

THE FOUR-DAY VERSUS THE FIVE-DAY SCHOOL WEEK: A COMPARATIVE STUDY
OF SOUTH DAKOTA SCHOOLS

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The Four-Day Versus the Five-Day School Week: A Comparative Study of
South Dakota Schools

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ABSTRACT

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.

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CHAPTER 1. INTRODUCAION

There have been a considerable number of studies done on the four-day school week. Including studies done in the States of Colorado, Idaho, and New Mexico (Dam, 2006; Donis-Keller & Silvernail, 2009; Grua & Shaughnessy, 1987; and Reinke, 1987). Many of these studies have focused on such things as the procedures to follow when selling this idea to the public and school boards, how cost effective the change is, and how to best utilize the “spare day” for students and teachers. The four day school week is quickly becoming one of the important operational models being considered by many school districts across the country as more and more states offer this as an option for schools looking to save money due to budgetary problems. Typically, the four-day school week has been promoted as a delivery alternative on par with the five day school week because students often spend more hours at school and in some cases nearly the same number of days. It has also been promoted as a beneficial alternative based on savings to the budget (Dam, 2006; Donis-Keller & Silvernail, 2009; Grua & Shaughnessy, 1987; and Reinke, 1987). While these may be credible reasons to make changes to schools to help keep them operational and soluble, they should not be the primary consideration when it comes to a change of this nature. Instead, school districts, school boards, administrators, teachers, and parents should be asking if the four-day week is in the best educational interest of the students?

Speaking practically, by moving to a four-day school week students lose twenty percent of their contact days with teachers each year. This reality begs the question of whether or not those missing days can be made up by simply tacking on additional minutes to the four remaining school days in a four-day school week. When questions concerning academic impact are raised regarding the four-day school week, the current research is rather lacking or mixed at

best (Grau & Shaughnessy, 1987; Hewitt & Denny, 2011). The studies that have focused on the four-day school week's impact on learning are mostly based on test scores. In addition, these studies are quick to point out certain flaws in evaluating the four-day school week based on nothing more than standardized test results. Some studies looked only at test results the year before and the year after the change and concluded that the difference in student performance is negligible. Other studies provided longitudinal data for two years before and two years after, looking at the same students (Daly & Richburg, 1984; Grau & Shaughnessy, 1987). Several studies concluded that while many students showed less learning growth on their tests the first year of the change, this was not universal, and nearly all students recovered from the slower growth by the second year after the change (Daly & Richburg, 1984; Grau & Shaughnessy, 1987; Sagness & Salzman, 1993). There are a number of problems with the past research that has been done on the four-day school week's academic impact. Much of this academic research has only looked to compare four-day schools to four-day schools and then only to compare them before and after the change. While this makes sense when it comes to monitoring the impact on the same school, it does not provide information as to what is going on in five-day schools in the same state with similar characteristics as the four-day schools.

South Dakota: A Closer Look

The intent of this field study is to take a closer look at South Dakota's four-day school's standardized test results and compare them to not only what their test scores were prior to their switch to a four-day system, but also to similar schools on a five-day school week system. It is important to note that while many of the schools in South Dakota have only made the change to a four-day school week within the last several years, Custer Public Schools has been operating under the four day school week since 1995. This means that not a single student in its current

system has any experience under the five day school system, unless they transferred into Custer Public Schools from another school district. Therefore, Custer Public Schools is at the forefront of what other schools changing to a four-day school week might expect when it comes to long term student performance. In addition to comparing schools with a four-day school week to schools with a five-day school week, the schools will be compared to themselves prior to their switch.

This study will use both quantitative and qualitative methodologies to gather data. Quantitative data will be obtained through South Dakota's state wide testing, the Dakota STEP test, which breaks student results into four categories: advanced, proficient, basic, and below basic. The quantitative test results that will be compared in this research paper, will group students into the same categories as South Dakota reports them for cohort group results: grades three through five, six through eighth, and eleven. With these groupings the tests' results will allow for the first year test result's grade to factor into the results more than once, while older students will only factor in once - the way the grades are grouped together by South Dakota's Department of Education. From this grouping of grades a more consistent longitudinal study can be created based on the results since certain grades will contribute to the results multiple times. It will also be informative to get direct feedback from superintendents and principals about their opinions and insights of the students, teachers, and schools after the switch to a four-day school week. To gather this data a qualitative methodology will be developed.

Purpose of Study

This study will compare state test results for four-day week schools to themselves before and after their switch and to similar five day week schools in the state of South Dakota to determine whether or not there are any differences in academic outcomes based on test scores. The purpose of this study is to determine if there is any difference for schools switching to a four-day school week when it comes to NCLB state testing before and after they switch and to similar schools under a five-day school week. If a four-day school week is actually supposed to improve or at least be comparable to a five-day school week, teaching and student performance on state standardized test scores should at least be comparable if not better than student performance in a five-day school week system. If test scores are not nearly identical to schools operating on a five-day school week, then superintendents and school boards advocating or considering a four-day school week, should admit that the four-day school week is not beneficial to education and that it only serves in cutting minor costs for a school. Also, the idea and claim that teachers somehow become better teachers with an extra day of planning can easily be dispelled if student test results do not live up to such a claim. Instead, the old maxim of time on task needs to be reapplied and the five-day school week needs to be brought back if student performance does not measure up between four and five-day schools. However, if there is little or no difference between these two types of school schedules, then the old maxim of time on task needs to be thrown out or reevaluated.

The four-day school week question is important because the number of schools switching to a four-day school week in South Dakota continues to climb, for example in 2009 there were only fifteen schools while today in 2013 there are thirty eight schools utilizing the four-day school week. Nationwide there are a total of twenty one states now allowing four-day school

weeks even though this number only represents one percent of the total number of districts in the US. This study should provide insight for a large number of schools and states contemplating such a change or that have made the change.

Research Questions

1. Do South Dakota K-12 students attending selected schools using a four-day per week schedule have a higher percentage of students in the advanced and proficient categories of the Dakota STEP test than their peers who attend selected schools using a five-day per week schedule?
2. How do Dakota STEP test scores differ for South Dakota K-12 students attending selected schools using a four-day per week schedule compared to Dakota STEP test scores at these same schools when they operated on a five-day per week schedule?
3. How do school principals feel about the four-day week schedule?
4. How do school superintendents feel about the four-day week schedule?
5. How do teachers use the extra day?

Significance of the Study

While more and more states allow school districts to adopt a four-day school week to save money, and while the number of schools opting to change to the four-day school week in South Dakota has more than doubled in the past several years, the academic impact on students is not clear. All twenty one states allowing the four-day school week could benefit from the results of this study even though this researcher will only be studying a handful of school districts in South Dakota. The findings of this study should help guide state education departments and superintendents and school boards in making better decisions when it comes to changes of this nature and the impact the four-day week has on learning. Obviously, South

Dakota would benefit the most since this study is using South Dakota school districts. This research should provide information dealing with the long term impact of the four-day school week on academic learning through state test results, and show whether or not the four-day week is comparable to the five-day week. In contrast to other studies done in this area, this research will compare and contrast both four-day and five-day schools and four-day schools to themselves before and after the switch. It will also shed light on how current superintendents and principals of the four-day schools feel about the change.

Limitations of Study

It is only looking at eight South Dakota schools using a four-day school week, seven of which have only been operating under the four-day school week for as little as seven years. The districts under study are small and rural, typical of many South Dakota school districts. The study also only averages the last three years of a school's test results and the last three years before the schools switched from a five-day school week. This means the study does not provide long range impact of the four-day school week on a single class; rather, students move each year and a new population is tested each year. However, with the three year average, each grades' results do show up one to three times as part of the average since their test results would be part of a 3-5, 6-8, or 11 three year average. When four-day schools are compared to similar five-day schools, only a general comparison of demographics for the communities and schools is used to make the selection: student population, average income, community population, and school district size.

Organization of Study

Chapter 1 presented the introduction, statement of problem, purpose of study, research question, significance of the study, and limitations of study. Chapter 2 contains the review of related literature and research connected to the problem being investigated in relation to the four-day school week's impact on state testing results before and after the switch and a comparison of these schools to similar five-day school week schools. Chapter 3 presents the methodology and procedures used to gather data through surveys and from South Dakota's Department of Education website on the selected schools of four and five-day schools. Chapter 4 details the results of the study by looking at four and five-day schools combined and individually, while Chapter 5 provides the finding, conclusions and suggested areas for further study.

CHAPTER 2. REVIEW OF LITERATURE

According to the “National Conference of State Legislatures” (2013) there are twenty one states that offer a four-day school week. Some of these have only recently adopted it, like Minnesota, and so it is used by a very limited number of schools. On the other hand, states like Colorado have been using it for decades and currently have about one third of their school districts using the four-day school week. Interestingly, Ladner and Lips (2012) ranked all fifty states according to student performance on standardized tests, two thirds of the state’s offering the four-day school week rank in the lower fifty percent, while one third rank in the top half. Yet, it needs to be remembered that less than one percent of districts in the US use the four-day school week. Surprisingly though, Colorado ranks fourth in the nation for student performance even though it implemented the four-day school week more than two decades ago for many of its rural schools. It is important to remember that Colorado does set up a number of requirements for schools making the switch to the four-day school week: 1080 hours and at least 144 contact days per school year (Dam, 2006). Other states may be able to learn something from what Colorado is doing with its limited use of the four-day school week when it comes to student performance, and other states need to be studied to see if student performance is universal under the four-day school week.

History and Rationale

The vast majority of information on the four-day school week deals with when it started, why it was implemented, and how it was implemented. Much of the writing deals with how different schedules can be implemented and the side benefits and drawbacks of the four-day week school. Surprisingly, the four-day school week may have first originated in South Dakota in the 1930s only to disappear as the economy improved. It reappeared in other states during the

early 1970s due to the rise in energy costs (Hewitt & Denny, 2011). For the most part, states west of the Mississippi and school districts that cover large land areas and are rural have opted for the four-day school week in an attempt to save money as fuel prices rose and ate away at school budgets. The first schools to implement the four-day school week felt compelled to either go to a shorter school week or cut programs from their curriculum in order to reduce costs and save money. The rationale behind the switch boiled down to saving roughly thirteen to twenty percent of the school's budget by cutting costs related to transportation, heating and cooling, and non-certified staff positions, and then taking a portion of the savings and reinvesting it in maintaining the current staff and curriculum (Dam, 2006; Hewitt & Denny, 2011; Reinke, 1987). Some schools continued to bus students needing help for a fifth day of optional school and tutoring and saw no cost savings after the switch. The typical rationale used for the four-day school week has reasoned that it is not a loss to the students because while students may lose a contact day, they are making up the time or exceeding it in some schools by spending more time in school. This increase in time could mean as little as putting in six and half hours of classroom time instead of the typical six, while other schools have increased school hours to eight. In this sense, the four-day school week was not short changing students when it came to seat time. The drawback to this additional seat time was that many rural schools saw their students leaving earlier and returning home later in the day. While there are occasionally complaints about fatigue from students and parents with the longer school day, 80 – 90% of parents of students favor the four-day school week (Dam, 2006; Donis-Keller & Silvernail, 2009). Schools opting for the shortened week also saw the benefit of using the fifth day as a flexible and built in day to make up for any days in the year lost due to inclement weather.

Positives and Negatives of Four-day Week

In addition to the lengthened school day, the four-day school week is often promoted as a way for teachers to improve the curriculum since some schools require teachers to be in school the fifth day for planning (Yarbrough & Gilman, 2006). The theory here being that teachers and administrators are then able to meet, work as or with departments, and personalize lesson plans more effectively to help improve learning. However, there is no universal formula on how schools and teachers go about using the fifth day of the school week and this use of the school diminishes the potential cost savings that is intended by having to keep it heated or cooled when school is not in session. Some schools require twelve five day work weeks from teachers for meetings and school improvement meetings in addition to the four additional days of contact mandated by states for teacher in-service. This leaves roughly eighteen weeks where teachers work the fifth day of the week on their own to improve their teaching and the curriculum. Some teachers have noted that they feel more tired at the end of the day because of the lengthened class time and their need to cover more information each period (Donis-Keller & Silvernail, 2009; Reinke, 1987; Yarbrough & Gilman, 2006).

