# BALANCED CALENDAR VERSUS TRADITIONAL CALENDAR: MEASURING THE DIFFERENCE IN READING ACADEMIC ACHIEVEMENT AMONG KINDERGARTEN THROUGH THIRD-GRADE STUDENTS WHO HAVE BEEN IDENTIFIED AS READING BELOW OR WELL-BELOW GRADE LEVEL

A DISSERTATION IN Education

Presented to the Faculty of the University of Missouri-Kansas City in partial fulfillment of the requirements for the degree

### DOCTOR OF EDUCATION

### by DONOVAN TROY SAWYER, JR.

B.S. in Elementary Education - Missouri Western State University, 2007 M.S.ED. in Educational Leadership - Northwest Missouri State University, 2010

> Kansas City, Missouri 2018

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# BALANCED CALENDAR VERSUS TRADITIONAL CALENDAR: MEASURING THE DIFFERENCE IN READING ACADEMIC ACHIEVEMENT AMONG KINDERGARTEN THROUGH THIRD-GRADE STUDENTS WHO HAVE BEEN IDENTIFIED AS READING BELOW OR WELL-BELOW GRADE LEVEL

Donovan Troy Sawyer, Jr., Candidate for the Doctor of Education Degree University of Missouri – Kansas City, 2018

### ABSTRACT

School accountability is increasing with federal mandates. As public schools investigate strategies to raise students' achievement scores and graduation rates, some have implemented a modified school calendar. Schools are focusing particularly on the academic success of students from third-grade through twelfth-grades, as these are the grade level performances where accreditation is determined. However, recent studies have shown that the most imperative work happens in the primary grades, including a link between third-grade reading success and graduation rates (Annie E. Casey Foundation, 2010). The purpose of this quantitative study was to examine the relationship between reading achievement and the balanced or traditional school calendar for Kindergarten through third-grade students who are considered to be reading below or well-below grade level. This study examined the progress of 266 students who attended schools using two types of school calendar. The results for this study found that the relationship was not statistically significant (p = .750) between growth of reading skills for struggling readers in grades Kindergarten through third and the type of calendar used in the school that they

attended. There was, however, a deeper analysis that looked at groups of children and one group, Kindergarten males, was found to be statistically significant (p = .470)

### APPROVAL PAGE

The faculty listed below, appointed by the Dean of the School of Education, have examined a dissertation titled "Balanced Calendar versus Traditional Calendar: Measuring the Difference in Reading Academic Achievement among Kindergarten through Third-Grade Students Who Have Been Identified as Reading Below or Well-Below Grade Level" presented by Donovan Troy Sawyer, Jr., candidate for the Doctor of Education degree, and certify that, in their option, it is worthy of acceptance.

### Supervisory Committee

Loyce Caruthers, Ph.D., Co-Committee Chair Educational Leadership, Policy, and Foundations

Jennifer Friend, Ph.D., Co-Committee Chair Rockhurst University

Dianne Smith, Ph.D., Professor Emerita Educational Leadership, Policy & Foundations

Arthur "Gus" Jacob, Ed.D. Educational Leadership, Policy, and Foundations

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#### CHAPTER 1

### INTRODUCTION

"Rip Van Winkle" is a fictional tale about a man who falls asleep before the American Revolutionary War. When he wakes up, he has developed a foot-long beard, his gun is corroded and, upon returning to the village that once cherished him, he doesn't recognize anybody. Rip soon realizes that he has slept through an entire war and virtually everything that he once knew has now changed.

If we shift the story to where Rip Van Winkle falls asleep in the 1800s and remains asleep for nearly two centuries, there is no doubt that there would be a significant amount of changes that he would notice. There are aspects of this fairytale that are peculiarly aligned with schools. The structure, the lessons and even the schedule would be recognizable from what he recollected approximately 200 years prior (Wallis & Steptoe, 2006). While there are certain attributes that have changed within our schools, such as technological advancements and the size of the institutions, the schedule is an element that has very little variation from the nineteenth century (Harvard Education Report, 2009).

The primary role of children in the 1830s was to help maintain the family farm and, during the offseason, manage an education that would help the pupils develop the foundational concepts of reading, writing and arithmetic. Horace Mann, an educational reformist, believed that public education was not only an opportunity to teach their own, but also to inspire the uneducated with the knowledge that could be gained from attending a public educational forum. In the Twelfth Annual Report of the Board of Education, Mann (1849) wrote:

When a more intelligent community has made a discovery in science, or devised or perfected the processes of any art, a less intelligent community by its side may adopt and copy them; and thus make the improvements their own, by possession, though the

invention belonged to another. After a bold navigator has opened a new channel of commerce, and, while he is gathering the first fruits of his sagacity, the stupid or the predatory may follow in his wake, and share the gains of his enterprise. (p. 71)

Horace Mann traveled to Europe to gain insight into the educational practices that were happening at the time. From this trip, he returned to Massachusetts where he helped to create the Common School movement. The Common School, established in 1839, was a free, public school offered to most children, regardless of religion or social class. The school offered subjects such as "reading, writing, arithmetic; in some instances Latin and Greek, and 'good manners'" (Hinsdale, 1898, p. 11). This was the first time that education was a mandate for most children of all backgrounds. In fact, the concept created controversy as families who came from a poverty-stricken home had troubles keeping up financially as their children were in school rather than helping with the family business (Warder, 2017).

While many families saw the benefit of an education with teachers that were formally trained on the content that they were teaching, there was some controversy. Certain groups of students were excluded from the opportunity for a free and public education. For instance, Enslaved Blacks were not offered this form of public education until 1863 (Evans, 2012). And even then, it was still a slow process to ensure that all Black students were receiving a quality education. Many Blacks, especially newly-freed, sought out opportunities outside of public schools to guarantee their children would be able to read, write and do math. Some of these establishments were private institutions, Sabbath Schools and labor contracts with their employers (Anderson, 1988). Native Americans were also not afforded the opportunity to attend public schools until 1885 (Sandifer & Renfer, 2003). In addition, there was controversy with parents of deaf children as professional development was provided on how to teach students orally with no accommodations for those who could not hear (Warder, 2017).

In addition to advocating for a free, public education, Mann recommended a schedule that would allow children approximately nine months in school and the three months of summer off (Morgan, 1936). He suggested that this new educational schedule would allow the opportunity for consistent education, as well as the opportunity to fulfill their farming and harvesting duties at home (Ornstein & Levine, 1993). Despite unfavorable reviews, Mann was successful and thus began the concept that we know as the traditional school year (Morgan, 1936).

Horace Mann took on an education system that was not aligned to meet conditions of an agrarian society and the life situations of children at that point in time. Nearly 200 years ago, Mann transformed the educational structure to meet the needs of the families in that era. In the nineteenth century, an approximate "85% of Americans were involved in agriculture. Today, about 3% of Americans' livelihood is tied to the agricultural cycle" (Cooper et al., 1996, p. 228). Despite this drastic change in this function, there has yet to be a nation-wide modification to accommodate the needs of today's students and society. Because children no longer have the obligation of raising and nurturing a farm full of crops, the summer break has become more of leisure to students attending school. In addition, societal standards have changed. In the last 45 years, the percentage of families where both parents are working increased from 31% to 46% (Pew Research Center, 2015). Due to this increase, the traditional school calendar tends to be stressful for parents during the intersession periods when their children are not at school. "For 94 percent of grade-schoolers with working mothers, school is relied on as a care arrangement, with parents wangling their work schedules to roughly mirror school hours" (Baker, 2013, para. 4).

The context and background of the problem suggest that the summer break has become

more of leisure time; and with changes in society, both parents are likely to work and rely on schools to augment care of children. In the next section, a more detailed focus of the problem, the heart of this inquiry, the summer learning gap, is discussed.

### **Statement of the Problem**

Previous empirical research has shown that students, especially those that come from low-income families, "make virtually no learning gains during time off" (Silva, 2007, p. 5) unless they are exposed to structured learning opportunities. While the three-month vacation provides an adequate amount of time for travel and long-term commitments that are not necessarily feasible during the school year, it "breaks the rhythm of instruction, leads to forgetting, and requires that a significant amount of time be spent on review of old material when students return to school in the fall" (Cooper et al. 1996, p. 228). The term most often coined for the lack of instruction and retention of previous instruction during the three-month school hiatus is the *summer learning gap*.

With an emphasis on schools to close the achievement gap, districts are considering options to alter their improvement rate. "A growing body of research in the USA is looking beyond the progress students make in class, and is examining what happens outside school hours, particularly during the summer break" (Fernandez, 2010, p. 18). The summer learning gap, or summer learning loss, occurs when children and youth are not actively engaged in high-quality learning opportunities before school terms (McCombs et al, 2011). Studies show that the summer learning gap is detrimental to students retaining information gained from the previous school year.

The differential resource theory, or *faucet theory* (Alexander, Entwisle & Olson, 2000, Meyer, 2010; Quinn & Polikoff, 2016; Sanders, 2001) plays a key factor in why students have

the potential to lose a substantive amount of knowledge over the summer. The "faucet theory" is an analogy that suggests that the faucet is an educational resource for students that can turn on and off. Due to the exposure that students have to content-related activities, the school year is a typical time where the faucet would be considered on. For students who attend an intersession program, "several small breaks . . . usually two to three weeks long [where] schools can use that time for remediation and enrichment programs for students" (Barry, 2016, para. 3), their faucet remains on and does not allow a drain of knowledge. However, those students who have not attended an intersession program have their metaphorical faucets turned off, allowing some of the knowledge they had learned from the school year to be forgotten. Thus, the achievement gap, on average begins to become wider as students who come from a high-socioeconomic environment continue to gain exposure, while students who reside in a low-socioeconomic environment not only have less exposure but have a higher chance or losing the retention of grade level material taught that previous year (see Figure 1.1).



*Figure 1.1.* Summer Reading Achievement Trajectories: The graph shows the average reading achievement levels of student from Kindergarten to the end of summer after fourth-grade (California Department of Education, 2011).

Due to many factors, including the result of summer learning gap, more than 8,000 students drop out every school day (Davis, 2015). Third-grade, in particular, represents a milestone in a child's education; however, in 2007, The National Assessment of Educational Progress (NAEP) reported that 67% of fourth-graders scored below what is considered a proficient reading level for that age (National Center for Education Statistics, 2008b).

While a student dropping out may appear to be a decision or outcome that effects only the student and those close, it has a significant impact on our society. For instance, Latinx adults who dropped out had an employment rate of 53.1%. Those who identified as White had an employment rate of 46.1% while their Asian peers had a slight dip at 42.6%. However, Black citizens who identified as dropping out of high school only had an employment rate of 31.4% (Sum et al., 2009). The trend for employment for students who have dropped out of high school typically falls within jobs categorized as factory work and labor, retail and service industry (Kristian, 2017). But even when employed, it is reported that, on average, a student who drops out of high school will make a salary of about \$20,241. This is \$10,386 less than their peers that graduated high school and \$36,424 less than their peers who have a bachelor's degree (Breslow, 2012).

These unemployment numbers are concerning for our economy. Sum et al. (2009) reported that, in addition to a high unemployment rate, students who drop out of high school are more likely than their graduating peers to become pregnant within their teenage years. They are also more likely to be arrested. Black males who drop out of school have a 22% daily incarceration rate, which falls in the middle when compared to their White and Latinx peers at 12% and 34%, respectively (Child Trends, 2015). While incarceration rates are complex and point to other factors such as race-based inequities in the court systems (Alexander, 2010; Tonry,

2011; Wacquant, 2011), both scenarios create costs on our economy. McFarland, Cui and Stark (2018) stated that "the average high school dropout costs the economy approximately \$262,000 over his or her lifetime in terms of lower tax contributions, higher reliance on Medicaid and Medicare, higher rates of criminal activity, and higher reliance on welfare" (p. 1). This is concerning because "between October 2013 and October 2014, the number of 15-24-year-olds who left school without obtaining a high school credential was approximately 567,000" (p. 8). Although we have seen a decrease in high school dropouts, the nation still has a 16.8% dropout rate as of 2017 (Gewertz, 2017); a decrease of 8.5% from just a decade before (Cariz, 2016).

Lewis (2008) conducted a comparative and exploratory study that used in-depth interviews, participant observations and documents to analyze the factors that reduced the dropout rate in six Georgia high schools with at least 75% of 4,720 students identified as free and/or reduced lunch recipients. Dropout rates ranged from 0.9% to 15.175% amongst students who attended these schools for four consecutive years. At the conclusion of the study, Lewis stated that students and staff agreed that one of the main reasons for a high dropout rate in some schools is "they become discouraged thinking that they are too far behind to catch up" (p. 168) as many are cited to have failed at least one class within their high school years. Other reasons cited within this study were lack of support from within and outside of the school, peer-pressure from their peers that also dropout, and external factors such as jobs, pregnancy and home issues.

To decrease the number of dropouts in the country, some states have used retention, or holding a student back a grade level, as a way to validate that students entering the fourth-grade are at or near their grade level. As of July 2016, 33 states and the District of Columbia passed laws that mandated schools to retain third-grade students that are further than one whole grade level behind (Education Commission of the States, 2016). For most of the states, retention is the last step and the most extreme in this multi-step process. These laws "require schools to identify [and] intervene . . . with students who fail a reading proficiency test by the end of third-grade" (Layton, 2013, para. 17). This allows teachers to promote the success of knowledge and promotion to fourth-grade with retention no longer needed.

While retention has shown some positives with some students such as an opportunity to catch up on grade level material and maturity (David, 2008), it has not been a popular choice among several groups of stakeholders. Several studies (David, 2008; Jacob & Lefgren, 2007; National Statistics for Education, 2006; Roderick & Nagaoka, 2005) discovered adverse effects of students who are retained at some point in their educational career. Findings indicated students who are retained are more likely to eventually drop out of school; doubting themselves, developing a negative self-esteem, and having a negative view of school as a whole which contributes to long-term academic burnout.

The summer learning gap, student burnout, teacher burnout and the achievement gap are common concerns amongst schools in the United States. These typically stem from the traditional school calendar which involves an approximate 180-day school year beginning near Labor Day, followed by a three-month summer intersession (Pepper & Ballinger, 2009b). With the push for more rigorous state standards and raised expectations on student performance, schools are looking at many options to solve these problems, as well as others. The school calendar is one solution that districts have considered and experimented with for many years. The balanced calendar is a popular choice among school districts to try and solve these three problems (Hunter, 2010). The balanced calendar, as defined by Pepper and Ballinger (2009b), "reduces the long summer break of the traditional school calendar and simply apportions those days throughout the school year, producing more frequent breaks and thus limiting long periods

of in-session days, as well as longer vacations" (para. 3).

While there have been many researchers and advocates for a modified calendar, two of the leaders in reforming the traditional school calendar are Sam Pepper and Charles Ballinger. Pepper and Ballinger (2009a; 2009b) highlighted some of the concerns of the traditional calendar, most of which being the academic deficits that come with the three-month summer break, as well as established key points as to why school districts should consider some version of a balanced calendar. They highlighted a more continuous approach to instruction and learning, fewer opportunities for summer learning gap, quicker interventions and higher attendance rate for students as a rationale for a balanced calendar (Pepper & Ballinger, 2009a; Pepper & Ballinger, 2009b).

After exploring the research that has been conducted on the topic of student achievement as it relates to students within a school that has adopted a modified calendar, it was apparent that there is a need for research that looks at students who are considered intensive within their primary grades and how the traditional school calendar effects their ability to learn and retain foundational reading skills. Much of the research focused on the standardized assessments from grades 3-12. The Annie E. Casey Foundation (2010) has indicated, however, that perhaps analyzing student achievement beyond third-grade is too late to focus on students who are struggling and/or dropping out of high school due to the large learning gap that they are exposed to at this time. It is imperative that researchers begin to analyze the learning outcomes of students from Kindergarten through third-grade to ensure that they have the foundational skills in the content area of reading prior to moving into the intermediate and secondary grades.

Educators within kindergarten through third-grade need to assess and be aware of the deficiencies for all the readers as they teach previously-taught and new skills throughout the

school year. Clay (1991) highlighted the importance of determining gaps in students' reading abilities as early as possible. Clay stated:

If we can detect the process of learning to read 'going wrong' within a year of school entry, then it would be folly to wait several years before providing children with extra help. An earlier offer of effective help to the child might reduce the magnitude of reading problems in later schooling. (p. 13)

Juel (1988), in a seminal longitudinal study, analyzed the academic journey of 54 students from first through fourth-grade within the content area of reading. She used several assessments including the Phonemic Awareness Test developed by Roper/Schneider, Bryant Test of Basic Decoding Skill, Iowa Test of Basic Skills, Metropolitan Readiness Test, Iowa Test of Basic Skills and the Wide Range Achievement Test (WRAT) to assess the students' gains in the areas of phonemic awareness, decoding, word recognition, listening comprehension and reading comprehension, respectively. The study found that 26 first-graders fell within the lowest category of reading. Of those 26 students, 23 remained reading at least six months below grade level by the end of fourth-grade. There is an 88% probability that students who struggle with reading in first-grade will continue to struggle by the end of fourth-grade.

Juel (1988) proposed:

A primary factor that seemed to keep the poor readers from improving was their poor decoding skill. The poor readers at the end of fourth-grade had not achieved the level of decoding on the [Bryant Diagnostic Test of Basic Decoding Skills] that the good readers had achieved by the beginning of second-grade. This lack of decoding skill prevented the poor readers from being able to read as much text – both in and out of school – as the good readers, which appeared to create further problems. (p. 441)

More recently, Buscher (2014) conducted a single-case, experimental study focused on 25 Kindergarten students who fell within the at-risk category on the Beginning-of-Year Dynamic Indicators of Basic Early Literacy Skills (DIBELS Next) assessment in a school classified as moderately-sized within the northeast region of the United States. Within this study, Buscher cited literature that suggested that the earlier a reading deficiency is found and the quicker a teacher provides purposeful interventions, the fewer struggles a student will have with reading comprehension from third-grade and beyond. For instance, Buscher cited Simmons et al. (2013) to suggest that kindergarten is a "critical window of opportunity in which intervention can differentially accelerate reading growth compared to later intervention for children at early reading risk" (p. 2). Within her study, Buscher found that the interventions provided to kindergarteners that were deemed at-risk on the benchmark assessment did not make adequate growth to put them above the 30<sup>th</sup> percentile. Buscher specified this was due to the lack of time and exposure to interventions within the study. The specific interventions suggested meeting with the groups at least 100 times within the year, but the interventions for this study only lasted 60 sessions. In addition, the interventions were approximately 25 minutes in student groups of three to seven. The researcher also felt that the group size, given the number of minutes for the interventions, was too high for personalized interventions. The results of this study correlate with many of the factors that Carroll prescribed within his Theory of Organizational Time regarding time and exposure to meaningful exposure curriculum (Huitt, 2006).

