaires. All questionnaires were used in the data. The major conclusion indicated by the survey showed voters, teachers, and students accepted the four-day school week as an alternative scheduling concept. Further conclusions show students were enthusiastic about the four-day week and more respondents indicated they favored the four-day experiment than opposed it. Absenteeism for both teachers and students was reduced. Recommendations suggest that legislative support should be obtained, preplanning and systematic testing should be completed and then school districts should use caution before beginning a four-day school week.

Undergraduate Theses

Smith, M. C. (2020). *Attachment to Place Among Teenage Students in School Districts With Four-Day School Weeks*. Oregon State University.

Rural communities face acute challenges in providing education. Attachment to place plays a significant role in rural communities but little research exists on how it influences policy. One

policy response to financial, physical, and cultural factors in rural Oregon is the four-day school week (FDSW). Through health survey responses of Oregon teenagers, I estimate the impact of the four-day school week on various metrics for attachment to place by regressing these metrics onto a FDSW dummy. I find that students in the FDSW are more likely than students not in a FDSW to agree with the statement "If I had to move, I would miss the neighborhood I now live in." I also find that students in FDSWs are less likely to have changed schools three or more times, more likely to report that they volunteer in their local community, and report better mental health outcomes. I also include a qualitative analysis through an ethnographic interview with a university student who went to a FDSW school in Oregon. I conclude that attachment to place interacts with the FDSW policy choice and policy outcomes. I also make a case for the integration of qualitative analysis into quantitative study.

Collins, E. (2019). *The Impact of Four-Day School Weeks and Fifth-Day Programs on Delinquency and Problem Behaviors in Adolescents*. Scripps College.

In recent years, tightening budgets have forced school districts to find new ways to save money. One way that has become increasingly popular is to shorten the traditional five-day school week to only four-days a week. This change is budget friendly and may act through efficiency wage theory as a recruitment tool for better teachers. Despite the increasing prevalence of districts running on four-day weeks, many of the effects of the shorter week on students are still unclear. Utilizing district-level panel data from the Colorado Department of Education, Study One took a difference-in-differences approach to determine the effect of the implementation of the four-day week on various delinquency measures, including suspensions, expulsions, and juvenile arrest rates. No significant results were found with robust standard errors, but trends suggested that juvenile crime may be increasing while school related incidents may be decreasing in areas with four-day school weeks. To offset these trends, this paper also proposes a second study aimed at investigating the effects of different types of fifth-day programs on adolescent well-being, academic achievement, and problem behaviors. Schools using the four-day week that agree to participate will be randomly assigned to receive either a career-prep program, an academic program, a recreational program, a social skills/mentoring program, or no program at all. Students (N=XXX) will fill out a survey at the beginning and at the end of the program or school year, reporting their subjective well-being and recent engagement in problem behaviors. It is expected that students who participate in the social skills/mentoring program will show the highest levels of well-being and little engagement in problem behaviors. This study will help to advance the research on after school programming, particularly in rural environments.