Several other areas of benefit flowing from a four-day school week are that extracurricular activities no longer interrupt class time, decreased absenteeism for teachers and students, a drop in student discipline referrals, and a decline in the student dropout rate (Donis-Keller & Silvernail, 2009; Yarbrough & Gilman, 2006). With one day off, extracurricular activities are scheduled when school is not in session, so students are no longer missing regular classroom time and teachers are not stuck in idle when students are missing because of school events. Since parents can now schedule trips and medical appointments for the fifth day of school, fewer students miss school. The same can be said for teachers. This translates into

savings for the budget since fewer substitutes are hired throughout the year. Of course, all of these positive and negative aspects of the four-day school week may or may not be easy to sell for a superintendent and school board when making the four-day school week a proposed calendar change for the coming school year.

Prior Research on Academic Impact

Much of the research dealing with the four-day school week gives general information on what steps need to be pursued to make the four-day school week a successful switch. When the four-day school week was first proposed and adopted in many western states in the 1970s and 1980s, there was little or no research available on how the four-day school week affected student performance. When this issue was brought up by concerned adults, it was easily brushed aside as an unfounded fear because of the lack of data. However, within the last decade a small number of studies (Anderson & Walker, 2012; Hewitt & Denny, 2011; Yarbough & Gilman, 2006) have been done focusing on student academic performance under the four-day school week, but the conclusions of these studies have been mixed regardless of their focus.

Originally, the first studies done on student performance looked at how students performed before and after the switch and compared the schools only to themselves. Later, as more schools in Colorado, New Mexico, and Idaho switched to the four-day school week, researchers started to compare four-day schools not only to themselves but to five-day schools for longer periods of time. A study conducted between 1978 and 1982 in Colorado by Richburg and Edelen (1981) identified eight different school districts making the switch from the five-day school week to the four-day school week. They compared these school districts to themselves before and after the switch and came away with mixed results that did not allow for any

conclusions to be drawn about performance. Some grades and schools did do better in math and reading on the four-day week, while other schools and grades in the study did worse. In studies by Anderson and Walker (2012) and Daly and Richburg (1984), test results two years before and two years after the change were examined. Anderson and Walker (2012) compared four-day week school performance to five-day week schools. They conclude that four-day week schools were outperformed the first year by five-day week schools, but then by the second year four-day week schools outperform the five-day week schools. In the Daly and Richburg's (1984) study of Colorado schools, students in four-day schools were tracked for four years and compared only to themselves prior to the switch. Their results show that in the five schools studied, performance scores were as inconsistent before the change as they were after it. This would suggest that there is no academic advantage or disadvantage to making the switch. In a two year study of New Mexico schools comparing four and five-day schools to each other, Grau and Shaughnessy (1987) concluded that the test results on the Comprehensive Test of Basic Skills for grades 3, 5, and 8 concluded with mixed results. Students in the four-day week schools outperformed the five-day week students in some areas of the tests, while the five-day week students outperformed the four-day week students in other areas. A one year study in 2008 looking at sixty two schools conducted by Hewitt and Denny (2011) compared five-day and four-day schools using Colorado Student Assessment Program test. They concluded that even though the five day schools outperformed the four day schools in eleven out of twelve test areas in grades 3 through 10, the results were not significantly high enough to warrant any alarm over the four-day week. It is worth mentioning that the authors of these studies point out that there are different students each year, and they suggest that more longitudinal studies be conducted before drawing any conclusive answers to the impact on student performance. These studies and others like them

have led most state Departments of Education, like Idaho and Colorado, to conclude that there is either little harm to student academics and performance or more studies need to be carried out before an answer can be known.

One longitudinal study, Richards (1990), compared nine four-day week schools to nine five-day week schools in rural New Mexico over a period of eight years (1982-1989). To test for student achievement, Richards used the Comprehensive Test of Basic Skills (CTBS) scores and compared over 4000 students in grades 5 and 8 between the various schools. In this study, Richards found that significant differences existed in student achievement between students in the four-day week schools compared to those in the five-day schools in four of seven variables measured. When the schools CTBS mean scores were compared year-over-year, four-day week students scored consistently higher than their five-day week counterparts.

It would appear, based on the current research available, that more studies need to be conducted or replicated to determine whether or not the four-day week has any positive or adverse impact on elementary school and secondary school performance. Schools making the switch need to be compared to themselves and to similar five-day schools so that a better understanding can be gained of the four-day school week. It certainly has positive outcomes in areas like attendance, lower dropout rates, and financial benefits, but student performance is hardly clear-cut. As of now the results are mixed and what constitutes significant differences has yet to be determined when it comes to student performance on standardized tests.

CHAPTER 3. METHODOLOGY

The purpose of this study is to determine what kind of impact the four-day school week has had on Dakota STEP scores in math and reading. To learn what impact the four-day week has had on Dakota STEP test scores, Four-day schools were compared to themselves prior to their switch and then to similar five-day schools. It is also this study's purpose to discover what views current administrators have of the four-day school week and how the "fifth" day is utilized by the school and teachers.

Research Questions

The main research questions aim to find out what impact the four-day school week has had on Dakota STEP test results and how administrators view the four-day school week and how teachers put the fifth day to use.

1. Do South Dakota K-12 students attending selected schools using a four-day per week schedule have a higher percentage of students in the advanced and proficient categories of the Dakota STEP test than their peers who attend selected schools using a five-day per week schedule?
2. How do Dakota STEP test scores differ for South Dakota K-12 students attending selected schools using a four-day per week schedule compared to Dakota STEP test scores at these same schools when they operated on a five-day per week schedule?
3. How do school principals feel about the four-day week schedule?
4. How school superintendents feel about the four-day week schedule?
5. How do teachers use the extra day?

While there are currently thirty eight school districts in South Dakota that have made the switch to the four-day school week, more than half of these switches have occurred since 2009. The proposed study's objective was to look at schools with at least three years' worth of standardized test results under the four-day school week and with as many years as possible under the four-day school week behind them. This way the four-day school week would be having a greater impact on test results since more students would have spent more of their education under this system. Since this was part of the researcher's criteria, of the fifteen schools that made the switch prior to 2009, only seven qualified. Wall, McLaughlin, and Haakon all switched during the 2002 – 2003 school year; Bon Homme during the 2003 – 2004 school year, and Bennett County, Deuel, and Stanley County during the 2004 – 2005 school year.

Each school's standardized test scores (district test scores found on South Dakota's Department of Education website) were averaged out for the three years prior to their switch so a comparison was made of the school's scores before and after the switch. With the use of descriptive statistics and averages, comparisons were made using the data gathered over a three year period: 2009, 2010, and 2011. These descriptive statistics looked at district wide test results for grades 3-5, 6-8, and 11 test scores and broke them down according to advanced, proficient, basic, and below basic averages to be compared. These test scores were also averaged and include Custer Public School for a four-day school week average that can be compared to similar five-day school week average in the same categories.

The eight schools selected to represent the five-day school week schools were selected randomly based on their similarities to the four-day school week schools. Like the four-day week schools, one school from the Standing Rock Indian Reservation of similar size was

included in the five-day week schools. When selecting five-day week schools, only a couple of factors related to demographics were considered. Student numbers K-12 were kept roughly within a hundred students of each other, population of community, school district size, and median income of the community were included in the demographics. While none of the demographics are identical, they are close enough to warrant a comparison of the schools. Then, the test results of the eight schools in the five-day week category were averaged so both individual comparisons could be made and an overall comparison of the two systems.

Since the budget is mentioned in all the articles, budget issues were mentioned as a factor impacting the selected four-day schools. Obviously, a school with a district covering 100 square miles, and a student body of 150 or 200 students K-12, is not going to be saving as much as a school with 500+ students and covering 1000 square miles or more. This comparison is needed to explain how schools with similar median incomes pursue a four day school week or stick with a five day school week.

Another important part of this research was to ask the current administrators of the four day school week schools if they implemented it or if they inherited it. A mailed survey was used to get feedback of a qualitative nature from the current administrators of the eight four-day week schools.

CHAPTER 4. RESULTS

The information in this chapter looks at the Dakota STEP test data gathered from all sixteen schools to compare them individually and collectively as four and five-day schools. The study used quantitative data to compare the schools before and after they switched to the four-day school week and to other five-day schools over the same period of time. The use of descriptive statistics and tables show the impact the four-day week has had on the schools. In addition to the quantitative data, there is also qualitative data based on responses from four-day school week administrators. These survey answers were summarized collectively so that variations in responses can be highlighted against any prevailing uniformity.

Study Purpose

The purpose of this study is to determine what impact switching to a four-day school week has had on schools' Dakota STEP test scores by comparing them not only to themselves prior to the switch but also comparing them to five-day week schools. This study is also meant to shed light on any perceptions of the four-day school week held by four-day school week administrators and how teachers utilize the non-contact day. To discover the answers to these questions the researcher studied Dakota STEP test scores and sent out a qualitative questionnaire to administrators. The study is also designed to compare one four-day school, Custer, which can only be compared to a similar five-day school and not to itself because it switched to the four-day school week back in 1995. The researcher collected archived data which showed how four-day schools performed on the Dakota STEP test when they were still five-day schools, and how they compared to five-day schools after the switch. The question of four-day schools' administrator perceptions of the four-day school week was also studied through open ended survey questions.

Descriptive Statistics

As mentioned earlier the five-day schools being compared to the selected four-day schools would have to match up to a certain degree with the existing four-day schools along comparable demographic lines. The five-day schools were randomly selected and matched up based on how closely they compared along the lines of student population, median community income, community population, and school district size. With these criteria the schools were matched up based on information gathered from the latest U.S. census reports and South Dakota’s Department of Education website. Table 1 compares the schools and matches them up based on their demographic information.

Table 1
Demographic Information on Four-Day and Five-Day Schools.

Schools	Four-Day Schools				Five-Day Schools				
	Square Miles	Student Pop. K-12	Median Income	Comm. Pop.	Square Miles	Student Pop. K-12	Median Income	Comm. Pop.	
Custer	1208	726	\$40,000	1988	Winner	1185	710	\$39,700	2847
Haakon	1663	301	\$46,000	780	Layman	1217	366	\$43,000	502
Wall	1320	238	\$53,000	843	Agar-Blunt-Onida	1224	288	\$45,000	1121
Bon Homme	316	597	\$46,000	105	Redfield	412	630	\$36,400	2333
Bennett Co.	1191	535	\$32,000	1072	Miller	1201	430	\$40,000	1467
Stanley Co.	1517	451	\$59,000	2111	Britton-Hecla	661	493	\$41,000	1466
Deuel Co.	409	571	\$48,000	1273	Groton	871	621	\$60,000	1458
McLaughlin	795	417	\$26,000	667	Timber Lake	1255	334	\$35,000	461

While the five-day schools were selected randomly, the number of schools matching up to the four-day schools’ demographic information limited the number of schools to which they could be compared. One of the biggest factors limiting this selection process was finding similar five-day schools with roughly the same size school district. Since most schools with a large school district switched to the four-day school week in the early 2000s to save money for a variety of reasons including transportation costs, there are few five-day schools with a large school district still operating on the five-day school week. In fact, Winner Public Schools with its 1186 square mile school district switched to the four-day school week as of the 2011-2012

school year. It is also interesting to note that Stanley County's school district is slightly more than twice the size as Britton-Hecla; yet, with a school district covering more than 1500 square miles, it is understandable that transportation costs would be significant and influential in forcing a school district to adopt a four-day school week. However, Deuel County's school district is less than half the size of Groton's, and yet they too switched to the four-day school week. Obviously, while transportation savings can be one of the biggest areas to save money, it may not be the determining factor in getting schools to make the switch. In looking over the rest of the demographic information, the schools look similar enough so that none have a great advantage in the area of student population, median income, or community population. With these similarities aligned between four-day and five-day schools, the question of comparing four-day and five-day schools' Dakota STEP test results was derived.

Comparison of Five-day and Four-day School Counterparts after Switch 2009 – 2011

The first research question in this study's proposal is: Do South Dakota K-12 students attending selected schools using a four-day per week schedule have a higher percentage of students in the advanced and proficient categories of the Dakota STEP test than their peers who attend selected schools using a five-day per week schedule? Tables 2, 3, and 4 compare four and five-day math scores during the 2009 through 2011 school years. To start this comparison, grades 3-5 are compared in Table 2 by looking at their combined advanced and proficient averages. It is clear from Table 2 that five-day schools have outperformed four-day schools in grades 3-5 by anywhere from 5.0% to 23.7%. However, Bon Homme whose combined score is 86.6% and very typical of other four-day schools does outperform the rather low scoring five-day school Redfield with its 81.0%.