The balanced calendar was the focal point of this study to determine if the consistency in a school schedule would help deplete the summer learning gap, as well as increase the amount of information that students retain within an academic school year. Although the results of this study were found to be statistically insignificant in all cases except for Kindergarten males (p = .047), this study sought to determine if modified school schedules should be considered when educating students who are considered below or well-below grade level. Many of the students who fall within these categories are designated to have a Significant Reading Deficiency (SRD), which the Colorado Department of Education (2012) defined as "when a student does not meet

the minimum skill levels for reading competency in the areas of phonemic awareness, phonics, vocabulary developments, reading fluency including oral skills and reading comprehension. . . for the student's grade level," (p. 27) early in their educational journey.

In the previous sections, the problem related to the summer learning gap has been explored and situated within a broader context that suggested the traditional school calendar which served an agricultural cycle is no longer adequate for families where the many parents work outside the home. In most districts, the traditional school calendar has remained the norm, and much learning is likely to be lost during the summer. Hence, the balanced calendar was examined in this study to address the ongoing learning gaps that occur when the learning faucet is turned off for students. The theoretical framework continues an examination of this issue and provides a summary of foundation knowledge for the study which is further described and examined in Chapter Two: Review of Literature.

### **Theoretical Framework**

This study is grounded in a theoretical framework related to students' academic potential with a specific focus on the organization of time. This study primarily focuses on John Carroll's Organizational Theory (Huitt, 2006; National Education Commission on Time and Learning, 1994), as well as theories related to the fourth-grade syndrome failure syndrome (Brown, 2006; Kunjufu, 1985; Noguera, 2003, 2013), English language dropout dilemma (Callahan, 2013) and the Theory of Planned Behavior (Davis, Ajzen, Saunders & Williams, 2002; Fichten et al., 2014) to analyze the impact on time for students of color and low-income students (Annie E. Casey Foundation, 2010; Callahan, 2017; Cooper, Valentine, Charlton & Melson, 2013; Darling-Hammond, 2006; Darling-Hammond, 2010; Garland, 2012; Khan, 2012; National Summer Learning Association, 2010; Whitaker, 2016).

Carroll explained the barrier between our school calendar and the time it takes a student to learn content by suggesting that "the learner will succeed in learning a given task to the extent that [person] spends the amount of time that [is needed] to learn the task" (1963, p. 725). Throughout his efforts of beginning to understand how students learn in the most effective ways, Carroll concluded that the current development of the school system, including the calendars that most schools abide by, are not developed in ways that are conducive to ensuring that all students, especially those that are struggling, are able to master the concepts taught (Huitt, 2006; National Education Commission on Time and Learning, 1994).

Carroll's Organizational Theory included a variety of factors, such as a student's opportunity, perseverance and engagement rate, to determine the variables required for a student to successfully acquire knowledge that is being taught to them using quality instruction. Within these factors, Carroll focused on several types of times that contribute to the success of a student learning. The levels of times that Carroll determined are important for a student's academic success are learning time, engaged time, instructional time, allocated time, school day length, attendance for year and school year length (Huitt, 2006). As schools continue to find ways to help close achievement gaps, time is one variable that comes into play. Some schools have even changed their school schedules from the traditional school calendar to a modified calendar. One of the more popular modified school calendars is referred to as the balanced calendar.

In the 1990s, the National Education Commission on Time and Learning (1994) applied Carroll's theory to a two-year study that looked at the impact of student learning and the time allotted to students in the classroom. After the two-year study, they concluded that:

Our schools and the people involved with them—students, parents, teachers, administrators and staff—are captives of clock and calendar. The boundaries of students' growth are defined by schedules for bells, buses, and vacations instead of standards for students and learning. (p. 5)

This study's findings correlate with more recent findings from Farbman's (2015) review of a variety of studies which examined a variety of time variables within the school year and the effect each had on student achievement. These studies contained factors such as longer school days, amount of times students were exposed to text, amount of class time that students were engaged with the content, and modified school schedules that reduced the intersession times. His review determined that "the impact of the prolonged absence from school determined that the lowest-SES group declined in both reading and math" (p. 3). There was also evidence that students who identify as part of the higher socioeconomic status saw a one-month loss in mathematics.

Many studies within the twenty-first century analyzed the correlation between the school calendar and student achievement. For instance, several studies (Jackson, 2007; McMillen, 2000; McMullen & Rouse, 2012; Ramos, 2011, Winkelmann, 2010; Wu & Stone, 2010) analyzed the educational impact of elementary students within a balanced calendar school in comparison to peers that attended schools with traditional school calendars. In these studies, however, the researcher tended to focus on students in grades three through five and compared state standardized assessments to monitor achievement.

Other twenty-first century studies that focused on academic achievement (Callahan, 2017; McMillen, 2000; McMullen & Rouse, 2012; Pederson, 2011) emphasized students in either middle schools or high schools, most looked at the overall academic achievement in the content areas of English Language Arts and mathematics. Of these studies, Callahan (2017) focused solely on one content subject, mathematics, and how it was impacted by a change in the school calendar due solely to the low scores in ten pairs of public Michigan middle schools. This study used a matched pair design to compare more than 9,000 middle schoolers from ten

Michigan balanced calendar middle schools to ten traditional Michigan middle schools that were comparable within the areas of curriculum, free and reduced lunch participants and demographics. The analysis of the results of 44 tests reflected mixed results. In nine of the tests, there was a significant increase in mathematics achievement of students who attended balanced calendar schools in comparison to their peers. Ten of the tests showed a significant increase in the subject areas of students within the traditional school calendar in comparison to their peers. Twenty-five of the tests showed no statistical difference between the results from the two types of calendars. Overall, Callahan determined that there was no conclusive evidence that either calendar encouraged growth in academic gains within mathematics in a middle school setting.

Several other studies have focused on student attendance, behaviors, students who participate in Special Education courses, among other factors, regarding the effects of participating in a balanced calendar. Pfeiffer (2011) and Sexton (2013) were two researchers that studied the effect of student attendance when comparing students who were housed in a traditional school calendar versus a balanced calendar. Pfeiffer's (2011) study used a quasiexperimental research method to look specifically at students who were identified as having an Individualized Education Plan due to the low attendance rate due to suspensions, as well as other factors that may have contributed to low attendance. Attendance data were collected on 41 students, all having an Individualized Education Plan, from Abraxus High School in Poway, California. With the use of attendance data, surveys and interviews, this study found that 92% of staff members believed that the calendar had a positive impact on students wanting to come to school. The data, while showing a positive impact, only increased from 32% to 34% during this six-year study.

In addition to the school year, studies have also been conducted to see how students fare

when they are in summer programs during the summer intersession versus when they are not. Gillmor (2015), using descriptive analysis, examined the academic benefits of students who were struggling, academically throughout the school year and how much information they were able to retain after attending a summer program while comparing to those who did not attend a summer program. Gillmor analyzed nationwide test scores of over 24,000 students from sixteen different states. The summer learning loss had an overall negative effect for third- through eighth-graders. The study indicated that math loss decreased as much as 36.31% on the assessment. English Language Arts also reflected an impact with the largest loss at 12.43%. In addition, the study concluded that "where significant effects were identified, [free and/or reduced lunch] status was associated with greater loss" (p. 31).

Based on these studies, there appears to be a correlation between the time students are in school and the amount of learning that is established and retained. It is evident how Carroll's Organizational Theory and its connection to the school calendar links to the effectiveness of students and their performance on standardized assessments. However, prior to this study, there was limited research that analyzed a modified school calendar's effect on students identified as reading below or well-below grade level from grades Kindergarten through third-grade. These years are indicative of determining the future success of students via the nationwide trend that is known as the Third-Grade Guarantee, a law that is increasingly becoming popular across the nation which, in some states, mandate that a student may not be promoted to fourth-grade without showing mastery of grade level reading skills by the end of third-grade (Jeup, 2017).

In addition to Carroll's Organizational Theory, other studies indicate while all students are affected by the organization of time for current school systems, students of color and lowincome students tend to be even more negatively impacted by contemporary school calendars

(Annie E. Casey Foundation, 2010; Callahan, 2017; Cooper, Valentine, Charlton & Melson, 2013; Darling-Hammond, 2006; Darling-Hammond, 2010; Garland, 2012; Khan, 2012; National Summer Learning Association, 2010; Whitaker, 2016). For instance, several researchers and practitioners have analyzed the behaviors of Black males when they enter fourth-grade. This period for Black males becomes the opportunity for them to identify their true self while also trying to continue fitting into an educational setting where teachers may view them through deficit lens, which affects their academic functioning (Brown, 2006; Kunjufu, 1985; Noguera, 2003, 2013). The reason that this is such a pivotal moment in education is the change of the classroom environment. Morgan (2011) stated "This phenomenon occurred during this time because the classroom environment changes between the third and fourth-grade from a socially interactive style to a more individualistic, competitive style" (O'Neal Cokley, 2016, para. 18). The theory around Black males at this time of their life was coined as the fourth-grade failure syndrome (Kunjufu, 1985). Noguera (2003) noted that the fourth-grade syndrome begins about ages nine or ten when Black boys start to look like young men. At this point many Black males may notice and understand the stereotypes and negativity related to their culture (Noguera, 2003).

The English language dropout dilemma is another theory that considered the timeline of an English language learner (ELL) as they try to accomplish the academic, behavioral and social aspects of the American school system. This theory focused on three components that defined the likelihood of a student to graduate high school: children of immigrant status, parental education level, and racial-ethnic status (Callahan, 2013).

In addition to race and language differences, another theory explains (Davis, Ajzen, Saunders & Williams, 2002; Fichten et al., 2014) the likelihood of dropping out or being

successful in school. These studies conducted around the Theory of Planned Behavior (Davis, Ajzen, Saunders & Williams, 2002; Fichten et al., 2014), are used to predict actions and behaviors based on one's intentionality and tend to look at low social economic status students of all races. Some studies, however, have detoured from the examination of the constructs of race and socioeconomic and have observed disabilities that affect other marginalized groups.

Fichten's, et al. (2014) retrospective study focused on 611 Canadian college students with a variety of disabilities who were surveyed about their intentions on completing their college education. Using a series of t-tests, this study concluded that a high percentage of students were categorized correctly on their graduation status per their intentions. For instance, of the students who prematurely left the university without a degree, 74% of those students were categorized correctly based on their original survey. Of the students who graduated with their intended degree, 86% of those Graduates were categorized correctly.

Over the course of this study, several assumptions guided my study of the summer gap and the balanced calendar. My first assumption was that to enhance the amount of content that can be mastered by students, depends on the amount of time that educators are able to present to them. However, Carroll's Organizational Theory suggested that it is not just a quantitative measure, but also a quality indicator. This can be perceived as how students are engaged in the process of learning but can also connect with the ways schools organize time for the school year. Prior to this study, I had only been introduced to the concept of a Balanced Calendar. By doing research and applying Carroll's Theory, I now understand how important it is to consider all elements of a calendar.

In addition, I initially applied the assumption that the art of teaching content is solely based on the cognitive capacity of a student. After researching the fourth-grade failure syndrome

(Brown, 2006; Kunjufu, 1985; Noguera, 2003, 2013), English language dropout dilemma (Callahan, 2013) and the Theory of Planned Behavior (Davis, Ajzen, Saunders & Williams, 2002; Fichten et al., 2014), I now realize that emotional aspects of learning play a large part in the long-term success of a student's academic journey. To truly take the time to understand the student and the high-risk factors they may encounter could make a significant difference in the approach that should be taken with each child.

### **Purpose of Study**

The purpose of this study was to analyze how well primary students attain and retain reading skills that determine their reading level. In this study, there were two sets of students in each grade level from Kindergarten through third-grade. One group from each grade level was educated at a school setting that implemented the traditional school calendar as inspired by school reformist, Horace Mann. The second set of students was selected from two schools that implemented a balanced calendar.

While there are a number of studies (Callahan, 2017; McMillen, 2000; McMullen & Rouse, 2012; Pederson, 2011) that analyzed the academic achievement for students in a school setting which implement the balanced calendar, this study examined the topic more rigorously in three ways: (1) this study compared students from two different school calendars who were reading below or well-below grade level at the beginning of their Kindergarten, first-grade, second-grade and third-grade school year, (2) this study was focused solely on the content area of reading with one variable representing the rate of growth throughout the school year, and (3) the ability or inability to retain the reading skills obtained in the previous school year throughout the summer period was assessed.

Each school calendar was analyzed to determine the academic success rate of students

from Kindergarten through third-grade who were labeled as reading below or well-below grade level. Hence, this correlational research study analyzed the effect of school calendars on K-3 reading achievement for students identified as not reading on grade level.

The research question examined for this study:

Research Question What is the relationship between student participation in the balanced calendar and reading academic achievement, as measured by the DIBELS Next assessment of students, in grades Kindergarten through third-grade who have been identified as being below or well-below grade level?

The investigation focused on the following research hypothesis:

Research Hypothesis There is a statistically significant relationship between student participation in a school with a balanced calendar, and reading academic achievement, as measured by the DIBELS Next assessment, for students in Kindergarten through third-grade who have been identified as being below or well-below grade level.

The significance of the study lies in the opportunity for districts and schools to examine more closely the summer learning gap. With the ongoing attention to increase learning for all students and close the achievement gap, districts are considering various alternatives. The success of students may require educators to look more closely at learning outcomes prior to third-grade with the balance calendar in mind.

### Significance of Study

A longitudinal study conducted by the Annie E. Casey Foundation (2010) studied the impact of students who struggled with reading after leaving the third-grade and the impact on their future academic journey. This longitudinal study analyzed test scores and graduation rates of 3,975 students, nationwide, who were born between 1979 and 1989. The reading scores analyzed were from the Peabody Individual Achievement Test. The study found many

condemning results regarding the future of these students. For instance, about 16% of children who were not reading at a Proficient level by the end of third-grade did not graduate high school on time. This rate is four times greater than their peers that were reading on grade level at the end of third-grade. This percentage rose to 26% if the student was deemed poor for at least a year and was not reading at a Proficient level. Overall, it was found that the largest impact from this study was on poor Black students and poor Latinx students whose percentage of graduation rates for those who were not reading at a Proficient level by the end of third-grade were 31% and 33%, respectively.

While school accreditation is typically determined based on the performance of intermediate and secondary students on standardized assessments, the Annie E. Casey Foundation (2010) indicated that it is vital that teachers and school administrators begin analyzing the factors that are contributing to our primary students' successes and struggles. The understanding gained from this study can help school administrators determine how the school calendar can affect the learning and retaining of foundational skills within the content area of reading for students who are in grade levels Kindergarten through third-grade, which will contribute to policy and change in this area. Changes that may be considered are a variety of academic school calendars to reduce the amount of time students have during their intersession periods.

This research study is also significant in that it will help to determine if Carroll's Organizational Theory, especially while focusing on the Levels of Time and the consistent exposure to curriculum, helps to determine if a primary student has a better chance of learning and retaining how to read within a modified calendar that does not allow for a summer learning loss. This study focused on students for one academic school year and determined which

calendar, if either, supported student growth for primary students who were benchmarked and found to be reading below or well-below grade level.

#### CHAPTER 2

### **REVIEW OF LITERATURE**

Within the last several decades, there have been numerous modifications within the educational setting. Changes in education include, but are not limited to, the sizes of the school structures, class sizes, and subjects that are being taught. While school calendars have had few organizational and structural changes throughout the years, they have been significant and have developed to fit the needs of students' lives outside of their school day.

On January 8, 2002, George W. Bush signed into law The No Child Left Behind Act of 2001 (U.S. Department of Education, 2001). While the program had many strings attached to it, the most detrimental to schools (Spring, 2011, 2013) was that there was a mandatory requirement that there be annual testing to show academic progress for every school, thus potentially causing a decrease of federal funding to districts. While accountability created an urge to ensure all students were mastering grade level skills, one of the negatives and detriments were the "scripted lessons created by some outside agency" that teachers, schools and districts began to rely on (Spring, 2011, p. 11)

The No Child Left Behind Act of 2001 introduced a level of monitoring and accountability that had never been present in the field of education prior to its implementation. The term Adequate Yearly Progress was coined as the measurement tool that would be used to ensure that all schools were making the progress needed to guarantee that "all students. . . will meet or exceed the State's proficient level of academic achievements on the State assessments" (U.S. Department of Education, 2001, para. 23). By 2004-2005, a study (U.S. Department of Education, Office of Planning, Evaluation and Policy Development, Policy and Program Studies Service, 2010) explained that "three-quarters of schools made adequate yearly progress" (p.

111). In addition, the study proclaimed that the quarter of schools that did not make adequate yearly progress were typically schools that were considered low-income, Title I schools. This accountability system, however, had consequences for any school who had consecutive years of not meeting adequate progress. For instance, if a school did not meet their personal adequate yearly progress goal for two consecutive years, the school was mandated to offer all students who identified coming from a low-income household an opportunity for receiving supplemental educational services from a state-approved provider. If a school did not meet their adequate yearly progress goal for five consecutive years, the school was placed in corrective action status. This meant that a number of factors regarding low academic achievement, for instance underperforming teachers, the current curriculum, and the number of school days, were up for consideration for change or termination (U.S. Department of Education, Office of Planning, Evaluation and Policy Development, Policy and Program Studies Service, 2010).

Districts tried to establish modified techniques to support their students' academic success, so the school could thrive and avoid any consequences that would be demanded should the school not meet their annual adequate yearly progress goal. As 2014, the year where 100% of students were to be considered proficient per each state's educational standards (U.S. Department of Education, Office of Planning, Evaluation and Policy Development, Policy and Program Studies Service, 2010), drew closer and adequate yearly progress goals became more difficult to achieve, schools began to look for other solutions. A trend that surfaced to solve the growing achievement gap was implementing alternative schedules that could potentially have some positive effect on their students' academic achievement.

In 2015, President Barack Obama passed a revised version of the No Child Behind Act of 2001 called Every Student Succeeds Act (ESSA) of 2015. The U.S. Department of Education
(n.d.) suggests that "high school graduation rates are at all-time highs. Dropout rates are at historic lows. And more students are going to college than ever before (para. 3)." One of the factors that made ESSA different from NCLB were some of the provisions that were included to help guide schools to success. Some of the factors included "students in America be taught to high academic standards that will prepare them to succeed in college and careers, . . . upholding critical protections for America's disadvantaged and high-need students [and] . . . accountability and action to effect positive change in our lowest-performing schools (para. 8)."

One action that some schools took to hopefully encounter a positive change for American school districts was the implementation of a balanced calendar. This model was created to restructure the traditional school calendar and provide students more school breaks throughout the year rather than having a three-month summer break. Several studies have determined the traditional calendar allowed for students forgetting information they had learned from the previous school year (Department of Early Childhood Development, 2004; Garland, 2012; Khan, 2012; Kim, 2004; Landrieu, 2012; National Summer Learning Association, 2010; National Summer Learning Association, 2012a; National Summer Learning Association, 2012b; Schewe, 2006; Smink, 2011; Tintocalis, 2009). In an attempt to prevent the loss of previously-learned information, some districts adopted the balanced calendar. The intent was the shorter amount of time would result in a decline of the amount of information to be retaught the next school year (Cooper, Nye, Charlton, Lindsay & Greathouse, 1996; Cooper, Valentine, Charlton & Melson, 2003; Khan 2012; National Summer Learning Association, 2012a; National Summer Learning Association 2012b). This is especially important for Title I schools where studies (Gandara & Fish, 1994; Perry, 1991; Serifs, 1990) showed that English Language Learners and students labeled "at risk" suffer the most from the summer learning gap that is caused by the approximate

twelve week break within a traditional school calendar in comparison to the approximate four to eight week break within a balanced calendar (Pepper & Ballinger, 2009b).

The review of literature in chapter two helps to define the process of implementing the balanced calendar, as well as current and previous research and empirical studies related to the positive and negative impacts of the balanced calendar. The review also discusses America's educational process and the critical stages that led to the current model of education, including many of the alternative schedules that schools have chosen to utilize. The literature review focuses on the following topics: the evolution of American school year calendars, nationwide reading achievement, effects of the Balanced Calendar and the academic concerns of a Balanced Calendar.

## The Evolution of American School Year Calendars

The seventeenth century marked the founding of the first-ever public school in the United States. Boston Latin School was founded in 1635 in Boston, Massachusetts. The school was funded through tax money and was open to any boys despite their social class (Boston Latin School, 2012). The school had a consistent schedule during the summer and winter season with school being Monday through Friday in two different sessions: morning and afternoon (Boston Latin School, 2012). Due to their agrarian lifestyle, the students would only attend school during the winter and summer so they could stay home to work on the farm or for the family businesses (Vejnar, 2002).

The Boston Latin School started the trend of public education in America, but the schools that followed took approaches that would best benefit their students and the lives that they led at home. Altman (2008) wrote about the difference between the schools that were developed in rural and urban communities.

In the decades before the Civil War, schools operated on one of two calendars, neither of which included a summer hiatus. Rural schooling was divided into summer and winter terms, leaving kids free to pitch in with the spring planting and fall harvest seasons. Urban students, meanwhile, regularly endured as many as 48 weeks of study a year, with one break per quarter. (p. 18)

While the urban students were expected to attend school for forty-eight weeks, Altman (2008) made it clear that attendance was sparse. In some cases, such as Detroit in 1843, only 30% of enrolled students attended year-round. However, it must be clarified that education for Indians and Blacks took on other forms of education because these groups were not considered by the educational bureaucrats and reformers as capable of being educated (Anderson, 1988; Kretovics & Nussel, 1994; Takaki, 1993). For Indians, education took the form of boarding schools to rid them of their savage ways; for slaves in the South, forbidden by law to learn how to read, self-help through sabbath and clandestine schools were the forms of education (Anderson, 1988); and in the north, self-help also led to the building of schools among freed Blacks (Katz, 1973).

As time passed, educational reformers, such as Horace Mann, looked at the form of education that was transpiring in America and realized that it was not benefitting the children involved. Mann decided to take the two schedules, the urban and rural, and integrate them. His goal was to establish a school year that was longer than the two seasons, yet not as long as the urban school's 48-week school year (Altman, 2008).

Mann was a child that suffered from lack of sufficient education, himself. A boy, raised on a farm, who had only attended school during the winter season in a one-room schoolhouse that had a leaking roof (Harris, 1896). Other than selling the crops on his farm, Mann and his family also made and sold straw hats to a local hat factory. Mann graduated top of his class from Brown University in 1819 at the age of 23. After one year of being a

legal apprentice, he left the firm and became a professor at his alma mater, Brown University. Not long after, Mann started a law school in Connecticut and began practicing law in Massachusetts in 1823 which led to him being elected into the Massachusetts Senate in 1833 (Morgan 1936).

In 1837, Mann was elected as Secretary of the newly-created Massachusetts Board of Education. He decided to put his law studies aside and devote all of his time to his position on the school board. His plan was to enact a major educational reform; however, the board "had limited powers. It could not find schools, nor direct or manage them after they were founded. It should only collect information and diffuse it. It could persuade the people but not command them" (Harris, 1896, p. 891). Despite obstacles, Mann addressed his concerns with current schools using 12 hand-written and verbally addressed reports that described his idea of a perfect, normal school. In those reports, he mentioned topics such as teacher training, a better school environment than what he experienced as a child and the fourth report dealing with "the regularity and punctuality of attendance" (Harris, 1896, p. 29).

The first state-funded normal school, a term that coined for schools specifically established for public teacher education (Harper, 1970), was developed in Lexington, Massachusetts in 1839. At the opening of the Lexington school, Mann made a speech in which he declared:

I believe Normal Schools to be a new instrumentality in the advancement of the race. I believe that, without them, Free Schools themselves would be shorn of their strength and their healing power and would at length become mere charity schools and thus die out in fact and in form. (Ornstein & Levine, 1993, p.196)

Throughout his career on the school board, Mann spent his time trying to persuade legislators to spend more money on teacher training, school environments, adding a month to the school year, and other areas (Morgan, 1936). One of the issues that Mann saw in the school

system was the scheduling with the schools. Rural students were only attending schools for the summer and winter seasons, while urban schools were expecting their students to show up for 48-weeks. Mann had concerns with both. While he felt it was crucial for students in the rural district to continue to have a helping hand with their families' farming, harvesting and businesses, he felt that the two seasons did not allow the students to benefit from what education had to offer. On the other hand, he felt as if students in urban districts were suffering from an illness called fatigue, which Raftopoulous, Charalambous and Talias (2012) defined as being in the state of emotional exhaustion and depersonalization due to a living or working environment that creates high levels of exhaustion and stress. Scheduling was just one aspect of school that Mann wanted to change and there were several people that disagreed. The result, however, was favorable to Mann.

Statistics tell us that the appropriations for public schools had doubled; that more than \$2,000,000 had been spent in providing better school houses...one month had been added to the average length of the schools; the ratio of private school expenditures to those of the public schools had diminished from 75 per cent to 36 per cent; the compensation of school committees had been made compulsory, and the supervision was more general and more constant; three normal schools had been established, and had sent out several hundred teachers, who were making themselves felt in all parts of the State. (Martin, 1894, p. 130)

Ultimately, Mann persuaded the state of Massachusetts to raise the tax bar to provide free education to any child, no matter their social class. During his reign on the school board, Mann helped schools acquire libraries and created assessments to evaluate teachers' competence (Horton, n.d.). However, through state-supported education states could mandate how long students were required to stay in school.

# **Traditional School Calendar**

At the time of this study, there was no federal law that governed how many days of school districts must have implemented in their academic school year, but it was mandated that

the state choose their own requirements. The Home School Legal Defense Association (HSLDA, 2012) affirmed that there are 13 U.S. states that do not have any restrictions to the number of academic days. Twenty-seven of the U.S. states had a requirement of 170 - 180 educational days. Iowa required the lowest recorded state-mandated academic days with 148 days required. The other nine states were divided into academic hours that had to be completed in the school year, which fell around 900 hours. While the United States averaged 180 days per year, competitive countries such as Japan and China averaged 201 and 202 days a year, respectively (National Center for Education Statistics, 2008a).

While it appeared that United States was lagging in instructional days when compared to other countries, they were actually far beyond the instructional hours per day. The National Center for Educational Statistics (2008a) claimed that Japan had an average of 5.0 instructional hours, China had an average of 5.9 instructional hours and the United States had an average of 6.2 instructional hours on an average school day. American schools consisted of approximately 180 school days with 6.2 instructional hours, calculated to about 1,116 instructional hours per year, which was globally competitive (National Center for Education Statistics, 2008a). Although the United States provided their students with more academic hours, there appeared to be a deficiency in the academic achievement in comparison with other countries that had less instructional hours. The Pew Research Center (DeSilver, U.S. students' academic achievement still lags that of their peers in many other countries, 2017) analyzed an assessment that was given to students in 2015 from different countries from around the world. Students were administered the Programme for International Student Assessment, also known as PISA. PISA assessed students in a variety of subjects including, but not limited to, reading ability, mathematics and science. Out of 71 countries who partook in this study, the United States ranked in 24<sup>th</sup> place

with a mean score of 497; just four points above the mean score amongst all test-takers. The results also showed the comparison of average scores in each country in comparison to each other. In this 2015 study, the United States ranked below countries who are known for their schools hosting more academic days but less instructional hours, such as China and Japan. The mean scores for these countries were 527 and 516, respectively.

Despite the number of instructional hours that American students received, the National Education Commission of Time and Learning claimed that the current system is a "recipe for a . . . slow-motion social suicide" (National Education Commission on Time and Learning, 1994, p. 7). The study noted that there are five pre-conceived misconceptions in our current school schedule that impede U.S. students' ability to compete with other countries: (1) the assumption that all students arrive at school ready to learn in the same way, on the same schedule; (2) the notion that academic time can be used for nonacademic purposes with no effect on learning; (3) the pretense that because yesterday's calendar was good enough for us, it should be good enough for our children-despite major changes in the larger society; (4) the myth that schools can be transformed without giving teachers the time they need to retool themselves and reorganize their work. Lastly, the National Education Commission on Time and Learning stated that a misconception and growing concern for our educational system is that we find it reasonable to expect world-class academic performance from our students within the time-bound system that is already failing them (National Education Commission on Time and Learning, 1994). Hence, the concerns for the summer learning gap were motivated from this time-bound system.

## **Summer Learning Gap**

The traditional school calendar allows for approximately nine months of instruction leaving approximately three months of intersession. This intersession provides students with job

opportunities, vacation time, and relaxation. It also may permit the opportunity for skills obtained in the prior school year to be forgotten. This lack of retaining previously taught information is called the summer learning gap (Tintocalis, 2009), a disadvantage for every child. Several studies show, however, that students of the lower-socioeconomic communities have been more harshly affected. The reason for this is not because students who are better off financially are in school during the summer, but that they are engaged in summer activities that require their reading skills to continue (Khan, 2012). Some of the activities that those students engage in are camps, museums, traveling and spending time in nature. Generally, these are activities lowincome families cannot afford for their children,

In one meta-analysis study, The National Summer Learning Association (2010) reviewed 93 evaluations of summer school programs that serviced students from Kindergarten through twelfth-grade and determined that "kids do forget over the summer" (p. 1). The study analyzed the subjects of math and reading and included assessment data, as well as interviews with teachers, parents and administrators. While the study indicated that all students were affected when it came to mathematics skills, the association also determined that "in reading, the middle class holds its own, but the poor lose reading and spelling skills" (p. 1). The reason for the overall loss of math, the study claimed, was because it is a concept that requires repetition and practice to become proficient, while reading is embedded in everyday activities (Schewe, 2006).

To determine the reasons for the income-based academic achievement gap, the National Summer Learning Association (2010) considered different possibilities. These included lack of resources, better funding for more opportunities, and just being more remedial in nature. The faucet theory was a term created to metaphorically express the amount of resources a person is exposed to due to their socio-economic environment. "When summer comes around, academic resources for the poor are turned off. Middle-class and better-off parents, however, have the resources on their own to compensate to some degree and provide whatever their child might need" (National Summer Learning Association, 2010, p. 1).

# **Faucet Theory**

As noted previously, the faucet theory, as coined by Entwisle, Alexander and Olson (2000), was a metaphor created to describe the opportunities that children have with learning and retaining academic knowledge during an intersession between or within school years. "The long summer vacation breaks the rhythm of instruction, leads to forgetting, and require a significant amount of review when students return to school in the fall" (Cooper, 2003, p. 2). The faucet theory was constructed around the inequalities of students within different socioeconomic classes. For instance, Entwisle et al. (2000) indicated that students of low socioeconomic households tend to have their faucet turned off, or become exposed and/or retain academic knowledge, throughout the intersession because the lifestyle within this class is not typically exposed to educational opportunities such as museums and libraries. Students who are identified within the higher-socioeconomic class are often more exposed to these experiences, thus allowing their metaphorical faucets to remain on (Cooper, 1996; Entwisle et al., 2000).

One study conducted by Alexander, Entwisle and Olson (2007) used two-tailed tests to analyze the effects of the out-of-school experiences, or lack thereof, of students from first-grade through high school from different socioeconomic statuses. The study compared the achievement scores on the California Achievement Test-Reading (CAT-R) between students that identified as living in a low, middle, and high socioeconomic status household to determine if there were any discrepancies. It was found that an extensive number of students are affected academically when it comes to the lack of educational opportunities in the summer time. It was

indicated that one-third of the socioeconomic difference "traces to disparities in place when these children started first-grade, implicating experiences and family resources that predate school entry" (Alexander et al., p. 7). In addition, when looking at the effects of out-of-school opportunities of secondary students of different socioeconomic statuses, "two-thirds of the total traces to summer learning differences over the elementary years" (Alexander et al., p. 7). In conclusion, while the study was small with only about 300 participants, which is a limitation worth considering, the analysis proved that the summer learning gap tends to have more of a negative impact on students identifying as living in a low socioeconomic setting than those of a more prosperous socioeconomic society due to the lack of academic enrichment activities that might be available.

Aumaugher (2014) recognized the concern of the summer learning loss and conducted a quantitative assessment using two sampled t-tests to investigate the amount of information that students learned and retained from the end of one school year to the other. The study examined 60 middle school students in a Midwest public charter school within a four-year period who were assessed in English Language Arts and mathematics using the Northwest Evaluation Association's Measures for Academic Progress assessment. After analyzing the results, Aumaugher found that there was a statistically significant difference in math scores due to the upward trends of the students' math scores. While there was no statistically significant difference with the students' English Language Arts scores, the researcher did indicate that there were not any negative indicators to show a summer learning loss for the students who attended this summer program.

Hosting summer school opportunities has become a popular option to try and minimize the academic casualties of the summer learning loss. In 2016, it was reported that approximately

28% of students in rural communities, 32% of students in suburban communities and 41% of students in urban communities attend a summer learning program, annually (Afterschool Alliance, 2016). However, this leaves more than half of the other students who are not afforded the prospect, whether a decision by the school or by the parents, to attend these extra learning opportunities. Due to this gap, schools are looking at other options to try and deter students from losing information over a long intersession. One option that has grown popular within the United States is a modified school calendar referred to as the Balanced Calendar.

## **Balanced Calendar**

In the 1800s, industrial cities in the northern portions of the United States encountered an increase in immigrants. With the funding shortages, overcrowding and a desire for better quality in education, some cities decided to create a schedule that they deemed to be relative to the needs of their students. The calendar that was created veered away from the long summer break and created more sporadic breaks throughout the year. This calendar became known as the balanced calendar (Hermansen & Gove, 1971).

The National Association for Year-Round Education (Pepper & Ballinger, 2009) explained the concept of the balance calendar, or year-round schooling, as:

Year-round education centers on reorganizing the school year to provide more continuous learning by breaking up the long summer vacation into shorter, more frequent vacations throughout the year. It does not eliminate the summer vacation, but reduces it and redistributes it as vacation or intersession time during the school year. Students attending a year-round school go to the same classes and receive the same instruction as students on a traditional calendar. The year round calendar is organized into instructional periods and vacation weeks that are more evenly balanced across twelve months than the traditional school calendar. The balanced calendar minimizes the learning loss that occurs during a typical three-month summer vacation. (para. 2)

Hermansen and Gove (1971) claim that it was not until the 1960s that the balanced calendar made a significant appearance in the United States. The Baby Boom era caused a

nationwide concern for overcrowding causing demands for infrastructure costs and construction costs for building new schools. Suburban schools also saw a large increase in population as many flocked there in order to provide their children with a better education.

Valley View School District 96, a school district located southwest of Chicago, Illinois, is one example of a school district that became an overcrowded suburban school district. Due to the increase in population, the district needed to make a change to accommodate all their students. The district made national news by being the first district in the United States to fully implement the balanced calendar in 1971 (McGlynn, 2002). The school district later converted back to the traditional school calendar after their student population diminished to a number that their school was capable of educating.

In 2002, George Bush, Jr. signed The No Child Left Behind Act, which stated that certain achievements must be met to receive the maximum financial funding put forth toward education (The White House, 2002). With the academic bar set at a potentially unobtainable 100% of students being proficient and/or advanced by 2014, districts had to find ways to keep their schools successful without the funding that they had once received. Many districts, such as Ann Arbor Public Schools in Michigan, looked at their school schedules to cut costs (Arndt, 2011). The National Association for Year-Round Education (Pepper & Ballinger, 2009a) created a statistical summary to outline the number of schools and students that were participating in a balanced calendar in the 2006-07 school year. At that time, 2,764 public schools and 3,000 public, charter and private schools were operating under this alternative school calendar. These schools were within 46 of the states with the United States of America and the District of Columbia and serviced 2,099,633 students with approximately 75% of those being elementary students.

Indeed, the evolution of the American calendar began with Horace Mann's attempt to establish a common culture evolved from an earlier agrarian life style and his attempt to integrate urban and rural schedules, which eventually led to a traditional calendar adopted by individual states. The traditional calendars promoted the summer learning gap, explained by the facet theory constructed around the inequalities of students within different socioeconomic classes. Balance calendars were designed by school districts to prevent the loss of previously-learned information, in hopes that the shorter amount of time would result in a decline of the amount of information needing to be retaught in the next school term. The focus was placed on ensuring that students would learn to read before exiting third-grade, which would ensure students would not leave school before graduation (Annie E. Casey Foundation, 2010); an emphasis on nationwide reading achievement would help to achieve this goal, especially through such approaches as the Third-Grade Guarantee.