Table 2

Comparison of Four - Day vs. Five - Day Schools After the Change (2009-2011) – Math Scores for Grades 3-5

Four-Day Schools		Five-Day Schools		Differences
Advanced and Proficient Combined Differences		Advanced and Proficient Combined Differences		
Haakon	85.6	Lyman	90.6	+5.0
Wall	89.6	A-B-O	95.3	+5.7
Bon Homme	86.6	Redfield	81.0	- 5.6
Bennett Co.	61.6	Miller	81.3	+19.7
Stanley Co.	72.6	Britton-Hecla	89.9	+17.3
Deuel Co.	81.5	Groton	91.9	+10.0
McLaughlin	51.9	Timber Lake	75.6	+23.7

While Table 3 shows a wide range of differences for 6-8 grade math, five-day schools still outperform four-day schools in their combined advanced and proficient averages five out of seven times. The two four-day schools, Haakon and Bon Homme, outperform their counterparts by a range of 3.4% to 9.4%. Yet, five-day schools still manage to outperform their counterparts with scores ranging from 2.4% to 29.6%.

Table 3

Comparison of Four -Day schools vs. Five -Day Schools After the Change (2009-2011) – Math Scores for Grades 6-8

4-Day Schools		5 Day Schools		Differences
Advanced and Proficient Combined Percentage		Advanced and Proficient Combined Percentage		
Haakon	88.0	Lyman	84.6	-3.4
Wall	85.3	A-B-O	91.0	+5.7
Bon Homme	80.0	Redfield	70.6	-9.4
Bennett Co.	61.3	Miller	91.0	+29.6
Stanley Co.	68.6	Britton-Hecla	88.3	+19.7
Deuel Co.	89.0	Groton	91.3	+2.4
McLaughlin	52.9	Timber Lake	71.3	+18.4

When looking at 11th grade math scores the ratio of five-day schools outperforming their four-day counterparts does not change, it is still five out of seven. Once again four-day Bon Homme outperforms its counterpart with a difference of 7.7% to its favor. This lead is the highest percentage above a five-day schools for the two four-day schools with higher scores.

Table 4 also shows that five-day schools are outperforming their four-day counterparts with scores ranging from 1.3% to 27.3%.

Table 4

Comparison of Four -Day schools vs. Five-Day Schools After the Change (2009-2011) – Math Scores for Grade 11

	Four-Day Schools		Five-Day Schools	
	Advanced and Proficient Combined Percentage		Advanced and Proficient Combined Percentage	Differences
Haakon	72.0	Lyman	73.3	+1.3
Wall	82.6	A-B-O	76.0	-6.6
Bon Homme	72.6	Redfield	64.9	-7.7
Bennett Co.	54.3	Miller	77.0	+22.7
Stanley Co.	49.0	Britton-Hecla	67.6	+18.6
Deuel Co.	75.3	Groton	85.6	+10.3
McLaughlin	30.3	Timber Lake	57.6	+27.3

Tables 5, 6 and 7 deal with the three year averages for reading achieved on the Dakota STEP test. Here again the results are mixed between four and five-day schools, but five-day schools do outperform four-day schools five out of seven times with scores ranging from 4.7% to 55.7% higher than their four-day counterparts. In the category of grades 3-5 reading, the two four-day schools, Haakon and Bon Homme, outperform their five-day counterpart but still do not have higher scores than the majority of five-day schools.

Table 5

Comparison of Four-Day schools vs. Five-Day Schools After the Change (2009-2011) – Reading Scores for Grades 3-5

	4-Day Schools		5 Day Schools	
	Advanced and Proficient Combined Percentage		Advanced and Proficient Combined Percentages	Difference
Haakon	90.0	Lyman	72.6	-17.4
Wall	88.6	A-B-O	93.3	+4.7
Bon Homme	88.0	Redfield	68.6	-19.4
Bennett Co.	60.6	Miller	83.0	+22.4
Stanley Co.	69.0	Britton-Hecla	97.6	+28.6
Deuel Co.	72.0	Groton	92.3	+20.3
McLaughlin	33.6	Timber Lake	89.3	+55.7

When it comes to reading for grades 6-8, the results for four-day schools are similar to results in grades 3-5. Table 6 shows that six out of the seven five-day schools outperformed their counterpart by anywhere from 5.3% to 20.0% in the combined category of advanced and proficient scores. These scores by five day schools are also double digit numbers for the most part. To the four-day schools' credit is Haakon's score. What is interesting here is that not only does four-day Haakon outperform its counterpart but also all other five-day schools except A-B-O in reading.

Table 6
Comparison of Four -Day schools vs. Five -Day Schools After the Change (2009-2011) – Reading Scores for Grades 6-8

	4-Day Schools		5 Day Schools	
	Advanced and Proficient Combined Percentage		Advanced and Proficient Combined Percentage	Difference
Haakon	86.0	Lyman	72.6	-13.4
Wall	82.3	A-B-O	87.6	+5.3
Bon Homme	74.0	Redfield	83.6	+9.6
Bennett Co.	60.6	Miller	79.3	+18.7
Stanley Co.	71.0	Britton-Hecla	82.0	+11.0
Deuel Co.	72.0	Groton	84.0	+12.0
McLaughlin	50.3	Timber Lake	70.0	+20.0

The differences between 11th graders at four and five-day schools is much the same as the other grades in the other tables because of the mixed results. However, once again five-day schools do outperform their four-day counterparts five out of seven times. In addition to this is the fact that while two four-day schools outperform their five-day counterpart by 1.0% to 4.0% the majority of five-day schools are outperforming the four-day schools with double digit numbers. Four of the five-day schools have scores between 12.0% and 31.0% higher than their four-day counterpart, while Redfield is only slightly better than Bon Homme by 0.3%.

Table 7

Comparison of Four -Day schools vs. Five -Day Schools After the Change (2009-2011) – Reading Scores for Grade 11

	4-Day Schools		5 Day Schools	
	Advanced and Proficient Combined Percentage		Advanced and Proficient Combined Percentage	Difference
Haakon	72.0	Lyman	71.0	-1.0
Wall	74.6	A-B-O	70.6	-4.0
Bon Homme	63.0	Redfield	63.3	+0.3
Bennett Co.	48.0	Miller	79.0	+31.0
Stanley Co.	50.6	Britton-Hecla	62.6	+12.0
Deuel Co.	72.0	Groton	84.3	+12.3
McLaughlin	33.6	Timber Lake	58.3	+24.7

The differences between five and four-day schools when comparing their 2009 – 2011 Dakota STEP test results are easily discerned when looking at the results side by side. A more detailed comparison of these results can be found in Appendix B and Appendix C.

Not included in the comparisons made earlier is Custer Public Schools. Unlike the other four-day schools in this study that have been on the four-day week for fewer than ten years, Custer made the switch almost two decades ago. This means that unless a student transferred into Custer, all the students there have been educated on the four-day school week their entire life. The data between Custer and Winner in Table 8 shows that the two schools are almost identical when it comes to test scores in math. The variation in tests scores is no more than 2.0% with Custer’s students outperforming Winner in both 6-8 and 11th grade advanced and proficient math. Winner slightly outperforms Custer in grades 3-5 advanced math and ties them in the category of proficient math. The small difference Custer has over Winner is also borne out when looking at a combined score for advanced and proficient for math. Any academic advantages four or five-day schools have over one another are mooted when comparing Winner and Custer.

Table 8
Five-Day Winner versus Four-Day Custer 2009 – 2011 Math Scores for Dakota STEP

Winner versus Custer 2009 – 2011 Math Percentages								
Grade	Advanced		Proficient		Basic		Below Basic	
	Winner	Custer	Winner	Custer	Winner	Custer	Winner	Custer
3,4,5	15.3	15.0	57.3	57.3	27.3	27.3	0.0	0.3
6,7,8	9.6	11.6	62.3	64.3	25.0	23.3	0.3	0.3
11	4.6	6.0	51.0	51.6	44.3	42.0	0.0	0.0

In Table 9 Custer outperforms Winner in all grade levels when it comes to reading at the advanced level and only in grades 6-8 reading proficiency does Winner have a slightly better three year average. While all the reading scores are within a few percentage points at the advanced and proficient level, grades 3-5 is separated by 6.0% points to Custer’s advantage in the advanced category. Even when a combined score for advanced and proficient are tallied, Custer comes out ahead of Winner in every single grade by a small percentage. The single school comparison between Custer and Winner does bear out the claim that four-day schools are an adequate alternative to the five-day school week, but leaves the researcher asking how long did it take Custer to become comparable. It is also obvious that Custer does not outperform all the schools on the five-day schedule.

Table 9
Five-Day Winner versus Four-Day Custer 2009 – 2011 Reading Scores for Dakota STEP

Winner versus Custer 2009 – 2011 Reading Percentage								
Grade	Advanced		Proficient		Basic		Below Basic	
	Winner	Custer	Winner	Custer	Winner	Custer	Winner	Custer
3,4,5	26.3	32.3	49.0	50.6	23.6	17.0	0.3	0.3
6,7,8	17.6	22.3	57.6	56.3	23.3	20.3	1.0	1.0
11	18.0	18.3	46.6	50.6	30.6	26.6	4.6	5.0

Possibly the easiest way to see the overall differences between four and five day schools is to look at their combined overall averages. Table 10 shows the combined differences in the number of students in four-day schools scoring at the advanced and proficient level against their

five-day counterparts in math. These results certainly cause one to raise an eyebrow since four-day schools have up to 65% fewer students achieving at the advanced level of the Dakota STEP test than their five-day counterparts. Table 10 shows the combined differences for four-day schools for the years 2009 – 2011 for advanced and proficient math along with the average difference for individual four-day schools. For math this means that while four-day schools showed a combined loss of 65% in 6-8 grade advanced math, the average four-day school had a 9.3% loss in advanced math for 6-8 graders. Four-day schools also had an overall combined increase in advanced math for eleventh graders of 1.8%. This is hardly a percentage worth mentioning if broken down to an individual level for schools. In proficient math four-day schools had 1.9% fewer 3-5 graders and nearly 9.4% fewer 11th graders than their five-day counterparts. However, four-day schools on average did have slightly more 6-8 graders at the proficient level, 0.2% in fact. Table 10 first shows the overall difference for four-day schools in each of the grade level categories followed by how this averages out for each school in the study. This is done for both the advanced and proficient categories of the Dakota STEP test in math.

Table 10
*Math Differences between Five-Day and Four-Day
 Schools between 2009 and 2011*

<u>Overall and Average Differences in Math by Percentages between Four and Five-Day Schools.</u>				
Grades	<u>Advanced 4-Day Differences Overall</u>		<u>Proficient 4-Day Differences Overall</u>	
	Advanced Math	Adv. Math Avg.	Proficient Math	Prof. Math Avg.
3,4,5	-56.6	-8.0	-13.9	-1.9
6,7,8	-65.1	-9.3	2.0	0.2
11	1.8	0.2	-66.3	-9.4

It is difficult to ignore the differences in reading scores shown in Table 11. The table shows how four-day schools are behind in every grade level at the advanced and proficient level. The average four-day school has 6.5% fewer students at the advanced level in grades 3 – 5, has 7.7% fewer students at the advanced level in grades 6-8 in reading and 0.8% fewer 11th graders

in that category. The four-day schools on average have 0.8% fewer 3-5 graders at the proficient level, 1.5% fewer 6-8 graders and 9.2% fewer eleventh graders at the proficient reading level than five-day schools.

Table 11

Reading Differences between Four and Five-Day Schools Between 2009-2011

Overall and Average Differences in Reading by Percentages between Four and Five-Day Schools

Grades	Advanced 4-Day Diff. Overall		Proficient 4-Day Diff. Overall	
	Advanced Read	Adv. Read Avg.	Proficient Read Diff	Prof. Read Avg.
3,4,5	-45.6	-6.5	-6.0	-0.8
6,7,8	-54.3	-7.7	-10.6	-1.5
11	-5.9	-0.8	-64.6	-9.2

Three Year Averages of Four-Day Schools Before and After Switch

The second question of the research proposal is: How do Dakota STEP test scores differ for South Dakota K-12 students attending selected schools using a four-day per week schedule compared to Dakota STEP test scores at these same schools when they operated on a five-day per week schedule? In examining the three year averages of the four-day schools before and after their switch, one can find both positive and negative results in all grades in both reading and math. However, the positives are small in the majority of cases while the negative are more glaring. In the next three Tables 12, 13, and 14 four-day schools' math scores are compared for grades 3-5, 6-8 and 11. The Tables show the advanced and proficient scores for each of the four-day schools followed by a combined score for advanced and proficient. This is then followed by their 2009 – 2011 scores for advanced and proficient and a combined score and then the difference between their five-day scores and their more recent four-day scores.