#### **Nationwide Reading Achievement**

With the Third-Grade Guarantee initiative becoming more prevalent in states across the nation, people are intrigued to see how students in fourth-grade have been performing overall in English Language Arts. While each state is mandated to implement or develop their own standards, as well as give a standardized assessment to determine the progress of their students, it is difficult to compare statewide results to one another due to the lack of consistency with these factors from the east coast to the west coast. Within his run as the U.S. Commissioner of Education, Francis Keppel grieved about the lack of evidence that schools were providing quality education that produced results:

It became clear that American education had not yet faced up to the question of how to determine the quality of academic performance in schools. There was a lack of information. Without a reporting system that alerted state or federal authorities to the need for support to shore up educational weakness, programs had to be devised on the basis of social and economic data... Economic reports existed on family needs, but no data existed to supply similar facts on the quality and condition of what children learned. The nation could find out about school buildings or discover how many years children stay in school; it had no satisfactory way of assessing whether the time spent in school was effective. (Keppel, 1966, pp. 108-109)

Vinovskis (1998) suggested that Keppel's plea to create some sort of assessment that would determine the effectiveness of classroom instruction was the push that was needed to create a nationwide assessment that would assess students nationwide to be able to make some sort of comparison, which led to the creation of the National Assessment of Educational Progress (NAEP).

For the last five decades, students have been taking the NAEP assessment so individual states and the nation can determine the progress of education. NAEP has assessed students in a variety of content areas including reading, writing and mathematics and is administered to fourth-graders, eighth-graders and twelfth-graders. In 2003, the Reading, Mathematics and Science assessments were given within each state and jurisdiction by fourth- and eighth-graders (National Center for Education Statistics, 2015b).

In the last 25 years, NAEP has assessed and documented the scores for fourth-grade reading achievement. As shown in Figure 2.1, fourth-graders improved slightly since 1990 to 2017, yet still fell below the Proficient status (see Figure 2.1). In 1990, the NAEP scores indicated that students, on average, were performing at average score of 217. After approximately eight years of falling, the nation saw a rise shortly after the introduction of the No Child Left Behind Act of 2001. In 2007, the national average rose above 220, but still remained approximately 20 points less than a proficient status. Unfortunately, although we rose above the 220 mark, the nation has remained stagnant since then. The last decade has shown average scores between 221 and 223.



*Figure 2.1.* National Assessment of Educational Progress (NAEP) scores for fourth-graders from 1990 to 2015 (The Nation's Report Card, 2017)

As states continued to research best practices and ways to refine instruction to ensure that their student achievement scores increase to the proficient benchmark, researchers began to distinguish the importance of mastering reading skills before students leave third-grade. It had been a well-known statistic that students not reading on or near grade level before leaving third-grade had more of a significant chance of dropping out before graduating high school than their peers who could read on or near grade level when leaving third-grade (Annie E. Casey Foundation, 2010). This statistic encouraged many states to act in ensuring that their students leave third-grade on or near grade level in reading proficiency. By doing this, districts hoped their graduation rate would increase and student scores from fourth-grade and beyond would improve as students, at that point, would have mastered the ability to *learn to read* (Zakariya, 2015). The movement has spread nationwide and is known as Third-Grade Guarantee.

### **Third-Grade Guarantee**

The Annie E. Casey Foundation (2010) conducted a longitudinal study that concluded that students that cannot read on grade level by the end of third-grade are significantly more

vulnerable of failing later in school and, in some cases, never graduate high school. This study analyzed student assessment performance on the Peabody Individual Achievement Test in thirdgrade for nearly 4,000 students, nationwide. These students were grouped based on their reading scores from third-grade. Researchers then looked at these same students and determined the percentage of students in each reading group and whether they completed high school within a four-year period. While this applies to all races and socioeconomic statuses, there is a noteworthy correlation when it comes to students in the lower-socioeconomic status. The study claims that students not reading on grade level by third-grade are four times less likely to graduate by age 19, while students of poor families are 13 times less likely of doing the same (Sparks, 2011).

Sparks (2011) outlined the reason that third-grade is such a pivotal year is because, within education:

We teach reading for the first three grades and then after that children are not so much learning to read but using their readings skills to learn other topics. In that sense if you haven't succeeded by third-grade it's more difficult to [remediate] than it would have been if you started before then. (para. 4)

In perspective of the amount of third-graders that fall in the category that Sparks described, the Annie E. Casey Foundation (2010) concluded "Of the fourth-graders who took the National Assessment of Educational Progress (NAEP) reading test in 2009, fully 83% of children from low-income families—and 85% of low-income students who attend high-poverty schools—failed to reach the "proficient" level [in reading]" (p. 7).

To reduce the amount of fourth-graders that are reading below grade level, a law was created, adopted, and put into effect in 33 states (Education Commission of the States, 2016). This law, commonly referred to as the Third-Grade Guarantee, mandated that a third-grader be reading on or near grade level to be promoted to the fourth-grade. The exception in all of the 33 states was that students who are receiving special education or English-language services were exempt. Also, a few states allowed for students who received extensive tutoring to be exempt from retention.

One Third-Grade Guarantee success story thus far came from Ohio. In 2012, Ohio faced a detrimental statistic – nearly 60% of fourth-grade students in the state were failing. Ohio decided to implement a Third-Grade Guarantee Law that enforced schools to ensure that no student left third-grade without passing their state assessment. In 2015, just three years after Senate Bill 316 was signed into effect, Ohio saw more than a 30% increase in the number of third-grade students who passed the state's standardized test with a cumulative passing rate of 91.5% (Institute for Multi-Sensory Education, 2017).

Colorado also passed their Third-Grade Guarantee in 2012. Colorado's program was named the Colorado Reading to Ensure Academic Development (READ) Act and focused on supporting all readers to ensure they were on or above grade level before moving to fourth-grade. Like Ohio's law, there were exemptions that applied to certain students such as those who were afforded special education services. Unlike Ohio, however, Colorado did not mandate that students were retained. Also, success was not necessarily based on performance on the state standardized assessment, but rather their end-of-year data on a state-approved benchmarking system. Students who were more than one grade level behind reading level were labeled as having a Significant Reading Deficiency (SRD). From 2013 to 2015, the number of SRD students fell from 16.5% to 13.8% (Children's Campaign, 2016). Although SRD numbers appeared to be decreasing, some schools and districts continue to search for opportunities to reduce the number of students labeled with and SRD. The participants in this study all attended elementary schools in Colorado. As indicated in the following section, more attention needs to

be placed on ensuring that marginalized groups of students experience success during the elementary years toward completion of high school.

### **High School Dropout for Marginalized Groups**

Fortunately, since 1990, the United States has seen a significant decrease in high school dropout rates. For instance, from 1990 to 2013, White students had a decrease of dropout rates from nine to five percent. Black students decreased from 13 to seven percent. Latinx students, while still having the highest dropout rate regarding race, decreased the most from 32 to 12 percent; a 20% decrease (Kena, at al., 2017). Outside of race, students who qualified for free and/or reduced lunch also saw an increase in on-time graduation rates. From 2010 to 2015, graduation rates for students who qualified for this program increased from 65% to 68% (Annie E. Casey Foundation, n.d.). "Student graduation from high school with a regular high school diploma is an important indicator of school success and one of the most significant indicators of student college and career readiness" (U.S. Department of Education, 2017, p. 6). Although there were positive trends regarding marginalized groups and dropout rates, there is still room for improvement. Early in their schooling experiences, certain groups of students tend to struggle more in school due to historical, social-cultural, and linguistic phenomena from the larger society that influence their academic expectations (Callahan, 2013; Caruthers & Friend, 2016; Brown, 2006; Emdin, 2012; Kao & Tienda, 1995; Noguera, 2008; Perreira, Harris & Lee, 2006).

The fourth-grade failure syndrome, or fourth-grade syndrome, coined by Juwanza Kunjufu (1985) referred to the mental and emotional checkout of school and academic learning by Black males which happens around the fourth-grade. Brown (2006) indicated that Black males, like many other children, began their academic journey with the excitement that school presents. They begin to develop their own personality-traits, attitudes and predispositions on

learning until about the fourth-grade when a downward slip occurs in learning.

In fourth-grade, the Black males that were excited about academic learning begin to develop a negative feeling toward school. Baker (1999) suggested that fourth-grade is a milestone in a student's academic journey where they must begin to use their socialization and sociological patterns to express themselves within an educational setting. He stated that Black males, especially within an elementary setting, tend to be expressive and easily stimulated by their environment. Within the educational setting, where their peers that identify as a different race or gender may express themselves in a different manner, deemed more appropriate in schools, Baker believed that this gap could cause a feeling of isolation or alienation. Even teachers that are not able to identify with these characteristics may find it difficult to respond to the ways in which Black males may tend to express themselves.

Noguera (2008) suggested that "In the United States we have very deeply embedded stereotypes that connect racial identity to academic ability, and children become aware of these stereotypes as they grow up in the school context" (p. 10). He continued "The stereotypical images we hold toward groups are powerful in influencing what people see and expect of students. Unless educators consciously try and undermine and work against these kinds of stereotypes, they often act on them unconsciously" (p. 11). In addition to the social patterns, the physical sense of maturing into a Black adult begins to take place around this age. Noguera (2013) believed this adds another layer of negative effects to the way that they are perceived by their peers.

Emdin (2012) suggested that a teacher's reaction to a Black male trying to find their true self, socially and physically, will typically result in the student creating another image that is not true to who they want to become. For instance, some students have found the ability to ignore or

fight through this to find academic success. However, "others struggle daily as they dance between the role of being an academically disinterested Black male and being their true self" (p. 14). Brown (2006) continued by suggesting that the notion to express themselves more exuberantly than their peers has caused a wave of wrongly identified students to be diagnosed as having Attention Deficit Hyperactive Disorder, a learning disability or as somebody with a neurological issue. The U.S. Department of Education (2016) reported that "[Black] students ages 6 through 21 were 2.08 and 2.22 times more likely to be served under IDEA. . . for emotional disturbance and intellectual disabilities, respectively, than were the students ages 6 through 21 in all other [ethnic] groups combined" (p. xxvi). This misidentification can begin to create self-esteem issues which contribute to the fourth-grade failure syndrome.

This self-esteem issue creates a negative feeling toward academics and anybody involved. Kunjufu (1997) suggested that this downward slope of self-esteem creates an urge and need for Black students to express themselves which tends to land them in detention, suspension or other behavioral consequences that impede their time within the classroom. Thus, the learning gap begins to occur for these students who, if they are already reading below grade level by the end of third-grade and identify as living in a low socioeconomic background, are already highly probable to not continue to high school graduation (Annie E. Casey Foundation, 2010).

In addition to their Black peers, students who identify as an English Language Learner (ELL) also tend to have a statistic that is concerning when looking at high school graduation rates. In the 2014-15 school year, it was reported (National Center for Education Statistics, 2015) that approximately 4.6 million students, or 9.4%, were students that identified as an ELL in a public-school setting. Most of these students attended schools within an urban setting. For instance, during the 2014-15 school year, the ELL percentage in a big city was 16.8% while in

the suburban public schools, the ELL population consisted of only 6.2% of the student body.

One study (Callahan, 2013) looked at the ELL population and the difficulties of getting through school successfully, all while juggling having to learn the language in which they are being taught in schools. Callahan stated that, while the ELL population is varied and does not consist solely of Latinx students, the Latinx community is the fastest growing ELL population in the United States with nearly 80% of ELL students who speak Spanish as their primary language. They also have the highest dropout rates compared to their peers. With a dropout rate of 19%, Latinx nearly doubled their Black peers who stand around 10% and nearly quadruple their White peers who have a dropout rate of 5%.

Callahan (2013) believed there are three high-risk factors that contribute to the English language dropout dilemma: children of immigrant status, parental educational level and racialethnic status. Children of immigrant status is one factor that contributes to the English language dropout dilemma. Kao and Tienda (1995) coined the term immigrant optimism hypothesis which states "immigrant parents' optimism and expectations for their U.S.-raised children may diffuse any number of negative environmental or contextual influences" (Callahan, 2013, p. 10). One longitudinal study (Perreira, Harris & Lee, 2006) used nationwide data to analyze the difference in dropout rates between students that identify as a first-generational immigrant versus their peers that are second- or third-generational immigrants. Perreira et al. found that first-generational immigrants were more likely to graduate high school and aspire of continuing education beyond high school in comparison to their peers that have been in the United States longer. While first-generation immigrants fall within the ELL category, Callahan proposed that "the theory of immigrant optimism suggests there may be protective factors at play, shielding the children of immigrant parents from the full negative influence of these factors" (p. 10).

Parental educational level was also a high-risk factor when looking at the statistics of success within ELL students. A quantitative study conducted by Perez et al. (2009) used a cluster analysis to analyze several high-risk factors, including the level of parental education in correlation with the student's academic journey. The study involved 104 participants who identified as being ELL. A one-way ANOVA showed that there was a significant correlation with students who graduated high school and having parents with at least a high school diploma. The third high-risk factor often associated with poverty that some ELL students may face, as well as other students, may be explained by behaviors that fall within a theory called Theory of Planned Behavior. This theory was coined by Icek (Fichten et al., 2016) and focused around behaviors versus intention:

Intention is an indication of a person's readiness to perform a given behavior, and it is considered to be the immediate antecedent of behavior. The intention is based on attitude toward behavior, subjective norm, and perceived behavioral control, with each predictor weighted for its importance in relation to the behavior and population of interest. (Fichten et al., p. 209)

While it would be logical to think that nobody's intention is to fail or give up, there is a need to understand the intentions of students often classified within marginalized groups (Callahan, 2013). Davis, Ajzen, Saunders and Williams (2002) examined Black students' interpretation about their intentions of completing high school and if they correlated with whether they completed high school. The correlational study took place in a large Midwest urban high school with approximately 1,200 students, 99% of which identified as Black. Davis et al. found that there was a statistically significant correlation with students' behavior and subjective norm, with p-values of .40 and .49, respectively, in correlation with the graduation rates of these participants. There was not statistical support for correlation, with a p-value of .03, between perceived behavioral control and graduation rates among the participants. However,

Davis et al. suggested "control beliefs may not have been properly assessed, thus reducing the correlations between individual beliefs and the direct measure of perceived behavioral control" (p. 815). The study concluded with "the variables assessed in the present study. . . afforded good prediction of actual behavior. Graduation from high school could be predicted with considerable success from intentions to complete the school year and from perceived control over this behavior" (p. 816).

One theory that may contribute to educational perceptions of marginalized groups is the concept of stereotype threat. This theory was defined by Claude Steele (1997) as "the threat that others' judgments or their own actions will negatively stereotype them in the domain" (p. 613). If a Black male student is entertained with the idea that he will not do well in school because of his race, then Steele's theory of stereotype threat believes that it will affect the outcome. This concept is indicative of not only race and socioeconomic status, but gender as well. One of the most common stereotype threats is the perception of female students not being good at math or science. Steele stated in a more recent interview (Kramer, 2016) that "as a task or exam becomes more difficult, a student wastes time and energy by focusing on the implications of the stereotypes" (para. 4).

The focus on increase achievement, especially toward ensuring that all students acquire important reading skills by fourth-grade, spurred much more awareness of marginalized groups and decreasing the dropout rates; yet, these gaps among groups of students have not been closed (Noguera & Wing, 2006; Ogbu, 2003; Payne, 2011; Ravitch, 2013). The effects of the balanced calendar, the focus of the next section, offers some of the benefits of the approach for ameliorating achievement gap issues.

## **Effects of the Balanced Calendar**

The traditional school calendar has existed in some form for the past 200 years (Martin, 1894). Perhaps the reason it has stayed for so long is due to the familiarity of the calendar within households across the country. Families have learned to adjust their personal schedules to that of the traditional school calendar. With budget cuts, summer learning gap, and the achievement gap, districts are striving to find the silver bullet that will solve these problems. But each solution creates both benefits and concerns.

This strand of the literature review focuses on the academic benefits and concerns regarding the balanced calendar. Academic achievement and teacher and student burnout and how these relate to Gorgievski & Hobfoll's (2007) Conservation of Resources theory are some of the academic benefits included in this chapter. Information about some academic concerns that mounted from the concept of a balanced calendar, such as the lack of opportunities for teacher education, and how Maslow's (1943) theory of hierarchy of needs play into the role of classroom temperature are also covered in this chapter.

## Academic Benefits of a Balanced Calendar

Considering that the balanced calendar may be a last resort for some districts, there have been several benefits that it has offered to schools and districts that have successfully implemented it. In the 2002-03 school year, more than 2.3 million U.S. public school students attended a balanced calendar school (Pepper & Ballinger, 2009a; Pepper & Ballinger, 2009b). From academic performance to student behavior, many of those 2.3 million students encountered results that helped develop success for their students. This section provides several benefits of the balanced calendar that have proven to help each district succeed academically during the implementation process.

Academic Performance. The Socorro Independent School District is in El Paso County, Texas, which borders Mexico. In 1989, the Socorro Independent School District was amongst the bottom tenth percentile of districts in the state based on academic performance. With a rapid increase of population and a consistent, downward spiral in state-wide assessment scores, the district came up with a three-year plan that involved integrating the year-round calendar into their elementary schools. By 1993, the Socorro Independent School District went from being within the bottom tenth percentile of schools in Texas to being recognized as one of the highest performing schools in the state. Specifically, the third-graders in the district produced scores significantly higher than the state average in every subject area (U.S. Department of Education, 1995).

Carolyn Kneese (1996) performed a quantitative integration that analyzed the academic results of 15 middle schools that implemented a balanced calendar. Using the standardized mean difference of the achievement scores, it was deemed that modified schedules, such as that of the balanced calendar, provides "positive, but very small" (p. 67) effects in regard to comparing either "scores of students who did and did not attend [balanced] calendar schools, with varying degrees of student matching; or between student scores from before and after a year (or longer) spent attending a [balanced] calendar school" (Cooper, Valentine, Charlton & Melson, 2003, p. 7). The results, while only a slight increase, proved more favorable for students who were considered economically disadvantaged.

In 2000, Kneese conducted a meta-analysis study to compare academic achievement of 36 schools, nationwide, that incorporated a modified school calendar versus schools that are incorporated a traditional school calendar. By using a vote count method, inferential statistics and descriptive statistics of analyzing data, Kneese (2000) found that 27 of 33 of the

comparisons made indicated that the students at the modified school calendar schools performed higher than those attending a traditional school calendar. Of the 13 comparisons in reading, 11 were found to be statistically significant in favor of the modified calendar. In mathematics, nine of the 11 comparisons favored the students in the modified calendar school. At the conclusion of this study, Kneese stated that students in a modified school calendar have proven to perform as well, if not better than, students within a traditional school setting.

**Student Behavior.** Another benefit to implementing the balanced calendar is the improvement of student behavior. Statistics gathered from Tullahoma High School showed a "drop in discipline referrals of 30 percent" (Morgan, 2003, p. 11). Trenton Special School District in Gibson County, Tennessee also showed a positive impact on student behavior with a "22 percent decrease in the total number of suspensions at all schools" (Morgan, 2003, p. 11). The study also saw a "16 percent decrease in discipline referrals" in the Kentucky Independent School District (Sasser et al., 2005, pp. 4-7).

In a longitudinal study that was designed to determine if there was any correlation between student behavior and academic success for students in the primary grades, Duncan et al. (2005) determined that there is a link between students who misbehaved and experienced low academic success in relation to students who did behave in school; particularly for students who struggled with attentiveness. Duncan et al. analyzed the behaviors and achievement scores of 21,260 students who were in kindergarten in 1998-99. This study consisted of assessment results for reading and mathematics, as well as surveys from teachers, parents and administrators from the time these students were in kindergarten through third-grade.

**Transiency from Year-to-Year.** Another benefit of the balanced calendar is the continuous learning pattern that is provided with the frequent, yet smaller breaks. While the

traditional calendar provides a few breaks, the three-month summer hiatus fails to bridge a fluent gap from one academic year to another. With the balanced calendar, each academic year will be more fluid from one year to the next. By bridging this crucial gap, students have the opportunity to be more continually challenged and those needing assistance are reported to have better retention and decreased need for tutors (LeClaire et al., 2010).

**Burnout.** The Maslach Burnout Inventory defines burnout as "a psychological syndrome emerging as a prolonged response to chronic interpersonal stressors on the job" (Maslach & Leiter, 2016, p. 399). In education, teachers that work within the realm of a traditional school calendar tend to experience burnout throughout their academic year (Dückers-Klichowski, 2005, Greenglass, Burke & Fiksenbaum, 2001; Schmitz & Schwarzer, 2004). Students also will experience this same condition due to the intensity of work expected of them during traditional school year (Buchwald, 2003; Fuehrer & McGonagle, 1988; Ringeisen & Buchwald, 2006). While there have been many theories regarding the causes and effects of burnout, most recent and practical theory is entitled the Conservation of Resources (COR) theory. COR-theory, which once focused on deficit and pathology psychology, later shifted its interest in the engagement and vigor amongst those that experience burnout (Gorgievski & Hobfoll, 2007).

Schorn and Buchwald (2007) composed a study that measured the level of burnout in 75 student teachers from the University of Wuppertal, German and noted the effects that the burnout had on those individuals. The teachers were given three survey-style assessments that consisted of 52 items within nine subscales including avoidance, social joining, anti-social and aggressive action. These surveys were used to determine their coping styles, level of burnout, and work/health-related behavior and experience. The results from the study showed clearly that burnout developed within novice teachers. "Nearly half the participants showed a moderate

degree of emotional exhaustion that is associated with individual stress and depletion of resources" (p. 157). This correlated with the COR-theory which suggested that "burnout is a consequence of inadequate styles of coping with work-related resources" (p. 157).

While there were no studies conducted that had measured the burnout in children at the time of this study, there was a research project (Nijboer, 2006) that outlined how Chronic Fatigue Syndrome (CFS) played the same role in children as burnout did in adults. Nijboer claimed that burnout and CFS were similar in that there was an overlap in psychological aspects, such as stress, that played a role in the causation and maintenance of both syndromes. "With respect to stress, work stress is considered in burnout, and school stress is considered in childhood CFS. With respect to demands, burnout deals with job demands, while educational and social demands can play a role in children with CFS" (p. 28). In relation to the COR-theory, children with CFS tended to also have burnout-like symptoms when students had an avoidant coping style which made them more vulnerable to stress.

Both teachers and students continue to experience symptoms of burnout and/or CFS (Buchwald, 2003; Dückers-Klichowski, 2005; Fuehrer & McGonagle, 1988; Greenglass, Burke & Fiksenbaum, 2001; Ringeisen & Buchwald, 2006; Schmitz & Schwarzer, 2004). With the traditional school calendar, both individuals are subjected to "work" approximately nine consecutive months with a three-month break. Researchers (Guglielmi & Tatrow, 1998; Palmer & Bemis, 1999; Shields & Oberg, 1999) believed that implementing a balanced calendar, thus providing more frequent breaks, would deplete the level and number of cases of burnout and CFS within teachers and students.

**Students' Positive Attitude.** Implementing the balanced calendar has also helped students have a more positive attitude toward schooling. Fardig and Locker (1992) conducted a

survey for over 1,600 students at three elementary schools before and after the implementation of the balanced school calendar in the Orange County Public Schools in California. When comparing the results of the pre- and post-implementation surveys, they concluded that students had a more positive outlook about the balanced calendar and looked forward to continued implementation. Fardig and Locker also found that students were favorable for the intersession periods indicating that "from 60-70 percent of the students enrolled at Tangelo Park Elementary School returned for Intersessions" (p. 10).

**Bridging the Achievement Gap.** The achievement gap is the difference in academic achievements between certain groups of students. It is most often used to describe the concerning performance gaps between White students and their Black and Latinx peers. It also refers to the academic disparity between White students and other White students that are part of a family that qualifies as low-income (Sparks, 2011). Regarding race and cultural differences, Darling-Hammond (2006) reported: "15% [of American students] speak a language other than English as their primary language and 40% are members of racial/ethnic 'minority' groups, many of them recent immigrants from countries with different educational systems and cultural traditions" (p. 2). Darling-Hammond also declared that "25% of students live in poverty and many of them lack basic food, shelter, and health care" (p. 2).

Maslow (1943) assumed that "human needs arrange themselves in hierarchies of prepotency" (p. 370). Within the human needs are physiological needs, safety needs, belongingness and love needs, esteem needs, and self-actualization needs. Maslow (1998) classified the first two needs, physiological needs and safety needs, as the basic needs. These needs include items such as food, water, warmth, rest, security and safety. According to Darling-Hammond's statistics, these are deficiencies that 25% of American students are not receiving in

society. Without addressing the issue of a child being restricted of having those basic needs, Darling-Hammond proposed that the academic gap will remain present in the American education system (Darling-Hammond, 2006, 2010).

One example of how the American education system has affected students who have been classified as struggling learners is with the summer learning gap. While the summer learning gap has been found to affect all students, it has been shown to be most detrimental with English Language Learners and students labeled "at risk" because of the lack of resources that have presented themselves within the environment within their socio-economic status. There have been many studies that have focused primarily on "at risk" schools and the effects caused by the balanced calendar. One significant study (Cooper, Valentine, Charlton, & Melson, 2003) focused on students who came from a low-socioeconomic household and how they were affected by moving to a modified calendar. Although they noted in their study that the annual difference in academic performance may be minimalistic, a child who spends several years within a balanced calendar setting would see a cumulative increase in academic performance.

Another study (Huffman, 2013) focused on teachers' perceptions of students within a modified calendar school and the effect on student academics and behaviors, as well as teacher efficacy with a 37-item questionnaire. The participants for this study were 351 teachers in elementary, middle and high schools that taught students who were considered economically disadvantaged in North Carolina. Using a Cronbach's alpha test of coefficient reliability, the perception of teacher efficacy was unsubstantiated. The study did find, however, that there was a strong statistically significant result in relation to the perception of students' academic achievement and behaviors within a modified calendar in relation to students who were part of a

traditional school calendar due to the shortened amount of times that students were on break at one time.

On the contrary, a more recent quantitative study (Callahan, 2017) used a matched pair design to measure the impact of students in ten pairs of Atlanta middle schools to determine if the balanced calendar and the minimizing of the summer learning gap would impact the assessments scores of students in sixth, seventh and eighth-grade. The study dissected the data for students in each grade, as well as differentiating with some statistics looking at all students and others looking strictly as students who identified as Free and Reduced Lunch. In Callahan's study, there was a discrepancy in any consistent results. Some grades and groups determined that there was a statistically significant result, while others showed no difference, positive or negative. In this study, the author concluded that this thorough research of over 44 statistical analysis tests was not able to be determined that the balanced calendar presented a positive nor negative impact to students who encounter the summer learning gap.

In most of these studies, growth in reading and/or mathematics was shown at a higher growth rate under the balanced calendar in comparison to students under related categories in districts that were under the traditional school calendar. These studies indicated that the major reason that English Language Learners were affected by the summer learning gap was because they spent the three month-hiatus surrounded by people speaking their native language. This three-month hiatus does not allow for much time for that child to be surrounded by the English language.

Students of a low socio-economic status have also shown negative effects from the summer learning gap due to the lack of resources that were available to them during that time. Students who are of a higher socio-economic group tend to go to summer camps, libraries or

other venues that require them to use their academic abilities. These opportunities are not always available to those students who are in the lower-socio-economic groups (Gandara & Fish, 1994; Perry, 1991; Serifs, 1990). One study out of Baltimore, Maryland (National Summer Learning Association, 2012b) surveyed 500 teachers on the effect of their teaching habits and students, especially those labeled "at risk", based on the three-month break during the traditional calendar. This study found that 66% of teachers claimed that they spent at least four weeks re-teaching the standards that students no longer showed mastery on after the break. Twenty-four percent of teachers polled claimed that they spent five or more weeks re-teaching. In addition to the survey, the study provided statistics to support the claims by the teachers. The report suggested that students lose up to two months of grade level equivalency within the content that they learned the previous year. The gap created is crucial and a consistent motive with school districts that look for an alternative schedule.

**Student Attendance.** Attendance has been a consistent problem with schools around the nation. The Missouri Department of Early and Secondary Education (2012) created a document in 2012 entitled the Missouri School Improvement Plan 5 Performance Standards. To ensure that Missouri schools and districts are mandating that their students attend school on a regular basis, they have assigned a guideline that states, "The percent of students who regularly attend school meets or exceeds the state standard or demonstrates required improvement. The calculation is based on 90% of the students attending 90% of the time" (p. 24). With absenteeism a highlight in several states' school improvement plan, it should be noted that studies showed that students attended school more under a balanced calendar (Aldridge-Morris, 1997; Elsberry, 1992; Glines & Mussatti, 2002; Pfeiffer, 2011; Prohm & Baenen, 1996; Shields & Oberg, 1999; Zykowski, Mitchell, Houston & Gavin, 1991).

In one study, Prohm and Baenen (1996) were hired by the Wake Count, North Carolina School System to analyze the average attendance rates for schools implementing a modified school calendar, specifically on a multi-track system, and compare them to the attendance rates of schools implementing the traditional school calendar. The conclusion of this quantitative, comparative study showed that, on average, students who attended a modified school calendar attended school more often than their peers. Students within a modified calendar, on average, had two fewer unexcused absences and 1.1 fewer excused absences than their peers at traditional schools.

A quantitative study conducted by Pfeiffer (2011) analyzed the attendance, among other statistics, of students who qualified for special education that also acquired low attendance rates at Abraxas High School, which is an alternative high school in Poway, California. At the time of the study, Abraxas High School serviced about 245 students; 42 had an Individualized Education Plan. Data for this study were collected through the California Department of Education. Prior to adopting the balanced calendar, the attendance rate of the special education population was 40%. Within two years, the study indicated that the attendance rate rose to 51%. Following their peak at 51%, the next four years had special education attendance rates that fell to a yearly average between 39% and 49%. During this study, the average attendance while in a balanced calendar. In addition to the attendance data, 92% of staff surveyed reported their perception of the special education attendance was better when on the balanced calendar schedule. The other 8% felt indifferent.

Despite some studies showing favor with the results of their attempt with the balanced calendar, other districts and studies have expressed a concern with their results. From classroom

temperatures during the summer months to the overall lack of conclusive research, some districts in the United States have switched back to the traditional calendar for several reasons. The following section provides concerns related to balanced calendar that have been reported in studies that have assisted in determining the fate of the balanced calendar in some districts

### Academic Concerns of a Balanced Calendar

Contrary to the studies that indicated that the balanced calendar provided positive results in regard to students' academic performance, there are other studies that indicated that not all scenarios were similar. In some cases, the balanced calendar has produced data that showed no change in academic performance. In 2000, McMillen (2000) evaluated the academic results of the state-standardized assessment, End-of-Grade Assessment, from 1,470 schools; 106 of which implemented some form of a balanced calendar. After two years of collecting data from more than 345,000 third- through eighth-grade students, there was no significant difference established for most students. There was a slightly noticeable jump in scores from at-risk and lower achieving students, but it was noted that the jump was so small that it is "educationally insignificant by most standards" (p. 16).

Despite the traditional calendar and balanced calendar having the same amount of school days, the balanced calendar has intertwined intersession classes that are placed within each break. Carroll's (1963) theory on academic learning time contained three variables: content overlap, involvement, and success. Carroll's academic learning time theory related to the balanced calendar in that there were high hopes of students achieving more when they attend the intersession classes that are provided. Although districts have taken the opportunity to provide more chances for students in a balanced calendar school, the academic results in the content areas of communication arts and math have been anything but consistent (Cooper, Valentine,

Charlton & Melson, 2003; Greenfield, 1994; Kneese, 2000; Mitchell & Mitchell, 2005; Opheim, Mohajer & Read, Jr., 1996).

Another study (Dobbie & Fryer, 2013) also focused on the theory of learning and time. In this qualitative study, students from Harvard University participated to determine how certain factors within students' classes affected their academic ability. This study collected data from 39 charter schools in New York City. Some of the factors that were tested in this study were class size, teacher credentials, and amount of instructional time. These factors were assessed using "principal, teacher, and student surveys, sample teacher evaluation forms, lesson plans, homework, and video observations" (p. 51). While class sizes and teacher credentials did have some impact on student achievement, instructional time seemed to be the most impactful factor. The correlation that was described in this study was the more instructional time a student participated in, the more a student achieved academically. Like Carroll's theory, this study showed that time and learning related to the balanced calendar when students opt to take the intersession courses between quarters.

In 2017, the Division of Research and Analysis team from the Texas Education Agency (Castaneda, Talley & Murphy, 2017) released a quantitative report that compared the student academic results from the 2015-16 State of Texas Assessments of Academic Readiness (STAAR) results. This study reported that 24 out of 184 Texas school districts had at least one school that incorporated a balanced calendar schedule. The STAAR scores that were analyzed within this study came from approximately 55,000 students that were enrolled in fourth- through eighth-grade or in Algebra I, English I and English II. The assessments were for both English Language Arts and mathematics. The study used average scale scores and passing rates for each of the assessments and compared like-schools based on six variables including racial and ethnic

composition, gender composition, socioeconomic status composition, English language learner percentages, percentage of students receiving special education services and averages of STAAR assessments from the previous school year. Using a Hierarchical Linear Modeling approach to compare the data, the study found that "there were no significant differences between [balanced calendar] campuses and a set of matched traditional-calendar campuses in terms of aggregate students' performance on STAAR exams" (p. 13).

Jackson (2007) conducted a causal-comparative study of 125 third- and fifth-graders within two rural Georgia elementary schools that had implemented a balanced calendar for three school years. The 95 students were compared to 125 students in the same grades at two compatible schools based on factors such as racial demographics and percentage of free and/or reduced lunch. After utilizing independent-sample t-tests to compare academic results on the Georgia state end-of-year standardized assessment, also known as the Georgia Criterion-Referenced Competency Test, Jackson found that there were no statistically significant findings.

Winkelmann (2010) conducted a comparative study using a matched subject design on a population of over 1,000 students in relation to the overall scores of schools within an urban setting in the city of Chicago, Illinois. Winkelmann collected three consecutive years of data from the Illinois Standards Achievement Test from 112 schools. Fifty-six of the schools used a balanced calendar and 56 used a traditional school calendar. Schools were compared to like-schools based on enrollment totals, percentage of low-socioeconomic status and location. By looking at state data for three consecutive years, Winkelmann was able to conclude that year-round schools made a gain of 3.1% while the overall district made a 2% gain. With these results, Winkelmann concluded that there are no statistically significant results when comparing the results within the Chicago schools.
While rare, there are studies that indicated a loss of academic achievement with students in the balanced calendar. One such study was conducted by Mitchell & Mitchell (2005) in California, the state with the largest number of United States' students participating in the balanced calendar (Pepper & Ballinger, 2009a). In this study, Mitchell & Mitchell analyzed the results of the English Language Arts and mathematics portions of the Stanford Achievement Test, Version 9, or SAT-9, given to almost 4,500 students who were part of a multi-track balanced calendar school. These scores were compared to almost 7,700 of their peers that attended like-schools within a traditional school calendar. A factor that made this study unrelated to other studies measuring the academic progress of students in a balanced calendar school is that their students were categorized by academic ability. With these two factors simultaneously being implemented into this California school district, the district resulted in a negative academic effect on the standardized test results that were given that year. Mitchell and Mitchell suggested that there may be other factors in the reason that these results exist. First, because the students in the multi-track balanced calendar school are segregated based on students' academic ability, there appeared to be a shift in teachers who were perceived as more effective that were put in Track C, the track with the highest-performing students and the only track that was consistently comparable to the traditional school calendar. In addition, while there was criterion used to find comparable schools, demographics such as percentage of ELLs and free and/or reduced lunch students were not considered, which could be perceived as an important limitation considering that the schools using the multi-track balanced calendar system in this study are in more of an urban setting than the schools within the traditional school calendar.

## **Classroom Temperature**

Maslow's theory of motivation suggested that there are necessities that an individual must achieve in order to function properly (Maslow 1943,1998). He defined five levels coined as the hierarchy of needs. The second tier of his hierarchy was safety needs. This level included security, order, law, stability, limits and protection from elements. An element that could be catastrophic to a child's ability to feel safe in a school is the excessive heat that would occur in the school buildings during the summer months and the bitter chill that would fill the air during the winter months.

The only option that allows students to attend school during these months is to establish a budget that was able to includes both air conditioning and heating throughout the entire academic school year. In previous years, before air-conditioning was a luxury within school buildings, Dunn & Dunn (1978, 1992a, 1992b, 2000) conducted numerous studies verifying the relationship between academic performance and classroom temperature conditions. One concept that was verified throughout their studies was that, within the classroom, different students had various perceptions when it came to preferred settings. Some preferred the room to be darker and slightly cooler, while others preferred a well-lit and slightly warmer atmosphere. In regard to the temperature, however, Dunn & Dunn concluded that if the outside temperature greatly affected the classroom temperature, making the room either too hot or too cold, it did cause distraction, thus leading to lower academic performance.