Grades 3-5 are compared in Table 12. When looking at the differences in before and after scores, it appears that four-day schools have made progress in improving their test results for grades 3-5 since four out of the seven schools show an improved combined score for advanced and proficient. The losses for schools like Bennett Co., Stanley Co. and Deuel Co. are

rather small and range from a loss of 0.7% to 4.0% from the combined differences, four-day schools appear to be making progress. However, when the scores for just the advanced category of the test are looked at, one sees that every single school has declined in this area except McLaughlin, which raised their advanced scores in grades 3-5 math by 2.3% from 3.0 to 5.3%.

Table 12
*Before and After the Change, Math Scores, Percentage Advanced
 and Proficient, Grades 3-5*

Schools	Three Year Averages						Difference
	Before			After			
	Advanced	Proficient	Combined	Advanced	Proficient	Combined	
Haakon	26.3	57.3	83.6	23.0	62.6	85.6	+2.0
Wall	39.0	43.6	82.6	18.3	71.3	89.6	+7.0
Bon Homme	30.3	43.7	74.0	29.6	57.0	86.6	+12.6
Bennett Co.	11.3	51.0	62.3	7.6	54.0	61.6	-0.7
Stanley Co.	19.0	57.6	76.6	13.6	59.0	72.6	-4.0
Deuel Co.	26.3	59.6	85.9	16.6	65.3	81.9	-4.0
McLaughlin	3.0	38.6	41.6	5.3	46.6	51.9	+10.3

The information in Table 13 compares grades 6-8 advanced and proficient math. In this area of the Dakota STEP test, grades 6-8 have done well in maintaining and improving their scores. The decline in scores since the change are minor and fall between 0.9% and 1.4% in the combined category of advanced and proficient. When looking over the differences in just the advanced category for grades 6-8, the scores have also come close to staying the same with some slight losses and some slight gains. In fact, three out of the seven schools gained between 2.2% and 5.0% in advanced math while three other schools show a loss of between 2.0% and 7.4%, and one school showed no change.

Table 13

Before and After the Change, Math Scores, Percentage Advanced and Proficient, Grades 6-8

Schools	Three Year Averages						Difference
	Before			After			
	Advanced	Proficient	Combined	Advanced	Proficient	Combined	
Haakon	14.6	52.6	67.2	18.3	69.6	87.9	+20.7
Wall	15.6	54.6	70.2	20.6	64.6	85.2	+15.0
Bon Homme	15.6	57.6	73.2	13.6	66.3	79.9	+6.7
Bennett Co.	17.6	44.6	62.2	10.2	51.0	61.3	-0.9
Stanley Co.	13.0	57.0	70.0	11.0	57.6	68.6	-1.4
Deuel Co.	26.6	55.3	81.9	26.6	62.3	88.9	+7.0
McLaughlin	2.0	33.3	35.3	4.2	48.6	52.8	+17.5

Eleventh grade math reflects much of the same results as grades 6-8 math. The combined advanced and proficient scores here show that most of the differences after switching have had positive results ranging from a positive 0.3% to a positive 21.7%. The negative results for Deuel Co. are minor and register at a negative 3.3%. The negative results at McLaughlin appear to be more of an anomaly than common for four-day schools. When looking at just advanced results for 11th graders, the results are evenly distributed with one school showing no impact and three schools showing improvements and three schools showing losses.

Table 14

Before and After the Change, Math Scores, Percentage Advanced and Proficient, Grade 11

Schools	Three Year Averages						Difference
	Before			After			
	Advanced	Proficient	Combined	Advanced	Proficient	Combined	
Haakon	23.0	48.6	71.6	16.6	55.3	71.9	+0.3
Wall	12.6	48.3	60.9	19.3	63.3	82.6	+21.7
Bon Homme	14.0	57.3	71.3	14.0	58.6	72.6	+1.3
Bennett Co.	3.6	42.0	45.6	11.3	43.0	54.3	+8.7
Stanley Co.	1.2	47.3	48.5	7.3	41.6	48.9	+0.4
Deuel Co.	22.3	56.6	78.6	6.3	69.0	75.3	-3.3
McLaughlin	8.6	36.6	45.2	0.0	30.0	30.0	-15.2

To examine changes to reading scores Tables 15, 16, and 17 will be looked at to detail the impact the four-day school week had on grades 3-5, 6-8 and 11. Reading results for grades

3-5 can be seen in Table 15. Here the results for combined advanced and proficient differences are almost exclusively negative with only Haakon showing a positive result of 3.6% after the switch. The remainder of the schools show a loss in reading scores of anywhere from 0.7% to 13.7%. When looking at Table 15's advanced score results, three out of the seven schools show a loss in advanced scores after switching to the four-day school week.

Table 15
Before and After the Change, Reading Scores, Percentage Advanced and Proficient, Grades 3-5

Three Year Averages							
Before				After			
Schools	Advanced	Proficient	Combined	Advanced	Proficient	Combined	Difference
Haakon	34.3	52.0	86.3	38.3	51.6	89.9	+3.6
Wall	45.6	45.0	90.6	36.3	52.3	88.6	-2.0
Bon Homme	32.6	56.0	88.6	40.6	47.3	87.9	-0.7
Bennett Co.	18.6	61.0	79.6	16.3	49.6	65.9	-13.7
Stanley Co.	19.0	57.6	76.6	23.0	48.6	71.6	-5.0
Deuel Co.	26.3	62.0	88.3	24.3	52.0	76.3	-12.0
McLaughlin	6.3	42.3	48.6	5.3	40.0	45.3	-3.3

The results shown in Table 16 for 6-8 grade reading are universally negative with not a single school showing positive results under the combined advanced and proficient category. Granted, in some cases the negative results are less than a single percentage point, but in two cases the losses were as high as 11.1% or 14.0%. In addition to this five out of the seven schools show a loss in the advanced category of the reading test, and six out of the seven schools show a loss in the proficient category after the change.

Table 16

Before and After the Change, Reading Scores, Percentage Advanced and Proficient, Grades 6-8

Schools	Three Year Averages						Difference
	Before			After			
	Advanced	Proficient	Combined	Advanced	Proficient	Combined	
Haakon	22.0	65.3	87.3	27.3	58.6	85.9	-1.4
Wall	28.3	54.0	82.3	27.6	54.6	82.2	-0.1
Bon Homme	15.6	63.3	78.9	22.3	51.6	73.9	-5.0
Bennett Co.	20.6	54.0	74.6	13.3	47.3	60.6	-14.0
Stanley Co.	18.3	55.3	73.6	15.6	53.3	68.9	-4.7
Deuel Co.	20.6	57.3	77.9	18.3	53.6	71.9	-6.0
McLaughlin	4.0	57.3	61.3	3.6	46.6	60.2	-11.1

The scores for 11th grade reading show both positive and negative results for the combined differences in advanced and proficient scores. Four out of the seven schools experienced a loss of between 1.4% and 18.3% while the three schools showing an improvement came between 1.7% and 15.0%. It is also interesting that six out of the seven schools improved their advanced scores after the switch and six out of seven schools show a loss in proficient scores on the test.

Table 17

Before and After the Change, Reading Scores, Percentage Advanced and Proficient, Grade 11

Schools	Three Year Averages						Difference
	Before			After			
	Advanced	Proficient	Combined	Advanced	Proficient	Combined	
Haakon	12.0	48.6	60.6	16.6	55.3	71.9	+11.3
Wall	9.0	50.6	59.6	29.6	45.0	74.6	+15.0
Bon Homme	11.6	56.6	68.2	17.0	46.0	63.0	-5.2
Bennett Co.	7.0	53.0	60.0	9.0	39.0	48.0	-12.0
Stanley Co.	1.6	47.3	48.9	14.0	36.6	50.6	+1.7
Deuel Co.	12.0	66.0	78.0	16.6	60.0	76.6	-1.4
McLaughlin	14.3	38.6	52.9	3.3	30.3	33.6	-18.3

With the exception of the combined advanced and proficient reading results for grades 6-8, none of the schools show overall improvement or overall losses in all categories of the test. What does appear is that the improvements are small when headway is made and the losses are

larger when they occur. The tables showing the differences for each individual four-day school after their switch from the five-day schedule can be seen in Appendix D.

Another way to look at the impact of the switch is Table 18. The numbers in Table 18 show the overall impact the switch had on students scoring at the advanced and proficient level in math for all four-day schools. Table 18 clearly shows a negative impact in the number of students in grades 3-5 scoring at the advanced level. In total four-day schools have seen a loss of 40.3% of the students in these grades scoring at this level. This averages out to be a loss of 5.7% for each four-day school. The number of eleventh graders scoring at the advanced level in math also declined, but the average for each four-day school comes out to only be a loss of 1.7%. It is only in grades 6-8 advanced math that a large negative impact has not been made in the Dakota STEP test. Schools show only a minor loss of .06% in grades 6-8 in advanced math. Table 18 also shows that the math category that has shown the most improvement after the switch is the proficiency category. However, with the decrease of students scoring in the advanced category, it is safe to say that students who used to or would have scored in the advanced category are being adversely affected by the four-day school week and are now scoring at the proficient level. On a positive note all grades tested show an increase in scoring at the proficient level for math when all four-day school scores are combined.

Table 18
*Percentage Differences in Advanced and Proficient Dakota
 STEP Math Test Scores for Four-Day Schools before and after Switch*

Before and After Advanced and Proficient Math Differences by Percentage				
Grades	Advanced Math	Averages	Proficient Math	Average
3,4,5	-40.3	-5.7	64.7	9.2
6,7,8	-0.4	-0.06	71.3	10.1
11	-12.5	-1.7	24.6	3.5

When comparing the data for four-day schools to their last three years on the five-day schedule, one sees that the 2009 – 2011 data show that advanced and proficient scores for

reading in all grades except eleventh grade advanced reading have gone down. For eleventh grade reading four-day schools' average score increased by 5.5%. Surprisingly, Table 19 shows a loss of students performing at the proficient level of reading in all grades tested. Here the average loss for schools is between 4.9% and 6.9%.

Table 19
Differences in Advanced and Proficient Dakota STEP Reading Test Scores for Four-Day Schools before and after Switch

Before and After Advanced and Proficient Reading Differences by Percentage				
Grade	Advanced Reading	Averages	Proficient Reading	Averages
3,4,5	-3.0	-0.4	-34.6	-4.9
6,7,8	-2.6	-0.3	-40.6	-5.8
11	38.6	5.5	-48.6	-6.9

The changes occurring in five-day schools is similar but often not quite to the same degree as what is happening in four-day schools. When studying Table 20 it is apparent that five-day schools have not seen the steep loss in students able to score at the advanced math level in grades 3-5 and have increased the number of students scoring in advanced math for grades 6-8 by 23.6% or on average 3.3% per school. However, the number of 11th graders at five-day schools able to achieve an advanced score in math has dropped by over 54.0% or on average 7.7% for each five-day school. At the same time, five-day schools are also showing an increase in the number of students who are able to score at the proficient level of the math test in all grades tested as shown in Table 20. Appendix E has a complete listing of tables showing the changes in the three year averages for five-day schools as their four-day counterparts.

Table 20
Five-day Schools Comparing Changes Over Same Years as Four-day Schools on Dakota STEP Test results for Advanced and Proficient Math

Overall Differences in Percentage for Advanced and Proficient Math Scores for 5-Day Schools				
Grades	Advanced Math	Averages	Proficient Math	Averages
3,4,5	-10.0	-1.4	20.0	2.8
6,7,8	23.6	3.3	11.6	1.6
11	-54.0	-7.7	33.2	4.7

The five-day schools' scores for advanced reading are up for all grades tested and down for all grades at the proficient level as can be seen in Table 21. Five-day schools saw a 23.0% increase in students in grades 3-5 scoring at the advanced level while four-day schools saw an overall loss of 3.0% in advanced reading as reported on Table 19. Grades 6-8 in five-day schools saw an increase of 13.6% at the advanced reading level, but four-day schools saw an overall loss of 2.6% as reported on Table 19. Both five and four-day schools saw a large increase in 11th graders performing at the advanced level. At the same time, both five and four-day schools saw a large decrease in the number of students in all grades tested performing at the proficient level. In fact, five-day schools show a larger loss in students scoring at the proficiency level than their four-day counterparts. This could be explained by five-day schools seeing more students moving from proficient to advanced, while four-day schools saw more students move down from the advanced category and up from the basic category to the proficient level.