An older study (Herrington, 1952) also concluded that the thermal environment of a classroom had a relation to learning. Delving even deeper, his study determined that a classroom with a temperature of over 80 degrees affected the ability of students to fully grasp instruction. This is a concern for schools utilizing the balanced calendar as temperatures during the summer months where traditional calendar schools would normally be on hiatus have the potential to

produce a classroom temperature that exceeds 80 degrees. With several other earlier studies reporting similar findings related to extreme temperatures and their impact on learning and completing tasks (Canter, 1976; Green, 1979; Manning & Olsen, 1965; McCardle, 1966; McDonald, 1960; Nolan, 1960; Peccolo, 1962), this area should be a major consideration for districts that are considering implementing the balanced calendar.

In recent years, however, many school districts have taken the initiative to get their schools fully air-conditioned for extreme weather. After creating a comfortable climate for all students and staff, the American Society of Heating, Refrigerating, and Air Conditioning Engineers (2011) reported in a study that increased ventilation rates positively impacted productivity in buildings. Even with air conditioning attempting to keep the students cool, the American Society of Heating, Refrigerating, and Air Conditioning Engineers study warned that ventilation is a key component to creating comfort and is something that should be monitored daily, especially when the weather is warm, so students can have optimal learning conditions.

#### Leadership in a School with a Balanced Calendar

School leaders are an important variable when it comes to the success of a school. From the implementation of curriculum all the way to implementation of a new calendar, school leaders are tasked with the concept of learning, planning, promoting and implementing changes that require buy-in from important stakeholders including, but not limited to, students, staff, parents and the community. "The reasons for successful or unsuccessful implementation fall mostly outside the reform itself and may be attributed in large part to the expertise of individual leaders" (Kneese & Ballinger, 2009, p. 41). Two major obstacles that a leader needs to maintain to lead a successful balanced calendar school is staff retention and parent buy-in. Intersessions

can offer convenient time slots for more consistent professional developments through continuing education.

**Staff Retention.** Staff retention can be an integral part of running a successful school. This can be for a variety of reasons including growth through professional developments, knowledge of students and procedures within certain environments and cumulative feedback from consistent administrators. In earlier studies, there was also a correlation determined between a frequent loss of educators and a lack of continuity and the negative effects on student achievement (Fine, 2002).

Rodriguez (2009) conducted a quantitative study of 9,000 high school students to analyze if teacher transiency had an impact on student scores. Rodriguez used a Post Hoc Sheffé test to analyze the Student Florida Comprehension Achievement Test Math Developmental Scale Score data for students in grades eight through 10 at 23 district high schools in Florida. Rodriguez found that there was a statistically significant difference with students who attended classes for two years with a high transiency rate of teachers in comparison to their peers that had teachers that were less transient. Even within teachers who were transient, there was a significant difference between teachers that were first-year teachers and those that transferred to the school with prior years of experience.

Graves, McMullen and Rouse (2014) analyzed teacher turnover in relation to teachers in a balanced calendar setting. The study included teachers within California and North Carolina and looked at the turnaround rate for teachers in balanced calendar schools and traditional calendar schools. Within the quantitative study, the researchers used Stata's areg command to analyze the data they received from the California Basic Educational Data Systems and the North Carolina Education Research Data Center. The study found that there was more turnaround

within balanced calendar schools, especially during the beginning of the implementation. In addition, Graves, McMullen and Rouse indicated that there was a statistically significant difference in the teacher retention in balanced calendars within a highly affluent setting versus the high turnaround rates at balanced calendar schools in a more urban setting.

**Parent Buy-In.** As schools began the transition from a traditional school calendar to a balanced school calendar, many districts have allowed parents the option to remain at the school making the shift or transfer to a school with a traditional school calendar. It became the job of leader to persuade parents that, while the schedule may be changing to something more unconventional, that it was still the best option for their child. Kneese and Ballinger (2009) claimed:

The relationship between the existing cultural fields of education and its organizational structures such as schools and school calendars are so inextricably tied to the current nine-month school calendar and by dominant social, political, and cultural realities that it is exceedingly difficult to persuade people to consider the merits of something different. (p.21)

Hoskins (2003) conducted a qualitative study analyzing parent perceptions of the balanced calendar schools. Hoskins used a descriptive research design with the use of written surveys by parents of students who attended balanced calendar schools. The study took place in two Georgia school districts within an urban setting that had a cumulative total of approximately 160,000 students enrolled. Of these two school districts, there was a total of four elementary schools that implemented the balanced calendar. The surveys were given to a total of 93 parents. The results of this study showed favor in the balanced calendar; however, there appeared to be conflicting opinions with parents at different ages. Parents who were classified as older were more in favor of the balanced calendar school in comparison to parents who were classified as younger. While the results were favorable, meaning at least 51% of parents agreed or strongly

agreed with the implementation of the balanced calendar, Hoskins concluded "parents tended to rate the effectiveness of year-round schooling more highly the longer they had lived in the district" (p. 104). Those who were new to the calendar proved to be more unfavorable.

## **Continuing Teacher Education**

The type and amount of education a teacher has received correlates with teacher effectiveness (Darling-Hammond, 2001). Approximately 90% of teachers who came from a fiveyear teacher-education model that qualified the individual for a bachelor's degree in a content area and a master's degree in education remained teaching for a long time; much longer than teachers who came from the shorter summertime 'learn-to-teach' route which only had approximately a 75% attrition rate (Darling-Hammond, 2001). Darling-Hammond's theory on teacher education was that the more a teacher was exposed to experiences similar to classroom settings, the more prepared and effective they will be.

Summer has offered many opportunities for teachers to continue to work on their postgraduate education. A concern that was popular amongst teachers in a balanced calendar school was their inability to balance work-life and school-life. Post-graduate education has been found to be cohesive with student achievement scores. One meta-analysis study conducted by Goldhaber (2002) included statistics from 60 primary research studies that analyzed student data within school districts or smaller units. Goldhaber found that "variables such as teacher education, teacher experience and teacher ability show strong relations with student achievement" (McKenzie & Santiago, 2005, p. 26).

In light of some teachers not being able to fit in a college degree, Goldhaber (2002) found more of a correlation for teacher effectiveness with professional development that was geared toward their specific subject. With the intersessions offering convenient time slots for more

consistent professional developments, the balanced calendar could potentially assist with teacher education without going through the formal college experience (Goldhaber & Brewer, 1997).

#### Summary

The American school system has been around for a long time. Within the past two centuries, there have been many reforms that have evolved, including the school calendar. From the beginning, calendars were determined on the home life. Later, educational reformers, such as Horace Mann, pushed for an equal schooling system that would craft all schools similarly so that each student would get a consistent education. The result was approximately 1,080 instructional hours that typically fall within a Monday through Friday schedule for about 6 hours per day. These days typically fall within the fall, winter and spring months. While most states have adhered to these as a guideline, it has been up to each state to determine their minimal requirements of districts. "It is [the district's] responsibility to allot sufficient time for the required curriculum elements under the adopted curriculum rules (DeSilver, 2014, para. 9)

The current traditional calendar has been considered a norm to families in the United States. For a lot of parents, it has been desirable as it has correlated with their work schedule or allowed for childcare to be available in other instances. But while possibly desirable for convenience purposes, has it been desirable for academic purposes? With the government becoming more adamant of student academic growth and the economy slipping into a possible second Depression, is it time to look outside of the scope of convenience and start thinking about what is right for the students? Horace Mann paved an educational journey that was intimate with the obstacles that were happening in the 1800s. Perhaps it is time that we look at the issues, concerns and revelations that are occurring in the twenty-first century and embark on a new educational journey.

While there have been many studies on the effects of student performance in relation to students attending a school implementing a modified calendar, none of the studies that have been cited within this review focus on the foundational skills of reading within the primary grades. There are arguably some areas within the review of literature that would affect all students, including those within the primary grades, such as classroom temperature, classroom behavior and attendance, but without analyzing the actual results of young students who are attending these schools, it has left an opening for research that this correlational study has attempted to fill.

#### CHAPTER 3

#### METHODOLOGY

The purpose of this study was to compare the reading achievement of students from Kindergarten to third-grade that have been identified as reading below or well-below grade level within two schools that are demographically-compatible schools within the same district. One school implemented a traditional school calendar and one school implemented a 45-15 version of the balanced calendar. Student levels of reading achievement were measured by the Dynamic Indicators of Basic Early Literacy Skills (DIBELS Next) assessment. This chapter addresses the research design and approach used to compare the reading achievement for all participants in this study. This chapter also reports the setting and sample of the participants, the types of calendars that the students participated in, the method of instrumentation, and the process of collecting and analyzing the data.

#### **Research Design and Approach**

This study used a retrospective pretest-posttest, nonequivalent group, quasi-experimental research design to test the following hypothesis:

Alternative Hypothesis: There is a statistically significant relationship between student participation in a school with a balanced calendar, and reading academic achievement, as measured by the DIBELS Next assessment, for students in Kindergarten through third-grade who have been identified as being below or well-below grade level.

Null Hypothesis: There is no significant relationship between student participation in a school with a balanced calendar, and reading academic achievement, as measured by the DIBELS Next assessment, for students in Kindergarten through third-grade who have been identified as being below or well-below grade level.

This study is classified as a quantitative study because of the focus to comparing improvement rates based on changing one variable. For this study, the independent variable, or the variable that the research chose to vary from one group of participants to the other, was the students' participation with the balanced school calendar during the 2016-17 school year. The dependent variable in this study was the improvement rate of reading scores from the participants from each grade level. Additionally, a sample of students was used to compare students who did not participate in a balanced calendar and their reading academic achievement. The researcher conducted a Pearson correlation and two-tailed t-test to determine if there was a significant difference of less than ninety-five percent, or p < .05 (Charles & Mertler, 2002). This research design was appropriate for this study as the purpose was to analyze the difference between the mean scores of reading improvement rate from August to May of students who have been identified as reading below or well-below grade level within a school that utilized a balanced calendar.

#### **Participants and Setting**

## **Participants**

The participants in this study were 266 students in Kindergarten through third-grade who scored below or well-below grade level on the beginning-of-year DIBELS Next assessment as classified by the Colorado Department of Education's READ Act. The participants studied in one of four schools in a suburban setting in Colorado Springs, Colorado. The DIBELS Next scores from the first set of schools will be from students who attended a 45-15 balanced calendar elementary school. The DIBELS Next scores from the second set of schools will be from students who attended an elementary school with a traditional school calendar that was compatible

with the first school in the areas of school size, demographics, curriculum, student-to-teacher ratio and percentage of free and reduced students. Students were excluded from the study based on the following circumstances: (a) students who did not score below or well-below grade level as defined by the Colorado READ Act during the Fall 2017-18 benchmark window; (b) students who are classified as having a learning disability; (c) students who are classified as being Non-English Proficient; (d) students who did not attend a full year at their current school. By excluding the students who matched these profiles, the study was able to focus on a similar pool of students based on deficiencies in reading. Two different school calendars within four elementary schools will be used to determine the success rate of being promoted from and maintaining the removal of an SRD status; a 45-15 balanced calendar and a traditional school calendar.

## Balanced Calendar Sample (n)

#### Table 3.1

	Grade Level				
Variable	Kindergarten	First	Second	Third	
Gender					
Male	36	14	7	18	
Female	20	9	10	10	
Ethnicity					
Latinx	26	8	10	11	
Black	9	1	1	4	
White	14	10	2	10	
Asian	2	1	1	0	
Other	5	3	3	3	

Student Participants' Grade Level and Demographics Within the Balanced Calend	ar Schools
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	Grade Level			
Variable	Kindergarten	First	Second	Third
Socioeconomic Status				
Free & Reduced Lunch	46	21	15	27
Non-Free & Reduced Lunch	10	2	2	1
Total Number of Students	10	2	2	1
n = 124				

# Traditional School Calendar Sample (n)

# Table 3.2

Student Participants'	Grade Level and Demographics	Within the Traditional Calendar Schools	
		Grada Laval	_

	Grade Level				
Variable	Kindergarten	First	Second	Third	
Gender					
Male	24	15	13	14	
Female	29	13	19	15	
Ethnicity					
Latinx	23	12	16	21	
Black	4	4	4	2	
White	22	9	7	4	
Asian	1	0	0	0	
Other	3	3	5	2	
Socioeconomic Status					
Free & Reduced Lunch	43	23	31	25	
Non-Free & Reduced Lunch	10	5	1	4	

	Grade Level			
Variable	Kindergarten	First	Second	Third
Total Number of Students	10	5	1	4
n = 142				

## Setting

This study focused on one school district located in a suburban Colorado district. During the 2017-18 school year, the district educated approximately 12,319 students within 25 buildings that included the following: thirteen elementary schools; three middle schools; one K-8 magnet schools; two high schools; one Career Readiness Academy; four charter schools; and one homeschool program. On the 2016 Annual Report of the Colorado READ Act, 693 of their students, or approximately 17% of the Kindergarten through third-graders, were classified as having a Significant Reading Deficiency (Dorman & Westgaard, 2016).

The district houses two elementary schools that are on a balanced calendar. These schools began the implementation of the 45-15 balanced calendar during the 2015-16 school year. For the 2017-18 school year, these elementary schools had approximately 530 students enrolled, collectively. The majority of students, 41.3%, identified as Hispanic. Students who identified as Whites made up the second largest population with 32.1%. Blacks were the third largest population with 14.3%. Students that identified as two or more races were 8.8% of the students and Asians were 2.8%. Regarding free/reduced lunch, approximately 82% of students within both schools qualified for the program (National Center for Education Statistics, 2017).

The second set of schools used are two elementary schools within the same district that implement the traditional school calendar. During the 2017-18 school year, these K-5 schools had approximately 790 students enrolled. Of these students, 50.0% of the students identified as

Hispanic. Whites were the second highest population with 24.2% and Blacks were third with 17.6%. Students who identified as two or more races had a percentage of 4.7% and Asians had 0.4%. The percentage of students who were identified as eligible for free/reduced lunch was approximately 83%. (National Center for Education Statistics, 2017).

In addition to school size and demographics, other factors were taken into consideration to determine that the schools were compatible. One of the statistics (SchoolDigger, 2017) that was used was the student to teacher ratio. In 2017, the balanced calendar schools had a cumulative student-to-teacher ratio of 12.9 while the traditional school calendars were 14.8; both under the national average of 15.99. Students qualifying for Free and Reduced Lunch were approximately 82% at the balanced calendar schools and approximately 83% at the traditional calendar schools. In addition to demographics, both schools have similar curriculums. In all four schools, Kindergarten through second-grade teach their English Language Arts class using the resource Wonders. Third-grade teachers are required to create their own lesson plans, but all teachers are provided with the same curriculum maps and resources, such as novel sets and professional development opportunities, throughout the district.

#### 45-15 Balanced Calendar

The first set of schools within this study began implementing a 45-15 balanced calendar in 2015. Both schools have a single-track system where all their students attend school at the same time. School for these students begins in mid-July where they attend classes for approximately 45 days. In October is their first fifteen-day break where school is closed for one of those weeks and for the remaining two-weeks, an optional academic intersession is available for all students. School resumes after the intersession for approximately 45 days and then students are off at the end of December and beginning of January. School resumes in January for

approximately 45 days until Spring break where students are allotted a ten-day break, breaking the mold of the traditional 45-15 balanced calendar. Students resume for Quarter 4 which goes up until mid-June. After this period, students are off for twenty-days where they begin the next year in mid-July. The students at this school have a school year that consists of 176 academic days and twenty-four optional days for academic intersession days.

#### **Traditional School Calendar**

The second set of schools in this study utilizes a traditional school calendar. The students attending these schools report for school in mid-August and, except for a couple one- to threeday breaks, attend consistently until their Winter break at the end of December. After resuming in January, students attend consistently, with Spring break in the middle of the third- and fourthquarter until the end of the school year at the end of May. After students are released from the school year, they do not return until their 55-day summer intersession is completed. Students are offered the opportunity for a 15-day summer academic intersession, but, like the other set of schools, it remains optional for the student.

#### Instrumentation

This study analyzed the effect that the type of school calendar (independent variable) had on the academic achievement (dependent variable) for students in grades Kindergarten through third that have been identified reading below or well-below grade level as determined by the Colorado Department of Education's READ Act. This determination is made using the scale scores from the Dynamic Indicators of Basic Early Literacy Skills (DIBELS Next) assessment.

## **Dynamic Indicators of Basic Early Literacy Skills**

The DIBELS Next benchmark assessment gives students the ability to showcase their reading abilities within a variety of different skillsets. Each skillset, however, is not assessed in

every grade level. From Kindergarten through third-grade will assess First Sound Fluency (FSF), Letter Name Fluency (LNF), Phoneme Segmentation Fluency (PSF), Nonsense Word Fluency (NWF), DIBELS Oral Reading Fluency (DORF) and Reading Comprehension (Daze). Students will also be given a composite score based on the required assessments per each grade level.

Kindergarten takes a variety of assessments throughout the school year. During the Fall benchmark window, students in Kindergarten are tested using the First Sound Fluency and the Letter Naming Fluency portions of the DIBELS Next assessment. The First Sound Fluency, or FSF, focuses on the Phonological Awareness domain of reading. Kindergarteners taking this assessment are given 0-2 points per word based on their ability to listen to and produce the beginning sounds of words. DIBELS' Letter Naming Fluency assessment focuses on the physical recognition of uppercase and lowercase letters. Unlike the FSF assessment, students doing the LNF can only receive one or zero points by either recognizing or not recognizing the letter, respectfully (Center on Teaching and Learning, 2012)

During the Winter benchmark assessment, Kindergarteners continue to take the FSF and LNF assessments, but they are also expected to take the Phoneme Segmentation Fluency and the Nonsense Word Fluency assessments. The Phoneme Segmentation Fluency (PSF) assessment also assess in the reading domain of Phonological Awareness. In this test, students are presented with a word that contains three to four phonemes. The students are to deconstruct the word and identify all the phonemes. The score for this assessment is determined by the number of phonemes that the student can correctly identify in the time allotted. The difference with the PSF assessment and the Nonsense Word Fluency, NWF, assessment is instead of deconstructing the word, the student must put together the three-letter word, all containing the consonant-vowelconsonant pattern, to phonetically recode the imaginary word. The score for the NWF assessment is determined by how many unfamiliar words are correctly read in the time allotted; this is the first expectation in the DIBELS Next assessment regarding the reading domain of fluency (Center on Teaching and Learning, 2012).

Kindergarten students are also expected to take the End of Year DIBELS Next benchmark assessment during Spring. For this benchmark period, Kindergarteners are no longer assessing their phonological awareness with the FSF assessment. They are, however, mandated to assess using the LNF, PSF and NWF assessments.

First-graders are also required to assess during the Fall, Winter and Spring benchmark sessions. Their tests, however, look slightly different than Kindergarten's series. During the Fall benchmark session, first-grade students assess using the LNF, PSF and NWF assessments. During the Winter and Spring benchmark windows, first-grade students are no longer required to take the LNF assessment, but rather, in addition to the PSF and NWF assessments, are required to take the DIBELS Oral Reading Fluency assessment. The DIBELS Oral Reading Fluency, or DORF, assessment strictly measures the fluency rate that a student can read. Students are rewarded points for every correct word that they read correctly within three seconds. Any words that are read incorrectly, omitted or take longer than three seconds are counted as errors but do not necessarily go against the number of words that were read correctly.

The First Sound Fluency, or FSF, portion of the DIBELS Next assessment is only administered to Kindergarten students during the Spring and Winter benchmark windows. This portion of the test focuses on the Phonological Awareness domain of reading. Kindergarteners taking this assessment are given 0-2 points per word based on their ability to listen to and produce the beginning sounds of words (Center on Teaching and Learning, 2012).

The three-benchmark windows for students in second-grade are consistent. During second-grade, students are required to take the NWF and DORF portions of the DIBELS Next assessment (Center on Teaching and Learning, 2012).

As studies would show, the transition from second-grade to third-grade is also the shift from "learning to read" to "reading to learn" (Annie E. Casey, 2010, p. 9). The DIBELS Next assessment also suggests that shift as students in third-grade are only required to take the DORF and the DIBELS Maze Comprehension Task, or DAZE, assessment. The DAZE assessment is the first part of DIBELS Next where students are assessed on comprehension of a text. During this assessment, the third-grade students are required to silently read a passage. In the passage, there are several blanks with three possible words that might go in the blank. The student is to choose which word fits based on the context of the passage. For each correct answer, students are awarded one point, but incorrect answers result in a loss of half of a point. The third-grade students take the DORF and DAZE assessments for all three of the benchmark windows (Center on Teaching and Learning, 2012).

When a student completes all of the required assessments during any given benchmark window, the scores are input into a formula, which varies from grade-to-grade, and are given a cumulative composite score. Per the state of Colorado, the composite score is the first step in determining whether a student is reading above, at, below or well-below and whether they should qualify as having a Significant Reading Deficiency (Children's Campaign, 2016).

#### **Reliability and Validity**

Reliability is defined as "the extent to which an experiment, test, or any measuring procedure yields the same results on repeated trials" (Carmines & Zeller, 1979, p. 11). The Dynamic Measurement Group (Good III, Powell-Smith, Murdoch & Latimer, 2011) tested the

reliability of the DIBELS Next assessment using a variety of tests including the Group Reading Assessment and Diagnostic Evaluation, test-retest reliability, alternate-form reliability and interrater reliability. When assessing the reliability, the researchers had benchmarks of .60, .80 and .90 as minimums for determining if the assessment was suitable for administrative purposes, screening decisions and important educational decisions for an individual student, respectively. For this study, the inter-rater reliability test for the composite scores showed a range from .97 to .98 within grade levels Kindergarten through third-grade. With all of the reliability scores above .90, DIBELS Next proves to be a reliable source for the purposes of this study.

Validity, in contrast, "concerns the crucial relationship between concept and indicator" (Carmines & Zeller, 1979, p. 12). When analyzing the validity of the DIBELS Next assessment, the Dynamic Measurement Group (Good III, Powell-Smith, Murdoch & Latimer, 2011) looked at the validity among students from Kindergarten through fifth-grade who took DIBELS Next and then took the GRADE Total Test assessments. The result of this study showed that "moderate to strong concurrent and predictive validity coefficients with the GRADE Total Test were found for individual DIBELS Next measures across grades" (p. 13).

## **Significant Reading Deficiency**

In 2012-13, the Colorado Department of Education established the READ Act which requires every school to adopt a state-approved reading assessment and assess all students, grades Kindergarten through third, before the first thirty days of school. Through a designated process, schools must identify students who must be placed on a READ Plan and, even further, students who are identified as having a Significant Reading Deficiency.

A recent Colorado analysis by the Colorado Department of Education (2015c) showed that 74.7% of Colorado districts chose to use DIBELS Next as their benchmark assessment, out

of the eight approved assessments, for compliance with the READ Act expectations for identifying students who have a Significant Reading Deficiency. The district used for this study is one of those districts that chose to use the DIBELS Next assessment for this process.

The first step in determining a Significant Reading Deficiency is, as mentioned above, assessing all students within thirty days of the first day of school. This state-wide test is called the beginning-of-year, or BOY, assessment. If a student's composite score is above the Colorado Department of Education's cut-off point (see Figure 3.1), typically labeled as green or blue, then there is no need for a READ plan for that student at that time.

If a student's composite score is at or below the Colorado Department of Education's cutoff point (see Figure 3.1), then the student may qualify for having a Significant Reading Deficiency. The process continues with progress monitoring that is aligned with the original benchmark assessment.

The state's mandate for progress monitoring is that it must be concluded within thirty days of the student's original benchmark assessment. If a student scores below, at, or above benchmark (see Figure 3.1) on all the progress monitoring probes then a READ Plan, at this time, is not necessary. However, if that student scores well-below benchmark (see Figure 3.1) on any of the progress monitoring probes, then we can confirm that that student has a Significant Reading Deficiency.

At this point, extra assessments are given to determine the specific nature of the reading deficiency. Once a specific deficiency has been identified, an individualized READ Plan is created with a plan to try and help this student within his or her deficiencies, so they can progress at a faster rate, hopefully allowing them to be promoted from having the label of a Significant Reading Deficiency.

Beyond the original benchmark assessment and progress monitoring that is required to remain compliant with the expectations of the Colorado READ Act, the state also mandates that the same process of testing must be conducted in the Winter known as the middle-of-year, or MOY, and the Spring, which is the end-of-year, or EOY. A student, no matter how their Fall benchmark scores were, can qualify as a student with a Significant Reading Deficiency throughout the year using the same process that was used within the first thirty days of school.

Kindergarten Benchmark Scores					
Measure	Score Level	Likely Need for Support	Beginning of Year	Middle of Year	End of Year
	At or Above Benchmark	Likely to Need Core Support	26 +	122 +	119 +
DIBELS Composite	Below Benchmark	Likely to Need Strategic Support	13 - 25	85 - 121	89 - 118
Score	Well Below Benchmark* (SRD)	Likely to Need Intensive Support	0 - 12	0 - 84	0 - 88

First Grade Benchmark Scores						
Measure	Score Level	Likely Need for Support	Beginning of Year	Middle of Year	End of Year	
	At or Above Benchmark	Likely to Need Core Support	113+	130+	155+	
DIBELS Composite	Below Benchmark	Likely to Need Strategic Support	97 - 112	100 - 129	111 - 154	
Score	Well Below Benchmark*(SRD)	Likely to Need Intensive Support	0 - 96	0 - 99	0 - 110	

Second Grade Benchmark Scores					
Measure	Score Level	Likely Need for Support	Beginning of Year	Middle of Year	End of Year
	At or Above Benchmark	Likely to Need Core Support	141 +	190 +	238 +
DIBELS Composite	Below Benchmark	Likely to Need Strategic Support	109-140	145 - 189	180-237
Score	Well Below Benchmark* (SRD)	Likely to Need Intensive Support	0-108	0-144	0 - 179

Third Grade Benchmark Scores						
Measure	Score Level	Likely Need for Support	Beginning of Year	Middle of Year	End of Year	
	At or Above	Likely to Need Core				
	Benchmark	Support	220 +	285 +	330 +	
DIBELS	Below Benchmark	Likely to Need Strategic				
Composite		Support	180-219	235 - 284	280 - 329	
Score	Well Below	Likely to Need Intensive				
	Benchmark* (SRD)	Support	0 - 179	0-234	0 - 279	

*Figure 3.1.* The DIBELS Next Benchmark Assessment cut-off scores, as established by the Colorado Department of Education, from Kindergarten through third-grade to determine if a student has a Significant Reading Deficiency. (Poudre School District, 2015)

## **Colorado's Significant Reading Deficiency Statistics**

Due to the short amount of time that Colorado has implemented the READ Act, there are

very few years that include statewide statistics of the success rate of reading within the primary

grades. Since the establishment of the READ Act in 2012, the Colorado Department of Education can compile reports to look closer at the reading achievement of students in primary grades.

After the 2013-14 school year, the Colorado Department of Education reported on the results of the assessments, including DIBELS Next, that were given to report on the number of students that identified as having a Significant Reading Deficiency (SRD) (Dorman & Westgaard, 2016). Half-day Kindergartners had a total of 7% that were identified as having an SRD. Full-day Kindergartners were at 8%. Twenty-percent of first-graders were identified as having an SRD. Grades two and three tied with 19% of students having an SRD.

The 2014-15 school year student scores showed promise with decreases of students identifying as having an SRD in nearly all reported grade levels. Half-day Kindergarten students were the only grade level to not decrease, but they remained stagnant at 7%. Full day Kindergarten decreased from 8% to 6%. First-grades decreased two percent for an average of 18% of students who identified as having an SRD. Second-grade students had the biggest decrease with a percentage of 16% while third-graders just trailed them with 17% of students identified as having an SRD (Dorman & Westgaard, 2016).

While there were no grade levels that has an increase of students who identified as having an SRD during the 2015-16 school year, the decreases were less impressive. Half-day Kindergarten broke their consistent streak by decreasing to 6%, tying with Full-day Kindergarten students who remained stationary from the year before. The number of student in grade one who continued to climb down to 17%, a 3% decreased from two years prior. Second-grade students remained consistent from the year prior with 16% of students identified as having an SRD.

Third-graders kept their declining streak by reducing 1% from the previous year, putting them at 16%, which was also a 3% decrease from just two years prior (Dorman & Westgaard, 2016).

Although looking at the trends in grade levels seems to show promise with the decrease in SRD students from year-to-year, there appears to be inconsistencies when looking at cohort percentages. For instance, the Kindergarteners during the 13-14 school year had an average of 8% of students identifying as an SRD. When those students moved into the first-grade in the 2014-15 school year, the percentage jumped from 8% to 18%. The same difference occurred to the Kindergarteners in the 2014-15 school year who had an average of 6% of students with an SRD jumping to 17% as first-graders in the 2015-16 school year (Dorman & Westgaard, 2016).

#### **Data Processing and Analysis**

For the purpose of this study, the researcher used a tool, Statistical Package for the Social Scientist, or SPSS, to help organize and analyze the data that are gathered. The data consisted of the mean composite scores of students from grades Kindergarten to third who identified as scoring below or well-below grade level on their beginning-of-year assessment. They will be sorted by the type of school calendar that each student attended.

For this study, there were two statistical analyses conducted. The first statistical analysis conducted was a Pearson's correlation which determined the strength between two variables. The variables that were compared within this analysis were the reading scores (dependent variable) and the student's participation in the balanced calendar (independent variable). The second statistical analysis was a two-tailed t-test. This test compared the means of the reading academic achievement of students who did not participate in the balanced calendar with the students who did attend the elementary school with the balanced calendar.

## **Ethical Considerations**

The researcher completed the qualifications for the Collaborative Institutional Training Initiative on April 22, 2018 (Record ID: 26884237). Within this training, the researcher had to pass 15 assessments within the category of Human Research: Group 2 Social and Behavioral Investigation – Basic Course. This training consisted of topics that are all part of the Belmont Report, "one of the leading works concerning ethics and health care research" (Sims, 2010, p. 173). Within this report and training were the following topics that specifically attribute to the methods of research that will used within this research project: Belmont Report and its Principles, History and Ethical Principles, Defining Research with Human Subjects, Federal Regulations, Assessing Risk, Privacy and Confidentiality, Research with Children and Research in Public Elementary and Secondary Schools.

Data were collected from the Office of Research, Data and Accountability (approval from school district was received on May 25, 2018) after submitting a formal request for IRB approval for working with Non-Human Subjects, as the research will be working with de-identified student data (accepted on May 31, 2018). Per the University of Missouri – Kansas City's Institutional Review Board (Protocol Number: 18-141) and the participating district's regulations, all the students' identities and rights remained protected during and after the completion of this dissertation. Data collection was conducted using blind score cards to ensure anonymity of the participants remained. The data used within this research project was shredded and disposed of once the study was complete.

Testing bias is also an ethical consideration when analyzing the construction and results of standardized assessments. There are two categories that may need to be considered when using the DIBELS Next assessment: construct-validity bias and content-validity bias.

One category of testing bias is construct-validity bias. Construct-validity bias is related to the concept of whether an assessment is truly assessing what it is meant to assess. Within the DIBELS Next reading assessment, for instance, some may view it as a construct-validity bias for students who are considered to being English language learners because they are not Englishproficient and may not be familiar with some of the words, thus no longer just assessing their ability to read and comprehend (Great Schools Partnership, 2014).

Concept-validity bias is another form of testing-bias. This form of bias relates more to the concepts that are being introduced within an assessment and the exposure that a student within a certain population may or may not have been exposed to (Great Schools Partnership, 2014). For instance, a text that relates to a large city and incorporates concepts such as heavy traffic, taxi cabs and skyscrapers may not be something that a student within a rural atmosphere may be familiar with. While they may be able to read the text, it may be harder for them to comprehend such topics that they have not been exposed to, thus creating a potential bias with the results of the comprehension.

#### **Internal and External Validity**

The term validity "refers to the appropriateness, meaningfulness, correctness, and usefulness of the inferences a researcher makes" (Fraenkel, Wallen & Hyun, 2009, p. 147). Internal validity refers to the ability to conduct an experiment with certainty that the variables involved with the study had no interaction with bias.

For this study, the researcher ensured that bias was not played when choosing the schools and participants. The four schools in this study are located within the same district. Expectations of educational resources and strategies for teaching are similar, district-wide. Upon analysis of the students, the statistics of demographics, including percentage of Free and/or

Reduced lunch, race, student-to-teacher ratio and curriculum, were considered to ensure that the buildings would be identifiably similar.

In addition to the internal resources, both sets of schools are also located in Colorado and abide by the regulations set forth by the READ Act. All four schools monitor students' reading progress using the same deadline goals and DIBELS Next, one of the state-approved benchmark assessment tools.

External validity in this study falls within two components: The Third-Grade Guarantee and the DIBELS Next assessment. With the recent studies that show that students who are not reading near, on or above grade level before entering fourth-grade, there has been an uprising of the Third-Grade Guarantee in the United States within the last four years. Districts that are being faced with obstacle of teaching students to a level of proficiency within their first four years of school may find this study valuable with an alternative schedule to research.

In addition, as states are mandating that states assess, analyze and label students who have a Significant Reading Deficiency, this study provides information on the DIBELS Next assessment that could be valuable to other districts. The DIBELS Next assessment passed reliability and validity tests to ensure that it is a quality predictor of Common Core-based standardized assessments.

#### Assumptions

An assumption with this study, and any study that contains research that spans between several school settings, is that all students considered as participants are receiving a similar education. The students in this study that are at a balanced calendar setting and the students in this study that are at a traditional school calendar setting have different teachers, which is a

variable worth considering. However, this district does recommend certain curriculum materials that help to ensure that all students in this study are being presented with similar information.

Another assumption within this study revolves around the data collection. The staff member who will provide the researcher with the DIBELS Next data will be given the criteria of students eligible for the participation of this study to ensure there are no variables that would conflict with the validity of this study as it was prepared with the given research questions. It is the assumption that the narrowing down of the participants were consistent with the criteria provided to the district's data collector.

## Limitations

A limitation that was found when conducting research was finding districts that implemented the balanced calendar in several schools and for longer than three years. This would have been preferred within this study to increase the sample size. It was considered by the researcher to use balanced calendar schools within a variety of school districts, but the Third-Grade Guarantee laws differ from state-to-state. Even more, the assessments and expectations to determine a student with a Significant Reading Deficiency differed from district-to-district.

Another limitation dealt with the timeline data that was eligible to be used. Because the Third-Grade Guarantee laws are new in many of states, limitations on data collection begin with the 2016 school year. Prior to the 2016 school year, cut-off scores and processes in determining Significant Reading Deficiencies were not consistent. In future years, if consistent expectations from state-to-state are implemented when determining Significant Reading Deficiencies, there would no longer be the barrier to compare schools that are in various states.

While this study may have these limitations, the research still had the ability to provide insight on the effects of reading achievement of struggling readers within a balanced calendar

setting. With the growing accountability for schools and students to perform well on standardized assessments, this study contributes to a growing need for alternative solutions to assisting students who have a Significant Reading Deficiency.

## **Summary**

This section was devoted to outlining the methodology used to capture and understand the academic achievement rate of struggling readers when placed in two diverse types of school calendars. Chapter four will look further into the data that were collected and analyzed to see the trends and determine if there were statistically significant results to support a certain type of calendar and its effect on the rate of learning for students reading below or well-below grade level in grades Kindergarten through third.

#### CHAPTER 4

#### RESULTS

Within this study, there were two statistical tests that were conducted from the population to determine the relationship, if any, between the rate of reading score growth from the two sets of students. There will be two areas emphasized within this chapter. First, a finalized description of the population that was used within this study. Secondly, the results of the tests that were conducted. In addition to the tests that were conducted to determine if the stated hypothesis was determined to be true, the researcher also conducted other tests, including a sensitivity analysis and specific tests that analyzed the growth of marginalized groups including, but not limited to, grade level and ethnicity. These tests were conducted to determine if there was statistically significant evidence that the balanced calendar is related to differences in achievement with particular groups. The results of these tests are also within this chapter. With these two pieces of information, this chapter will provide results for the research hypothesis that was tested within this study.

#### **Description of Sample**

The students who qualified to be participants for this study attended one of four elementary schools. Two of these schools implemented the traditional school calendar and the other two schools adopted the balanced calendar. The students in this study took a beginning-ofyear DIBELS Next Assessment that qualified them as being below or well-below grade level for the 2017-18 school year. In order to be a participant in this study, these students could not be classified as a Non-English Proficient (NEP) status or have an Individualized Education Plan (IEP) where their diagnosis included, but was not limited to, traumatic brain injury, intellectual disability and/or multiple disabilities. The students who met the qualifications for this study must also have taken the end-of-year DIBELS assessment at the same school that they took the original assessment.

## **Student Sample**

The four schools within this study reside in an urban district in Colorado that houses approximately 12,000 students from Kindergarten through twelfth-grade. The district contains 13 elementary schools. Eleven of the elementary schools implement the traditional school calendar. The remaining two elementary schools adopted the balanced calendar in 2015.