Table 21
Five-Day Schools Comparing Change over Same Period of Time as Four-Day Schools on Dakota STEP Test results for Advanced and Proficient Reading

Overall Differences in Percentage for Advanced and Proficient Reading for Five-Day Schools				
Grade	Advanced Read	Averages	Proficient Read	Averages
3,4,5	23.0	3.2	-51.3	-7.3
6,7,8	13.6	1.9	-49.6	-7.0
11	41.0	5.8	-62.0	-8.8

Four-day School Week Administrator Responses to Survey Questions

Of the eight four-day schools studied, administrators from six school districts responded to the survey for a total of ten administrators: five superintendents and five principals, two superintendents also function as both superintendent and principal. Three of the five superintendents helped plan and implement the change to the four-day school week, two of them inherited it when they were hired by the district. Three of the principals helped plan and

implement the change to the four-day school week, and the two other principals explained that they were teachers when the change occurred at the school. Therefore, they did not inherit the four-day school week or help plan its implementation. The purpose of the survey was to find out how administrators felt about the four-day school week and how teachers use the “extra” day. The survey asked ten questions each of which are restated here followed by a summary of the administrators’ responses.

Question number one asked, “What do you feel are the advantages for students of the four-day schools week?” The most common response was that students had the chance to come in on their own the fifth day to get help or be tutored by a teacher or just catch up on work. Also for students were the benefits of being able to work, do an internship, feel more rested and focused, balance sports and homework, schedule appointments, spend more time with family, and improve attendance.

Questions number two asked, “What do you feel are the advantages for teachers of the four-day school week?” To this question many administrators simply said that the same advantages they listed for students applied to teachers: appointments, time with family, improved attendance, balance work, and extra-curricular activities. Also mentioned was improved lesson plans, more prep time, more staff collaboration, more time to catch students up or help them gain a better understanding before moving on with curriculum, more intense instruction, more professional development or in-service and technology skills improved. One administrator pointed out that the four-day school week aligns itself more closely with the business model of professional development, and therefore, it gives teachers time to adapt and adopt changes in curriculum and technology. Also mentioned by one administrator, that might be more along the lines of a school or administrative advantage, that the four-day work week attracts teachers and is

an advantage when hiring. The third question asked, “What do you feel are the overall advantages to the district of the four-day school week?” Two advantages are mentioned more often than any others, that of savings to the budget and improvements in lessons and teacher preparedness. Two administrators mention a savings of \$40,000 for the budget and one mentioned that the school drives more than one thousand miles per day to get this kind of savings. When savings to the budget were mentioned by administrators it came in the areas of transportation, hourly wages for non-certified staff, and smaller operating costs for buildings. Other benefits mentioned included fewer behavioral issues, improved moral or school climate for teachers and students, hiring advantage, custodians have a day for maintenance and cleaning, and extra-curricular activities are scheduled for non-school days.

The fourth question asked, “What do you feel are the disadvantages for students of the four-day school week? To this question, six administrators said there was none. One did follow this up with the statement that students who miss a day fall behind more quickly and need to make up more work on their own. This follow up comment was the one most often mentioned by the four other administrators. Other issues mentioned were that longer school days are harder on younger students, the appearance of more homework, more material presented in a shorter period of time, more time between school material with three day weekends, and practice starts later and runs later into the night. One administrator mentioned that for economically disadvantage students it meant a day without day care and possibly longer periods of time without food or a decent meal, and a lost day of instruction.

The fifth question asked, “What do you feel are the disadvantages for teachers of the four-day school week?” Five out of the ten administrators replied by saying there are no disadvantages for teachers. Two of them followed this up by saying that great teachers can be

effective whatever the situation or length of day. The other five administrators mentioned that teachers miss the time before and after school to catch students, fewer instructional days versus more instructional time during the four-day week (good and bad), changes need to be made to lesson plans, and delivery methods, the feeling of being pressured to move fast, and more students for shorter periods of time. One administrator mentioned that the disadvantages for teachers are the same as those for students in that it amounts to lost instructional time and teachers having to make up for a three day weekend.

Question six asked, “What do you feel are the overall disadvantages to the district of the four-day school week?” Seven of the ten administrators responding said there are no disadvantages for the district. The three other administrators mention different issues. Two mentioned fighting the parents’ perception that students are not learning as much. Another mentioned the lost instructional day and only having one in-service day a month, and this was echoed in another administrator’s comments about lost instructional days and longer school days, and the magnification of lost instruction when a teacher misses a day.

Question seven asked administrators to describe the ways teachers use the “fifth” day or the day school is not in session. The answers to this question echo many of the responses made to question two when it comes to advantages for teachers of the four-day school week. Nine out of the ten administrators mention professional development, planning or improving lessons, and eight mentioned tutoring or working with students as well. Other ways teachers use this day are to go to appointments, collaborate within departments or do cross-curricular planning. One administrator stated that the “fifth” day each month is planned as an in-service and the rest of the month the “fifth” day is used as personal days for staff. Since questions eight and nine are included in helping to quantify and introduce this section, only question ten needs to be

examined yet. This last question of the survey asked administrators to comment on their personal feelings about the appropriateness of the four-day school week schedule to enhance student learning. Five of the ten administrators responded by mentioning that teachers are a bigger factor in the classroom than the four-day week. The idea here is that if teachers are treated as professionals, given more time to plan, and empowered, the students will learn even with the lost contact day. Other administrators mentioned improved teacher and student morale and attendance, the use of time is more focused on academics, and one administrator mentioned how families spend more time together with the longer weekends. Surprisingly, there were three administrators who expressed a degree of skepticism or negativity to the question. One stated that the four-day school week is not for every district, but does not explain why this view was held. One administrator did not feel the staff used the noncontact day as effectively as possible. Some teachers use it to plan and improve and others just see it as a “lucky me” day off. And, one administrator stated the four-day week does not enhance learning and has no positive effect of attendance or grades.

CHAPTER 5. SUMMARY, FINDINGS, CONCLUSION, DISCUSSION, RECOMMENDATIONS

This chapter will provide a summary of the study, conclusions drawn by the researcher through analysis of the data collected, discussion of the results of the study, and recommendations for further study.

Summary

The debate over the academic impact of the four-day school week has been ongoing from almost the inception of the idea. It only takes a cursory glance at the historical literature on the subject to find that it is a question asked frequently by parents, schools, and states. For as many studies that have been done on the question, there have been nearly as many different results as similar ones. Slightly different studies yielded slightly different results that provided no decisive conclusions. Any decisive results will have to be based on the small but growing body of studies and not on a single one in particular. The need to study this question goes beyond comparing the four-day schools to themselves before and after the switch, or to comparing them to five-day schools and looking at performance in both the short and long term. Communities, administrators, and school boards that adopt the four-day school week need to continue to monitor their students' performance since the current study suggests both positive and negative results.

Findings

Based on the data gathered from the Dakota STEP test results and comparing four-day schools to themselves before and after the switch and to their five-day counterparts, the data show that four-day schools do not perform as well on the state standardized Dakota STEP test, especially in the advanced category. The three year average's data show that four-day schools

are losing more students at the advanced level in all grades tested in both reading and math, except eleventh grade advanced reading. Their five-day counterparts are maintaining or losing fewer students in the advanced category, with the exception being in eleventh grade advanced math. The exception for the four-day schools is they have shown an improvement in eleventh grade reading scores, but this is still not on par with the gains made by five-day schools for eleventh grade reading. Also, while five-day schools have shown a loss at the advanced level for grades 3-5 and 11 in math, they have increased the percentage of students in advanced math for grades 6-8. However, four-day schools are showing a greater improvement in placing students at the proficiency level on the Dakota STEP test. This would support the data that shows that four-day schools have a tendency to place more students in the proficient category of the test than in the advanced category, yet it is the more academically inclined students who are suffering from the change. While the five-day schools do outperform their four-day counterparts in a majority of the math and reading grade levels, Custer does stand-out as either the long term result of switching to the four-day schedule or an anomaly in its performance against Winner. Certainly, caution must be used in comparing just two schools to one another as is the case with Custer and Winner, and it is safer to look at the larger group of four-day schools and their counterparts.

It also appears based on the qualitative survey that most four-day school administrators perceive the four-day school week as at least adequate or comparable to the five-day school week. Those superintendents and principals who implemented the four-day school week believe in it and believe teachers are the key to making it academically successful. Those principals and superintendents who inherited or did not play a role in planning or implementing it are not as convinced of its equality with the five-day schedule. It is also clear from the survey that there are a great many ideas about the perceived advantages and disadvantages of the four-day school

and how the “fifth” day is used by teachers and students. Uniformity is lacking when it comes to an organized and structured “extra” day for staff.

Conclusions

The important findings of this study come from both the qualitative and quantitative data. When comparing the seven individual four-day schools to their seven individual five-day counterparts, the results varied and yielded somewhat mixed results for 3-5, 6-8 and 11 grade math and reading while still favoring five day schools. When the individual scores were combined for four-day schools and compared to five-day schools the data again showed that five-day schools were outperforming four-day schools on the Dakota STEP test.

With the qualitative survey, the significant findings show that those administrators who implemented the four-day school week share very similar perceptions about its benefits. While those inheriting it or becoming an administrator under it are more skeptical of its advantages. The four-day school week according to the survey does have advantages, but they are not tied to improved academic performance. For example, the fifth day is reserved for tutoring and for those students who are failing or need help. This by its very nature means that the system is not catering to students who are performing at a proficient level and could improve to the advanced level with more contact time with teachers or to the advanced students who are passing their classes.

Research question 1: Do South Dakota K-12 students attending selected schools using a four-day per week schedule have a higher percentage of students in the advanced and proficient categories of the Dakota STEP test than their peers who attend selected schools using a five-day per week schedule? The data comparing individual schools shows that five-day schools typically have more students scoring in advanced and proficient reading

and math. When the data for the four-day schools is not disaggregated, the percentage of students not in advanced or proficient math or reading is surprising. The four-day schools studied showed an overall decrease of 56.6% to 65.1% fewer students in four-day schools' 3-5 and 6-8 grades did not make it into advanced math after the switch as seen in Table 10. However, four-day schools did collectively put 1.8% more eleventh graders into advanced math, yet 9.4% fewer into proficient math. Grades 3-5 in four-day schools are also behind by 13.9%, but grades 6-8 are ahead by 2.0% in proficient math. Four-day schools were also behind five-day schools in 3-5 and 6-8 reading collectively putting between 45.6% and 54.3% fewer students into the advanced reading category after the switch as seen in Table 11. There were also 5.9% fewer eleventh graders in four-day schools reaching the advanced reading category of the test as compared to five-day schools in 2009-2011. Four-day schools were also behind in putting students in the proficient category of the reading test for grades 3-5, 6-8 and 11. Based on this data comparing four-day schools to five-day schools, five-day schools have managed to maintain and slightly increase the number of students with advanced and proficient test scores while four-day schools have seen a decrease. Five-day schools are outperforming their four-day counterparts.

Research question 2: How do Dakota STEP test scores differ for South Dakota k-12 students attending selected schools using a four-day per week schedule compared to Dakota STEP test scores at these same schools when they operated on a five-day per week schedule? It is clear from the data that four-day schools are not performing as well under the four-day schedule as they did under the five-day schedule in the categories of advanced math and reading. The exception to this is eleventh grade reading where there was an average of 5.5% more students in advanced reading. Four-day schools also show a loss of students achieving

proficient reading scores with losses ranging from 4.9% to 6.9% for grades 3-5, 6-8, and 11 as seen on Table 19. The positive change for four-day schools after their switch comes in proficient math scores for all grades with grades 3-5 and 6-8 showing an increase in this category of 9.2% to 10.1%, and eleventh grade showing a slight increase of 3.5% on average as seen in Table 18. Based on these findings it appears that the four-day schools have a tendency to level the learning curve and place more students at the proficient level than at the advanced level of the Dakota STEP test. This leveling of the learning curve can be looked at in two ways: one, more students are receiving and attaining the same degree of education and understanding at school and therefore the schools are doing a more uniform job in preparing students for the test, or two, this leveling is a negative result and those students who would typically raise the learning curve are not attaining their full potential by scoring in the advanced category of the test because the change in the school schedule does impact their academic potential.

Research question 3: What are the perceptions of school principals of the four-day week schedule? Three out of the five principals responding said they helped plan the transition from the five to the four-day school week. Their perceptions are very uniform and positive with only one principal who did not assist in the changed schedule expressing any negativity to the four-day school week. All of the principals listed advantages for teachers and students and only the two principals who did not help in planning the change list anything that could be interpreted as a disadvantage for teachers, students or the district under the new schedule. These disadvantages touched on loss of contact time, making up for three day weekends, or the limited number of in-service days. Based on these responses it appears that principals have varying opinions on the four-day schools week and these opinions and views are influenced by whether they implemented the change or not.

Research question 4: What are the perceptions of school superintendents of the four-day week schedule? There is a great deal of uniformity when it comes to the superintendents' perceptions even though only three out of the five helped plan and implement the change to the four-day school week. All of the superintendents listed similar advantages for teachers, students, and the district because of the switch: attendance, extra-curricular activities, longer class time, more planning time, an extra day to help students who come in for help, and savings in the area of transportation. All of these advantages are mentioned in the literature for the four-day school week. When it came to disadvantages four out of the five superintendents echoed the possible disadvantage for students as being a missed day, especially at the beginning or end of week which could create three or four days away from school for students. This would mean the student missed anywhere from 1.5 days to 3 days of school if the missed one or two days since more material is covered in the longer class periods each day for a four-day school. Four out of the five superintendents said there were either no disadvantages to the four day school week for teachers or the district or mentioned the need to change teaching methods because of longer class times. One superintendent listed several negative consequences for teachers and the district. This data suggests that the majority of superintendents accept the four-day school week as a viable alternative and believe it is the teacher who makes the difference.

Research question 5: How do teachers use the “extra” day? All of the administrators mentioned various forms of professional development or in-services for teachers, tutoring, helping or disciplining students, personal days for staff, or planning and collaborating with colleagues. As one administrator pointed out the “extra” day can be abused when teachers do not put it to proper use. From this information it is easy to see that while there are many options

for how the “extra” day is used there is no consensus on utilizing all these days effectively, and the day can be abused.

This study shows that four-day schools have experienced a decrease in the number of students scoring in the advanced category of the Dakota STEP test when compared to themselves and five-day schools. The exception to this is that eleventh grade advanced reading scores for four-day schools did show an improvement when compared to themselves prior to the switch. Four-day schools also showed a loss of students achieving a proficient score in reading after the switch to the four-day school week in all grades tested. Yet, they increased the number of students scoring at the proficient level in all grades of math when comparing their four-day scores in 2009-2011 to the last three years they were on a five-day schedule. It is also apparent from the scores that four-day schools did not place as many 3-5 and 6-8 graders in the advanced math category as their five-day counterparts. They also had fewer students in proficient math in grades 3-5 and 11 when compared to their five-day counterparts in 2009-2011. It was only in 6-8 grade proficient math that four-day schools averaged a rather negligible 0.2% more students than their five-day counterparts in 2009-2011 as seen in Table 10. It is also apparent from the survey and qualitative responses that a majority of the administrators of four-day schools have similar perceptions of the advantages and disadvantages of the four-day school week. These advantages and disadvantages did not translate into perceived advantages or disadvantages related to academic performance. Instead the four-day school week offered advantages related to scheduling, professional development, and additional help for students needing it.

Discussion

The results of this study echo much of what has already been written about four-day schools. When it comes to academics, this study supports what other studies in the review of

literature already say. When comparing four-day schools to themselves Dakota STEP scores rise and decline depending on what school and grade level are studied. This study does support the idea that with the four-day school week, test results tend to have a bigger impact on advanced student test scores and place more students in the proficient category of the Dakota STEP test. When comparing the results of four-day schools to five-day schools, the results are again mixed even though a slightly larger number of five-day schools outperform their four-day counterparts. These results support the results that were reported by Grau and Shaughnessy (1987) in which four and five-day schools were compared over a two year period and concluded with mixed results.

The survey for this study also supported what has been written about by other researchers when it comes to the perceptions of administrators of the four-day school week. Like other studies, administrators questioned here saw both the positives and negatives of the four-day week for students and staff. South Dakota administrators also know there is no unified plan on how to best use the “extra” day. There are many ideas suggested and used, but some administrators know that the extra day is not always utilized to its full potential or with the best of intentions.

Recommendations

When looking at the three year averages for four-day schools before and after their switch, and comparing those averages to their five-day school counterparts, it is apparent that a more longitudinal study is needed to see if these schools can become more similar to Custer in its comparison to Winner. Since the difference between Winner and Custer is so small, it would be of value to discover how many years it takes four-day schools to be as comparable to their counterpart five-day schools as Custer is to Winner. More studies should be done to see if four-day schools have long term declining scores at the advanced level of the Dakota STEP test

compared to five-day schools or if this is simply an observation occurring in this study. The question of how long it takes students and schools to adapt to the four-day school week and return to their five-day school week performance is unclear at this point and needs further study. It would also be beneficial to survey teachers who have taught under both the four-day and five-day school week and discover their perception of the change.

This study is important since it supports what previous studies have suggested in that comparing four and five-day schools to one another and four-day schools to themselves yields mixed results about academic performance. However, this study is also important because it does show that there is an area of academic impact occurring in a majority of four-day schools when it comes to the number of students scoring at the advanced level of the Dakota STEP test. The percentage of students scoring at this level of the test has declined under the four-day school week. School administrators, school boards, communities, and states considering the four-day week need to ask themselves if they still want to maintain the same number of students scoring at the advanced level and if so how they plan on doing so, or if their objective is to grow the percentage of students scoring at the proficiency level of the test. These are tough questions but certainly ones that educators should be asking themselves based on the information gathered in this study.

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**APPENDIX A. FIVE AND FOUR-DAY SCHOOLS' DAKOTA STEP TEST SCORES
COMPARED FOR THREE YEAR AVERAGES BEFORE SWITCH**

Table A1

Five and Four-Day Schools' Dakota STEP Test Scores Compared for Three Year Average before Switch – Timber Lake versus McLaughlin Math

Grade	Advanced		Proficient		Basic		Below Basic	
	Tmbr L	McLgh	Tmbr L	McLgh	Tmbr L	McLgh	Tmbr L	McLgh
3,4,5	28.6	3.0	47.0	38.6	20.3	54.0	1.3	2.3
6,7,8	8.6	2.0	60.3	33.3	29.3	57.3	1.0	7.0
11	13.0	8.6	54.6	36.6	28.6	52.6	0.0	1.6

Table A2

Five and Four-Day Schools' Dakota STEP Test Scores Compared for Three Year Average before Switch – Timber Lake versus McLaughlin Reading

Grade	Advanced		Proficient		Basic		Below Basic	
	Tmbr L	McLgh	Tmbr L	McLgh	Tmbr L	McLgh	Tmbr L	McLgh
3,4,5	31.6	6.3	47.6	42.3	17.0	48.6	3.0	3.0
6,7,8	22.0	4.0	62.0	57.3	14.0	58.6	1.3	0.5
11	6.3	14.3	62.3	38.6	25.3	40.6	6.0	6.3

Table A3

Five and Four-Day Schools' Dakota STEP Test Scores Compared for Three Year Average before Switch – Groton versus Deuel Math

Grade	Advanced		Proficient		Basic		Below Basic	
	Groton	Deuel	Groton	Deuel	Groton	Deuel	Groton	Deuel
3,4,5	31.6	26.3	60.3	59.6	7.6	13.3	0.0	0.3
6,7,8	34.0	26.6	56.0	55.3	10.0	18.0	0.3	0.3
11	17.6	22.3	65.0	56.3	16.6	21.3	0.0	0.0

Table A4

Five and Four-Day Schools' Dakota STEP Test Scores Compared for Three Year Average before Switch – Groton versus Deuel Reading

Grade	Advanced		Proficient		Basic		Below Basic	
	Groton	Deuel	Groton	Deuel	Groton	Deuel	Groton	Deuel
3,4,5	29.3	26.3	62.6	62.0	7.6	11.3	0.0	0.3
6,7,8	33.0	20.6	55.6	57.3	11.6	21.6	0.0	0.3
11	4.0	12.0	72.6	66.0	23.3	22.0	0.0	0.0

Table A5

Five and Four-Day Schools' Dakota STEP Test Scores Compared for Three Year Average before Switch – Lyman versus Haakon Math

Grade	Advanced		Proficient		Basic		Below Basic	
	Lyman	Haakon	Lyman	Haakon	Lyman	Haakon	Lyman	Haakon
3,4,5	29.0	26.3	53.6	57.3	16.6	15.0	0.3	0.3
6,7,8	21.3	14.6	57.3	52.6	19.6	31.3	1.0	0.6
11	22.6	23.0	58.6	48.6	27.3	27.6	2.3	0.0

Table A6

Five and Four-Day Schools' Dakota STEP Test Scores Compared for Three Year Average before Switch – Lyman versus Haakon Reading

Grade	Advanced		Proficient		Basic		Below Basic	
	Lyman	Haakon	Lyman	Haakon	Lyman	Haakon	Lyman	Haakon
3,4,5	26.3	34.3	52.0	52.0	20.0	13.3	0.6	0.3
6,7,8	19.3	22.0	62.0	65.3	17.3	12.3	0.6	0.0
11	10.3	12.0	58.6	48.6	27.3	36.0	3.6	3.3

Table A7

Five and Four-Day Schools' Dakota STEP Test Scores Compared for Three Year Average before Switch – Agar-Blunt-Onida versus Wall Math

Grade	Advanced		Proficient		Basic		Below Basic	
	ABO	Wall	ABO	Wall	ABO	Wall	ABO	Wall
3,4,5	31.6	39.0	60.0	43.6	10.3	15.3	0.0	2.3
6,7,8	19.6	15.6	58.3	54.6	20.6	26.0	0.3	4.0
11	12.6	12.6	51.6	48.3	20.0	31.6	0.0	0.0

Table A8

Five and Four-Day Schools' Dakota STEP Test Scores Compared for Three Year Average before Switch – Agar-Blunt-Onida versus Wall Reading

Grade	Advanced		Proficient		Basic		Below Basic	
	ABO	Wall	ABO	Wall	ABO	Wall	ABO	Wall
3,4,5	44.3	45.6	44.3	45.0	10.6	7.3	0.0	1.6
6,7,8	28.6	28.3	61.3	54.0	9.6	15.0	0.0	2.6
11	12.0	9.0	66.0	50.6	20.0	34.6	1.6	1.3

Table A9

Five and Four-Day Schools' Dakota STEP Test Scores Compared for Three Year Average before Switch – Birtton-Hecla versus Stanley Math

Grade	Advanced		Proficient		Basic		Below Basic	
	B-H	Stanley	B-H	Stanley	B-H	Stanley	B-H	Stanley
3,4,5	23.6	19.0	64.6	57.6	10.6	23.0	0.3	0.0
6,7,8	18.6	13.0	55.0	57.0	26.0	29.6	0.3	0.6
11	17.0	1.2	53.0	47.3	30.3	48.3	0.0	1.0

Table A10

Five and Four-Day Schools' Dakota STEP Test Scores Compared for Three Year Average before Switch – Britton-Hecla versus Stanley Reading

Grade	Advanced		Proficient		Basic		Below Basic	
	B-H	Stanley	B-H	Stanley	B-H	Stanley	B-H	Stanley
3,4,5	26.6	23.3	62.3	58.0	10.6	18.6	0.3	0.0
6,7,8	19.6	18.3	60.0	55.3	20.3	26.0	0.0	0.0
11	15.0	1.6	62.3	47.3	22.3	49.3	0.0	1.6

Table A11

Five and Four-Day Schools' Dakota STEP Test Scores Compared for Three Year Average before Switch Redfield versus Bon Homme Math

Grade	Advanced		Proficient		Basic		Below Basic	
	Redfield	Bon H	Redfield	Bon H	Redfield	Bon H	Redfield	Bon H
3,4,5	23.0	30.3	58.3	43.7	17.0	11.3	1.3	0.0
6,7,8	21.6	15.6	53.3	57.6	23.0	26.6	2.0	0.3
11	20.3	14.0	48.6	57.3	28.3	28.6	0.0	0.0

Table A12

Five and Four-Day Schools' Dakota STEP Test Scores Compared for Three Year Average before Switch – Redfield versus Bon Homme Reading

Grade	Advanced		Proficient		Basic		Below Basic	
	Redfield	Bon H	Redfield	Bon H	Redfield	Bon H	Redfield	Bon H
3,4,5	27.6	32.6	58.3	56.0	13.3	11.3	1.0	0.0
6,7,8	22.0	15.6	59.6	63.3	16.3	20.6	1.6	0.0
11	14.0	11.6	49.3	56.6	36.6	28.6	0.0	0.0

Table A13

Five and Four-Day Schools' Dakota STEP Test Scores Compared for Three Year Average before Switch – Miller versus Bennett Math

Grade	Advanced		Proficient		Basic		Below Basic	
	Miller	Bennett	Miller	Bennett	Miller	Bennett	Miller	Bennett
3,4,5	13.3	11.3	71.0	51.0	15.6	38.0	0.3	0.0
6,7,8	22.3	17.6	66.3	44.6	11.0	36.6	0.7	1.0
11	23.6	3.6	52.6	42.0	22.3	46.6	1.0	0.0

Table A14

Five and Four-Day Schools' Dakota STEP Test Scores Compared for Three Year Average before Switch – Miller versus Bennett Reading

Grade	Advanced		Proficient		Basic		Below Basic	
	Miller	Bennett	Miller	Bennett	Miller	Bennett	Miller	Bennett
3,4,5	21.0	18.6	71.6	61.0	6.6	20.3	0.3	0.0
6,7,8	24.3	20.6	65.6	54.0	9.0	36.6	0.3	0.0
11	9.3	7.0	67.6	53.0	22.3	40.0	1.0	0.0

**APPENDIX B. THREE YEAR AVERAGES FOR FIVE-DAY SCHOOLS BETWEEN
2009-2011**

Table B1

Timber Lake Three Year Averages for Five-Day Schools between 2009 -2011

Grade	Advanced		Proficient		Basic		Below Basic	
	Math	Reading	Math	Reading	Math	Reading	Math	Reading
3,4,5	11.3	25.0	64.3	46.3	23.3	27.0	1.3	1.6
6,7,8	14.6	23.0	56.6	47.0	28.6	29.6	0.0	0.0
11	8.0	11.3	49.6	47.0	48.3	39.0	0.0	5.6

Table B2

Gorton Three Year Averages for Five-Day Schools between 2009 -2011

Grade	Advanced		Proficient		Basic		Below Basic	
	Math	Reading	Math	Reading	Math	Reading	Math	Reading
3,4,5	30.3	39.3	61.6	53.0	8.0	7.6	0.0	0.0
6,7,8	31.0	28.0	60.3	56.0	9.0	15.6	0.0	0.3
11	20.6	23.3	65.0	61.0	14.0	11.3	0.0	4.3

Table B3

Lyman Three Year Averages for Five-Day Schools between 2009 -2011

Grade	Advanced		Proficient		Basic		Below Basic	
	Math	Reading	Math	Reading	Math	Reading	Math	Reading
3,4,5	30.6	34.0	60.0	51.6	8.6	14.0	0.3	0.3
6,7,8	24.6	19.3	60.0	53.3	21.3	26.0	0.3	0.6
11	7.3	12.3	66.0	58.6	24.3	24.3	0.0	5.3

Table B4

Agar-Blunt-Onida Three Year Averages for Five-Day Schools between 2009 -2011

Grade	Advanced		Proficient		Basic		Below Basic	
	Math	Reading	Math	Reading	Math	Reading	Math	Reading
3,4,5	37.3	44.0	58.0	49.3	5.0	7.0	0.0	0.0
6,7,8	31.6	33.0	59.3	54.6	8.6	12.6	0.0	0.0
11	3.0	11.6	73.0	59.0	24.0	27.3	0.0	0.0

Table B5

Britton-Hecla Three Year Averages for Five-Day Schools between 2009 -2011

Grade	Advanced		Proficient		Basic		Below Basic	
	Math	Reading	Math	Reading	Math	Reading	Math	Reading
3,4,5	25.3	33.0	64.6	52.3	29.0	14.3	0.0	0.0
6,7,8	24.3	25.0	64.0	57.0	11.6	18.0	0.0	0.3
11	15.3	15.3	52.3	47.3	37.3	33.67	0.6	3.6

Table B6

Redfield Three Year Averages for Five-Day Schools between 2009 -2011

Grade	Advanced		Proficient		Basic		Below Basic	
	Math	Reading	Math	Reading	Math	Reading	Math	Reading
3,4,5	19.0	19.0	62.0	49.6	19.3	16.6	0.0	0.3
6,7,8	18.3	33.0	52.3	50.6	28.0	24.6	1.3	4.3
11	8.3	16.6	56.6	46.6	33.3	27.3	1.3	9.0

Table B7

Miller Three Year Averages for Five-Day Schools between 2009 -2011

Grade	Advanced		Proficient		Basic		Below Basic	
	Math	Reading	Math	Reading	Math	Reading	Math	Reading
3,4,5	17.0	35.6	64.3	45.3	18.6	15.6	0.0	0.3
6,7,8	25.3	21.3	65.6	58.0	15.6	20.0	0.0	1.0
11	10.3	21.6	66.6	57.3	23.0	18.3	0.0	2.6

Table B8

Winner Three Year Averages for Five-Day Schools between 2009 -2011

Grade	Advanced		Proficient		Basic		Below Basic	
	Math	Reading	Math	Reading	Math	Reading	Math	Reading
3,4,5	15.3	26.3	57.3	49.0	27.3	23.6	0.0	0.3
6,7,8	9.6	17.6	62.3	57.6	25.0	23.3	0.3	1.0
11	4.6	18.0	51.0	46.6	44.3	30.6	0.0	4.6

APPENDIX C. THREE YEAR AVERAGES FOR FOUR-DAY SCHOOLS 2009 – 2011

Table C1

McLaughlin Three Year Averages for Four-Day Schools between 2009 -2011

Grade	Advanced		Proficient		Basic		Below Basic	
	Math	Reading	Math	Reading	Math	Reading	Math	Reading
3,4,5	5.3	5.3	46.6	40.0	47.6	53.3	0.0	1.3
6,7,8	4.2	3.6	48.6	46.6	45.3	46.0	0.0	3.6
11	0.0	3.3	30.3	30.3	68.0	58.6	3.0	12.6

Table C2

Deuel Three Year Averages for Four-Day Schools between 2009 -2011

Grade	Advanced		Proficient		Basic		Below Basic	
	Math	Reading	Math	Reading	Math	Reading	Math	Reading
3,4,5	16.6	24.3	65.3	52.0	18.3	23.3	0.0	0.3
6,7,8	26.7	18.3	62.3	53.6	10.6	26.0	0.0	2.3
11	6.3	16.6	69.0	60.0	25.3	22.0	0.0	5.0

Table C3

Haakon Three Year Averages for Four-Day Schools between 2009 -2011

Grade	Advanced		Proficient		Basic		Below Basic	
	Math	Reading	Math	Reading	Math	Reading	Math	Reading
3,4,5	23.0	38.3	62.6	51.6	14.3	9.3	0.0	0.6
6,7,8	18.3	27.3	69.6	58.6	12.3	14.0	0.0	0.0
11	16.6	16.6	55.3	55.3	22.3	23.6	0.0	4.6

Table C4

Wall Three Year Averages for Four-Day Schools between 2009 -2011

Grade	Advanced		Proficient		Basic		Below Basic	
	Math	Reading	Math	Reading	Math	Reading	Math	Reading
3,4,5	18.3	36.3	71.3	52.3	10.0	11.3	0.6	0.0
6,7,8	20.6	27.6	64.6	54.6	14.6	17.0	0.0	0.6
11	19.3	29.6	63.3	45.0	21.0	21.0	0.0	3.6

Table C5

Stanley Three Year Averages for Four-Day Schools between 2009 -2011

Grade	Advanced		Proficient		Basic		Below Basic	
	Math	Reading	Math	Reading	Math	Reading	Math	Reading
3,4,5	13.6	23.0	59.0	48.6	26.3	27.3	1.0	1.0
6,7,8	11.0	15.6	57.6	53.3	31.0	29.3	0.3	1.6
11	7.3	14.0	41.6	36.6	50.0	38.6	1.0	10.3

Table C6

Bon Homme Three Year Averages for Four-Day Schools between 2009 -2011

Grade	Advanced		Proficient		Basic		Below Basic	
	Math	Reading	Math	Reading	Math	Reading	Math	Reading
3,4,5	29.6	40.6	57.0	47.3	13.3	12.6	0.3	0.0
6,7,8	13.6	22.3	66.3	51.6	19.3	25.3	0.0	1.0
11	14.0	17.0	58.6	46.0	27.3	25.3	0.0	5.0

Table C7

Bennett County Three Year Averages for Four-Day Schools between 2009 -2011

Grade	Advanced		Proficient		Basic		Below Basic	
	Math	Reading	Math	Reading	Math	Reading	Math	Reading
3,4,5	7.6	16.3	54.0	49.6	38.3	34.3	0.3	0.0
6,7,8	10.3	13.3	51.0	47.3	37.0	38.6	1.3	1.3
11	11.3	9.0	43.0	39.0	45.6	36.0	0.0	4.3

Table C8

Custer Three Year Averages for Four-Day Schools between 2009 -2011

Grade	Advanced		Proficient		Basic		Below Basic	
	Math	Reading	Math	Reading	Math	Reading	Math	Reading
3,4,5	15.0	32.3	57.3	50.6	27.3	17.0	0.3	0.3
6,7,8	11.6	22.3	64.3	56.3	23.3	20.3	0.3	1.0
11	6.0	18.3	51.6	50.6	42.0	26.6	0.0	5.0

**APPENDIX D. THREE YEAR AVERAGES BEFORE AND AFTER SWITCH FOR
FOUR-DAY SCHOOLS**

Table D1

*McLaughlin Three Year Math Averages Before and After Switch
For Four-Day Schools*

McLaughlin Five-Day versus Four-Day Advanced and Proficient Math Comparison						
Grades	5Adv	4Adv	Difference	5Pro	4Pro	Difference
3,4,5	3.0	5.3	2.3	38.6	46.6	8.0
6,7,8	2.0	4.2	2.2	33.3	48.6	15.3
11	8.6	0.0	-8.6	36.6	30.3	-6.3

Table D2

*McLaughlin Three Year Reading Averages Before and After Switch
For Four-Day Schools*

McLaughlin Five-Day versus Four-Day Advanced and Proficient Reading Comparison						
Grades	5Adv	4Adv	Difference	5Pro	4Pro	Difference
3,4,5	6.3	5.3	-1.0	42.3	40.0	-2.3
6,7,8	4.0	3.6	-1.6	57.3	46.6	-10.6
11	14.3	3.3	-11.0	38.6	30.3	-8.3

Table D3

*Deuel Three Year Math Averages Before and After Switch
For Four-Day Schools*

Deuel Five-Day versus Four-Day Advanced and Proficient Math Comparison						
Grades	5Adv	4Adv	Difference	5Pro	4Pro	Difference
3,4,5	26.3	16.7	-9.6	59.6	65.3	5.6
6,7,8	26.6	26.6	0.0	55.3	62.3	7.0
11	22.3	6.3	-16.0	56.3	69.0	12.6

Table D4

*Deuel Three Year Reading Averages Before and After Switch
For Four-Day Schools*

Deuel Five-Day versus Four-Day Advanced and Proficient Reading Comparison						
Grades	5Adv	4Adv	Difference	5Pro	4Pro	Difference
3,4,5	23.6	24.3	-2.0	62.0	52.0	-10.0
6,7,8	20.6	18.3	-2.3	57.3	53.6	-3.6
11	12.0	16.6	4.6	66.0	60.0	-6.0

Table D5

*Haakon Three Year Math Averages Before and After Switch
For Four-Day Schools*

Haakon Five-Day versus Four-Day Advanced and Proficient Math Comparison						
Grades	5Adv	4Adv	Difference	5Pro	4Pro	Difference
3,4,5	26.3	23.0	-2.6	57.3	62.6	5.3
6,7,8	14.6	18.3	3.6	52.6	69.6	17.0
11	23.0	14.6	-8.3	48.6	55.3	6.6

Table D6

*Haakon Three Year Reading Averages Before and After Switch
For Four-Day Schools*

Haakon Five-Day versus Four-Day Advanced and Proficient Reading Comparison						
Grades	5Adv	4Adv	Difference	5Pro	4Pro	Difference
3,4,5	34.3	38.3	4.0	52.0	51.6	-0.3
6,7,8	22.0	27.3	5.3	65.3	58.6	-6.6
11	12.0	16.6	4.6	48.6	55.3	6.6

Table D7

*Wall Three Year Math Averages Before and After Switch
For Four-Day Schools*

Wall Five-Day versus Four-Day Advanced and Proficient Math Comparison						
Grades	5Adv	4Adv	Difference	5Pro	4Pro	Difference
3,4,5	39.0	18.3	-20.6	43.6	71.3	27.6
6,7,8	15.6	20.6	5.0	54.6	64.6	10.0
11	12.6	19.3	6.6	48.3	63.3	15.0

Table D8

*Wall Three Year Reading Averages Before and After Switch
For Four-Day Schools*

Wall Five-Day versus Four-Day Advanced and Proficient Reading Comparison						
Grades	5Adv	4Adv	Difference	5Pro	4Pro	Difference
3,4,5	45.6	36.3	-9.3	45.0	52.3	7.3
6,7,8	28.3	27.6	-0.6	54.0	54.6	0.6
11	9.0	29.6	20.6	50.6	45.0	-5.6

Table D9

*Stanley Three Year Math Averages Before and After Switch
For Four-Day Schools*

Stanley Five-Day versus Four-Day Advanced and Proficient Math Comparison						
Grades	5Adv	4Adv	Difference	5Pro	4Pro	Difference
3,4,5	19.0	13.6	-5.3	57.6	59.0	1.3
6,7,8	13.0	11.0	-2.0	57.0	57.6	0.6
11	1.2	7.3	6.0	47.3	42.6	-5.6

Table D10

*Stanley Three Year Reading Averages Before and After Switch
For Four-Day Schools*

Stanley Five-Day versus Four-Day Advanced and Proficient Reading Comparison						
Grades	5Adv	4Adv	Difference	5Pro	4Pro	Difference
3,4,5	23.3	23.0	-0.3	58.0	48.6	-9.3
6,7,8	18.3	15.6	-2.6	55.3	53.3	-2.0
11	1.6	14.0	12.3	47.3	36.6	-10.6

Table D11

*Bon Homme Three Year Math Averages Before and After Switch
For Four-Day Schools*

Bon Homme Five-Day versus Four-Day Advanced and Proficient Math Comparison						
Grades	5Adv	4Adv	Difference	5Pro	4Pro	Difference
3,4,5	30.3	29.6	-0.6	43.7	57.0	13.7
6,7,8	15.6	13.6	-2.0	57.6	66.3	8.6
11	14.0	14.0	0.0	57.3	58.6	1.3

Table D12

*Bon Homme Three Year Reading Averages Before and After Switch
For Four-Day Schools*

Bon Homme Five-Day versus Four-Day Advanced and Proficient Reading Comparison						
Grades	5Adv	4Adv	Difference	5Pro	4Pro	Difference
3,4,5	32.6	40.6	8.0	56.0	47.3	-8.6
6,7,8	15.6	22.3	6.6	63.3	51.6	-11.6
11	11.6	17.0	5.3	56.6	46.0	-10.6

Table D13

*Bennett County Three Year Math Averages Before and After Switch
For Four-Day Schools*

Bennett County Five-Day versus Four-Day Advanced and Proficient Math Comparison						
Grades	5Adv	4Adv	Difference	5Pro	4Pro	Difference
3,4,5	11.3	7.6	-3.6	51.0	54.0	3.0
6,7,8	17.6	10.3	-7.3	44.6	51.0	6.3
11	3.6	11.3	7.6	42.0	43.0	1.0

Table D14

*Bennett County Three Year Reading Averages Before and After Switch
For Four-Day Schools*

Bennett County Five-Day versus Four-Day Advanced and Proficient Reading Comparison						
Grades	5Adv	4Adv	Difference	5Pro	4Pro	Difference
3,4,5	18.6	16.3	-2.3	61.0	49.6	-11.3
6,7,8	20.6	13.3	-7.3	54.0	47.3	-6.6
11	7.0	9.0	2.0	53.0	39.0	-14.0

**APPENDIX E. FIVE-DAY SCHOOLS' THREE YEAR AVERAGES SHOWING SAME
YEAR AVERAGES AS FOU-DAY SCHOOLS BEFORE AND AFTER SWITCH**

Table E1

*Timber Lake Five-Day school Showing Same Year Average as Four-Day
Schools before and after Switch – Math*

Timber Lake Advanced and Proficient Math Scores Comparison						
Grades	5Adv	4Adv	Difference	5Prof	4Prof	Difference
3,4,5	28.6	11.3	-17.3	47.0	64.3	17.3
6,7,8	8.6	14.6	6.0	60.3	56.6	-3.6
11	13.0	8.0	-5.0	54.6	49.6	-5.0

Table E2

*Timber Lake Five-Day School Showing Same Year Average as Four-Day
Schools before and after Switch – Reading*

Timber Lake Advanced and Proficient Reading Scores Comparison						
Grades	5Adv	4Adv	Difference	5Prof	4Prof	Difference
3,4,5	31.6	25.0	-6.6	47.6	46.3	-1.3
6,7,8	22.0	23.0	1.0	62.0	47.0	-15.0
11	6.3	11.3	5.0	62.3	47.0	-15.3

Table E3

*Groton Five-Day School Showing Same Year Average as Four-Day
Schools before and after Switch – Math*

Groton Advanced and Proficient Math Scores Comparison						
Grades	5Adv	4Adv	Difference	5Prof	4Prof	Difference
3,4,5	31.6	30.3	-1.3	60.3	61.6	1.3
6,7,8	34.0	31.0	-3.0	56.0	60.3	4.3
11	17.6	20.6	3.0	65.0	65.0	0.0

Table E4

*Groton Five-Day School Showing Same Year Average as Four-Day
Schools before and after Switch – Reading*

Groton Advanced and Proficient Reading Scores Comparison						
Grades	5Adv	4Adv	Difference	5Prof	4Prof	Difference
3,4,5	29.3	39.3	10.0	62.6	53.0	-9.6
6,7,8	33.0	28.0	-5.0	55.6	56.0	0.3
11	4.0	23.3	19.0	72.6	61.0	-11.7

Table E5

Lyman Five-Day School Showing Same Year Average as Four-Day Schools before and after Switch – Math

Lyman Advanced and Proficient Math Scores Comparison						
Grades	5Adv	4Adv	Difference	5Prof	4Prof	Difference
3,4,5	29.0	30.6	1.6	53.6	60.0	6.3
6,7,8	21.3	24.6	3.3	57.3	60.0	2.6
11	22.6	7.3	-15.3	58.6	66.0	7.3

Table E6

Lyman Five-Day School Showing Same Year Average as Four-Day Schools before and after Switch – Reading

Lyman Advanced and Proficient Reading Scores Comparison						
Grades	5Adv	4Adv	Difference	5Prof	4Prof	Difference
3,4,5	26.3	34.0	7.6	52.0	51.6	-0.3
6,7,8	19.3	19.3	0.0	62.0	53.3	-8.6
11	10.3	12.3	2.0	58.6	58.6	0.0

Table E7

Agar-Blunt-Onida Five-Day School Showing Same Year Average as Four-Day Schools before and after Switch – Math

Agar-Blunt-Onida Advanced and Proficient Math Scores Comparison						
Grades	5Adv	4Adv	Difference	5Prof	4Prof	Difference
3,4,5	31.6	37.3	5.6	60.0	58.0	-2.0
6,7,8	19.6	31.6	12.0	58.3	59.3	1.0
11	12.6	3.0	-9.6	51.6	73.0	21.3

Table E8

Agar-Blunt-Onida Five-Day School Showing Same Year Average as Four-Day Schools before and after Switch – Reading

Agar-Blunt-Onida Advanced and Proficient Reading Scores Comparison						
Grades	5Adv	4Adv	Difference	5Prof	4Prof	Difference
3,4,5	44.3	44.0	-0.3	44.3	49.3	5.0
6,7,8	28.6	33.0	4.3	61.3	54.6	-6.6
11	12.0	11.6	-0.3	66.0	59.0	-7.0

Table E9

Britton-Hecla Five-Day School Showing Same Year Average as Four-Day Schools before and after Switch – Math

Britton-Hecla Advanced and Proficient Math Scores Comparison						
Grades	5Adv	4Adv	Difference	5Prof	4Prof	Difference
3,4,5	23.6	25.3	1.6	64.6	64.6	0.0
6,7,8	18.6	24.3	5.6	55.0	64.0	9.0
11	17.0	15.3	-1.6	53.0	52.3	-0.6

Table E10

Britton-Hecla Five-Day School Tables Showing Same Year Average as Four-Day Schools before and after Switch – Reading

Britton-Hecla Advanced and Proficient Reading Scores Comparison						
Grades	5Adv	4Adv	Difference	5Prof	4Prof	Difference
3,4,5	26.6	33.0	6.3	62.3	52.3	-10.0
6,7,8	19.6	25.0	5.3	60.0	57.0	-3.0
11	15.0	15.3	0.3	62.3	47.3	-15.0

Table E11

Redfield Five-Day School Showing Same Year Average as Four-Day Schools before and after Switch – Math

Redfield Advanced and Proficient Math Scores Comparison						
Grades	5Adv	4Adv	Difference	5Prof	4Prof	Difference
3,4,5	23.0	19.0	-4.0	58.3	62.0	3.6
6,7,8	21.6	18.3	-3.3	53.3	52.3	-1.0
11	20.3	8.3	-12.0	48.6	56.6	8.0

Table E12

Redfield Five-Day School Showing Same Year Average as Four-Day Schools before and after Switch – Reading

Redfield Advanced and Proficient Reading Scores Comparison						
Grades	5Adv	4Adv	Difference	5Prof	4Prof	Difference
3,4,5	27.6	19.0	-8.6	58.3	49.6	-8.6
6,7,8	22.0	33.0	11.0	59.6	50.6	-9.0
11	14.0	16.6	2.6	49.3	46.6	-2.6

Table E13

Miller Five-Day School Showing Same Year Average as Four-Day Schools before and after Switch -- Math

Miller Advanced and Proficient Math Scores Comparison						
Grades	5Adv	4Adv	Difference	5Prof	4Prof	Difference
3,4,5	13.3	17.0	3.6	71.0	64.3	-6.6
6,7,8	22.3	25.3	3.0	66.3	65.6	-0.6
11	23.6	10.3	-13.3	52.6	66.6	14.0

Table E14

Miller Five-Day School Showing Same Year Average as Four-Day Schools before and after Switch – Reading

Miller Advanced and Proficient Reading Scores Comparison						
Grades	5Adv	4Adv	Difference	5Prof	4Prof	Difference
3,4,5	21.0	35.6	14.6	71.6	45.3	-26.3
6,7,8	24.3	21.3	-3.0	65.6	58.0	-7.6
11	9.3	21.6	12.3	67.6	57.3	-10.3

APPENDIX F. ADIMISTRATOR SURVEY QUESTIONS

Survey

To: Selected South Dakota Superintendents & Principals
From: Joel Hedtke, Education Specialist Graduate Student – North Dakota State University (NDSU)
Subject: Four-Day School Week

This survey is intended for principals and superintendents familiar with the four-day school week in South Dakota school districts. The purpose of this survey is to gather your personal perceptions relative to the advantages and disadvantages, as you see them, of the four-day week currently implemented in your school district. The survey is being conducted as partial fulfillment for the requirements for the Education Specialist (Ed. S.) Degree at NDSU. All responses to this survey will be confidential and there will be no mention of any individual or school district names in subsequent reporting of survey results. If you complete the survey and return it in the self-addressed envelope provided it will be assumed that you consent to taking part in the study.

Please return the survey by Wednesday, October 30, 2013.

Please use the space below each question for your answers (**feel free to add pages as necessary**).

#1	What do you feel are the advantages for students of the four-day school week?
	Answer:

#2	What do you feel are the advantages for teachers of the four-day school week?
	Answer:

#3	What do you feel are the overall advantages to the district of the four-day school week?
	Answer:

#4	What do you feel are the disadvantages for students of the four-day school week?
	Answer:

#5	What do you feel are the disadvantages for teachers of the four-day school week?
	Answer:

#6	What do you feel are the overall disadvantages to the district of the four-day school week?
	Answer:

#7	Please describe some of the ways teachers in your school or district use the “fifth” day or the day each week that school is not in session.
	Answer:

#8	Which of these categories best describes the role you serve in the district? (please check): <input type="checkbox"/> Principal <input type="checkbox"/> Superintendent <input type="checkbox"/> Both
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#9	Which of these categories best describes your role in the creation of the four-day per week school schedule? (please check): <input type="checkbox"/> I assisted in the planning <input type="checkbox"/> I inherited the four-day week from previous administration <input type="checkbox"/> Other (please use the space below to elaborate)
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#10	Please comment as to your personal feelings on the appropriateness of the four-day per week school schedule to enhance student learning (feel free to add pages as necessary).
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