After removing the data for the students that did not meet the qualifications for participation in this research study, the traditional school (n = 142) and the balanced calendar school (n = 124) had a cumulative total of 266 students whose data were used. These 266 students were assessed at the beginning and end of the school year using the DIBELS Next assessment and fell within either the below or well-below category within their beginning-ofyear assessment. The scores from these students were used within the two-tailed t-test to better understand the correlation between the rate of growth with students who struggle with the basic foundations of reading and the calendar that their home school has utilized.

Of the 266 students who qualified to participate in this study, the diversity that exists within the school settings were well-represented with the participants. For instance, when analyzing the participants in each grade level, 41.0% were Kindergarteners, 19.2% were in first-grade, 18.4% were in second-grade and 21.4% were in third-grade (see Table 4.1). The outlier within this set of data are the kindergartners as each school tends to have a similar number of Kindergarteners to the other grade levels listed. The reason for this increase in Kindergarten participants is, for the most part, due to the number of students that did not attend an educational program prior to beginning their Kindergarten year. Regarding gender, 53.0% of the participants

were male while 47.0% were female (see Table 4.2). For ethnicity, the participant percentages were consistent with the overall percentages throughout the building. Most of the students fell into the Latinx category with a cumulative percentage of 47.7%. White students followed with 29.3%. Black students were at 10.9%. Asian students were at 1.9%. Slightly higher was the other category which contains, but is not limited to, students that identify as American Indian, Alaska Native, Native Hawaiian, Other Pacific Islander and/or two or more races with a cumulative total of 10.2; most of which falling within the two or more races category (see Table 4.3). In addition, 87.8% of the students who qualified to participate in this study qualify for the Free/Reduced Lunch program while 13.2% of students do not qualify for the program (see Table 4.4).

## Table 4.1

Number of Siudeni	vumber of student Participants Based on Grade Level							
	Balanced	Traditional	Total	Percentage of				
	Calendar	Calendar School		Sample				
Kindergarten	56	53	109	41.0%				
First-Grade	23	28	51	19.2%				
Second-Grade	17	32	49	18.4%				
Third-Grade	28	29	57	21.4%				
n =	124	142	266	100.0%				

Number of Student Participants Based on Grade Level

# Table 4.2

	Balanced Calendar	Traditional Calendar School	Total	Percentage of Sample
Male	75	66	141	53.0%
Female	49	76	125	47.0%
n =	124	142	266	100.0%

Number of Student Participants Based on Gender

## Table 4.3

Number of Student Participants Based on Ethnicity

	Balanced Calendar	Traditional Calendar School	Total	Percentage of Sample
Latinx	55	72	127	47.7%
White	36	42	78	29.3%
Black	15	14	29	10.9%
Asian	4	1	5	1.9%
Other	14	13	27	10.2%
<u>n</u> =	124	142	266	100.0%

## Table 4.4

Number of Student Participants Based on Free & Reduced Lunch Status

¥	Balanced Calendar School	Traditional Calendar School	Total	Percentage of Sample
F/R Lunch	109	122	231	86.8%
Non-F/R Lunch	15	20	35	13.2%
n =	124	142	266	100.0%

#### **Sensitivity Analysis**

Prior to running the analyses on the data that signify the students' growth from their beginning-of-year and end-of-year composite scores, the researcher conducted a sensitivity analysis. A sensitivity analysis is "the investigation of potential changes and errors and their impacts on conclusions to be drawn from the model . . . It is possibly the most useful and most widely used technique available to [individuals] who wish to support decision making" (Pannell, 1997, p. 1). For this study, the researcher felt necessary to understand the correlation and significance between the students from each school setting and their performance on the beginning-of-year and end-of-year assessments, separately.

#### **Pearson Correlation: Beginning-of-Year**

The beginning-of-year assessment was given to all students in Kindergarten through third-grade at the four schools in the study. The students who qualified for this study had a beginning-of-year composite score that qualified them as below or well-below grade level. The results (see Table 4.5) when looking at the different school schedules and the beginning-of-year results indicated a strength of relationship score of .030 after assessing using a Pearson Correlation (r). This indicates that the strength of the relationship is weak. The Regression Analysis (r-square) indicates a score of .001 which determines that the chances of somebody predicting a student's beginning-of-year score based solely on the school calendar he or she attends are very slim as there is not a definite correlation shown within these results. In regard to the Significance (Sig.), the beginning-of-year scores showed a Significance score of .623 determining that the researcher would have a 62.3% chance of giving a false positive or false negative based on these variables alone. Lastly, the Standardized Coefficients, or Beta (B) score,

showed that a student who attends the traditional calendar school would be predicted to have a beginning-of-year composite score of 62.48 whereas a student within a balanced calendar school is predicted to have their beginning-of-year composite score at 3.62 points under their peers from the other school.

## Table 4.5

¥	Traditional Calendar	Balanced Calendar
r	.030	.030
r-square	.001	.001
df	264	264
В	62.48	-3.62
t	12.413	492
Sig.	.623	.623
n	142	124

Results of Pearson Correlation: Beginning-of-Year Assessment Data by Calendar Schedule

#### **Two-tailed t-test: Beginning-of-Year**

The two-tailed t-test was also used to determine the significance between the type of school calendar a student attends and their beginning-of-year composite scores. The findings in this test (see Table 4.6) correlate with several components that the Pearson Correlation test showed above. For example, the mean scores for the traditional calendar schools, 62.48, and the balanced calendar schools, 58.85, show the approximate three-point gap that was determined within the Standardized Coefficients in the previous test. In addition, the Standard Deviations (SD) for the traditional and balanced calendar school, 60.05 and 59.90 respectively, show a very close relationship to the two sets of scores. The Significance for the two-tailed t-test (p) came

out to .623 which shows the potential percentage of error when deeming this not a significant relationship.

Taking these statistics (see Table 4.6) in consideration, the researcher is confident to determine that the relationship of the type of school, traditional calendar school and balanced calendar school, and the students' beginning-of-year assessment composite scores alone do not show a statistically significant relationship. With this being stated, it would be difficult to predict what a student would score on the beginning-of-year assessment based solely on their placement at one of these school settings.

#### Table 4.6

Resuits Of t	-iesi. Effects (	n Deginning-0	J-Teur Asses.	smeni Duit	i by Culendur Sc	neuuie		
		School C	Calendar					
	Traditiona	l Calendar	Balanced	Calendar	95% CI for			
	n =	142	n =	124	Mean			
	М	SD	Μ	SD	Difference	t	<b>p*</b>	df
BOY Scores	62.48	60.06	58.85	59.90	-10.89, 18.14	.492	.623	264

Results of t-test: Effects of Beginning-of-Year Assessment Data by Calendar Schedule

## **Pearson Correlation: End-of-Year**

The end-of-year analysis (see Table 4.7) shows a lot of the same determinations that were found within the beginning-of-year analysis. For instance, the Pearson Correlation (r) also showed a weak correlation with a score of .005. The Regression Analysis (r-square), .000, also showed that it would be near impossible to predict how a student would do on the end-of-year assessment based solely on the placement of school. The Significance (Sig.) showed an even higher number than the beginning-of-year with a total of .929 which creates even more of a limit of predicting the success of student's score based on placement. There was, however, a small closing to the gap of the Standardized Coefficients (B) from beginning-of-year to end-of-year with a predicted score of 165.14 for students attending a traditional calendar school while their peers attending a balanced calendar school would be predicted to be below 0.99 lower. This statistic was over a three-point difference within the beginning-of-year analysis.

#### Table 4.7

Traditional Calendar		Balanced Calendar		
r	.005	.005		
r-square	.000	.000		
df	264	264		
В	164.14	988		
t	21.87	089		
Sig.	.929	.929		
n	142	124		

D 1.

## Two-tailed t-test: End-of-Year

In regard to the two-tailed t-test, the mean scores for the traditional calendar school was 165.14 while the balanced calendar school came in slightly lower at 164.15; the -0.99 gap that correlates with the Standardized Coefficients (B) that were found in the Pearson Correlation. As was true with the beginning-of-year analysis, the Standard Deviations (SD) for the traditional school calendar and the balanced calendar schools were also close to one another with the respective scores of 88.58 and 91.60. The two-tailed t-test for the end-of-year analysis (see Table 4.8), similar to the beginning-of-year analysis, shows a very low Significance level (p) with a score of .929.
## Table 4.8

		School C						
	$\frac{\text{Traditional Calendar}}{n = 142}$		Balanced	$\frac{\text{Balanced Calendar}}{n = 124}$				
			n =					
	Μ	SD	М	SD	Difference	t	p*	df
EOY Scores	165.14	88.58	164.15	91.60	-20.80, 22.77	.089	.929	264

Results of two-tailed t-test: Effects of End-of-Year Assessment Data by Calendar Schedule

\* p < .05 to be statistically significant

# **Sensitivity Analysis Summary**

Taking all of the above statistics in consideration (see Tables 4.5 - 4.8), the researcher is confident to state that the relationship of the type of school, traditional calendar school and balanced calendar school, and the students' end-of-year assessment scores alone do not show a statistically significant relationship. With this being stated, it would be difficult to predict what a student would score on the end-of-year assessment based solely on their placement at one of these school settings.

# **Research Question and Hypothesis Results**

The research question stated within this study was: What is the relationship between student participation in the balanced calendar and reading academic achievement, as measured by the DIBELS Next assessment of students, in grades Kindergarten through third-grade who have been identified as being below or well-below grade level?

The hypothesis stated within this study was: There is a statistically significant relationship between student participation in a school with a balanced calendar, and reading academic achievement, as measured by the DIBELS Next assessment, for students in Kindergarten through third-grade who have been identified as being below or well-below grade level.

The following subsections of this chapter will describe the tests that were conducted, not only to determine the answer for the research question in order to determine the validity of the stated hypothesis (see Tables 4.9 - 4.10), but also to analyze several subgroups, looking at a number of factors, to determine if a specific gender and/or grade level and/or benefitted from the balanced calendar more so when compared to their like-peers within the traditional calendar setting (see Tables 4.11 - 4.20).

### **Power Analysis**

Most quantitative studies use a Power Analysis test "to determine what sample size is needed to detect an effect of a certain size" (McHugh, 2008, p. 263). This is done because in most studies, it is nearly impossible for the researcher to ensure that they can maintain a 100% participation rate with everybody who qualifies for the study. However, in this study, it was not necessary as the researcher had access and used the entire population that qualified for this study. Based on the ability to use 100% of participants, "there is no sample, the entire population under study is called a census" (Louangrath, 2013, p. 12). In this census study, the population and the sample used were 266 students.

# **Pearson Correlation: Student Growth**

The study implemented two statistical tests to determine the results of the research question. The first test that was conducted was a Pearson Correlation. A Pearson Correlation test is used to measure "the degree and direction of the linear relationship between two variables" (Gravetter & Wallnau, 2013, p. 514). Within this study, the Pearson Correlation was used to measure the strength between student participation in either a balanced school calendar or a traditional school calendar and the students score on their DIBELS Next assessment. Within this test, a result can fall anywhere between -1 and 1. A score of -1 would show a significant

negative correlation. In contrast, a score of 1 would show a significant positive correlation. A result of 0 would indicate that there is no correlation between the two variables. When analyzing at the data (see Table 4.9), the researcher found that the Pearson Correlation (r) created a value of .020. The score of .020 is not too distant from the 0 benchmark, thus suggesting that the correlation for this test shows a very weak correlation.

Based on the data from this test, it would be nearly impossible to predict the outcome of a student's scores based solely on the type of school calendar that the student attends. This is indicated within the r-square value of .001. More specifically, the odds of somebody making an incorrect prediction of performance based on the school calendar would be 75% (Sig. = .750).

While the data within this Pearson Correlation does prove that there is a weak correlation amongst the type of school calendar attended and the growth that would be made in a school year, the Standardized Coefficients (B) indicate that the students who attended the traditional calendar would be predicted to make 102.66 worth of growth, while it can be predicted that a student at a balanced calendar would make approximately 2.64 points higher. While this does indicate a little more growth for students from the balanced calendar, the Pearson Correlation (r) still indicates that it is not a statistically significant indicator for predictions.

### Table 4.9

_	Traditional Calendar	Balanced Calendar
r	.020	.020
r-square	.000	.000
df	264	264
В	102.66	2.64
t	18.20	.32
Sig.	.750	.750
n	142	124

Results of Pearson Correlation: Growth Data by Calendar Schedule

# **Two-tailed t-test: Student Growth**

To answer this study's research question of this correlational study, the researcher conducted a two-tailed t-test. The two-tailed t-test was used to "determine if [the] two means are different from one another . . . [with] the possibility of both a positive and a negative effect" (Vallee, 2015, para. 10-11). This test showed the traditional calendar school had an average, or mean score, of 102.66 and the balanced calendar school had an average of 105.30; a 2.64 gap as indicated within the Standardized Coefficients (B) analysis within the Pearson Correlation with the same variables (see Table 4.9). The Standard Deviations (SD) did indicate a very close relationship as they were near each other with the traditional calendar school producing a score of 67.47 and the balanced calendar school producing a score a 66.95. Overall, the Significance of the two-tailed t-test indicated a score of p = .750.

For this study, it was determined that a score of p < .05 would prove statistical significance; therefore, with a p-value of .750, there is no statistical significance to determine that there is a relationship between the type of school calendar a student attends and the growth

that they will have from their beginning-of-year and end-of-year DIBELS Next assessment. In

addition, this information indicates that the hypothesis for this correlational study should be

rejected.

Table 4.10

*Results of t-test: Effects of Growth Data by Calendar Schedule* Table 4.10

	$\frac{\text{Traditional Calendar}}{n = 142}$		Balanced	$\frac{\text{Balanced Calendar}}{n = 124}$				
			n = 1					
	Μ	SD	М	SD	Difference	t	<b>p*</b>	df
Growth Scores	102.66	67.47	105.30	66.95	-18.91, 13.63	319	.750	264

Results of t-test: Effects of Growth Data by Calendar Schedule

\* p < .05 to be statistically significant

# **Analysis of Student Groups**

In addition to running a two-tailed t-test to determine the significance of the research question posed, the researcher felt it was necessary to take a closer look into more specific subgroups within the population for this study. Within this section, the researcher will detail each group of students that were analyzed and the results to determine if there were any subgroups that showed a statistically significant impact in comparison to their peers that attended a school with a different type of school calendar.

## **Gender Analysis**

After an analysis using a two-tailed t-test, it was found that neither the females nor males, collectively as Kindergarten through third graders in this study, showed significant results (see Table 4.11). In regard to the females, there was actually a trend with the mean score that was negative for the balanced calendar schools. The traditional calendar school female students produced a mean score (M) of 69.68 while the female students at the balanced calendar schools

produced a mean score of 43.31; a 26.37 point deficiency. As with all of the other tests, the Standard Deviations (SD) did indicate a strong relationship with a difference of only 3.00 points. As with the other tests, the Significance (p) must be less than a measurement of .05 in order to be statistically significant. In the analyses conducted on gender, the rate of growth for female students found a p-value of .241. Therefore, the rate of growth for females did not indicate that there was a statistically significant relationship with their gender and their reading growth.

Comparatively, the p-value found when analyzing the males scores, .160, also indicated that there was no statistically significant evidence that male students' reading scores were different within either of the school calendars. Opposite of the females, however, the males at the balanced calendar schools had mean scores that showed a more positive trend if attending the balanced calendar schools. With a gap of 24.34, the males at the balanced calendar schools had an average (M) growth score of 73.82 while the females only had a mean growth rate of 49.48. Table 4.11

	School Calendar							
Tra	$\frac{\text{Traditional Calendar}}{n = 142}$		$\frac{\text{Balanced Calendar}}{n = 124}$		95% CI for			
					Mean			
- -	М	SD	Μ	SD	Difference	t	p*	df
Females 69	9.68	69.68	43.31	66.68	-6.66, 26.4	1.18	.241	264
Males 49	9.48	70.69	73.82	73.82	-29.98, 4.96	-1.41	.160	264

*Results of t-tests: Effects of Growth Data by Calendar Schedule for Gender* 

\* p < .05 to be statistically significant

#### **Grade Level Analysis**

As found earlier in this chapter, many of the demographics were similar to the makeup of the entire school body. One statistic that remained an outlier, however, was the high percentage of Kindergarteners that qualified for this study compared to the other grade levels. Although the outlier is reasonable due to many Kindergarteners beginning their school year without any formal education, there still was inquiry as to whether any grade levels showed statistically significant evidence towards whether or not one of the calendars helped or hindered reading growth (see Table 4.12).

Kindergarteners and third-graders produced mean scores that showed favor for the balanced calendar schools. Kindergarteners at a traditional calendar school, for example, had a mean score of 49.85 while their peers at the balanced calendar school had a mean growth score of 54.89; a difference of more than 5 points. The third grade mean growth looked similar with the traditional calendar school students producing a mean growth score of 25.55 and their peers producing a growth mean score of 30.81; a difference, also, of more than five points of growth. Both grade levels also had Standard Deviation scores that indicated a high strength level. When determining whether or not there was statistically significant evidence that the calendars helped with the reading growth, both Kindergarteners and third-graders showed no statistical significance with p-values of .546 and .493, respectively.

First- and second-graders were the opposite when it came to growth. Within these two grade levels, the mean growth indicated that the students who were attending the balanced calendar schools made less growth, on average, than their peers at the traditional school. More specifically, both grade levels had approximately four less points within the growth of the balanced calendar than their peers. As with the Kindergarten and third-grade statistics, the first-and second-graders also had Standard Deviation scores that indicated a strong relationship with both scores being less than 2 points. Ultimately, both grade levels indicated no statistically significant results with first-graders producing a Significance (p) score of .328 and second-graders with a Significance score of .492.

# Table 4.12

		School C								
	Traditiona	l Calendar	Balanced	Calendar	95% CI for					
	n =	142	n =	124	Mean					
	М	SD	М	SD	Difference	t	p*	df		
Kindergarten	49.85	69.61	54.89	65.90	-21.48, 11.39	604	.546	264		
First-Grade	8.93	33.95	4.97	31.67	-4.00, 11.93	.979	.328	264		
Second-Grade	18.34	43.93	14.63	43.77	-6.91, 14.32	.688	.492	264		
Third-Grade	25.55	60.50	30.81	64.51	-20.37, 9.84	687	.493	264		
* $p < .05$ to be statistically significant										

Results	of <i>t</i> -test:	Effects of	of Growth	Data by	Calendar	Schedule	for All	Grades
	./	././	./	~			/	

# Males by Grade Level Analysis

After analyzing the data from gender and grade level, it was evident to the researcher that the closest group to producing statistically significant results as it relates to reading growth between a balanced calendar school and traditional calendar school was with the male group (p = .160). The researcher felt necessary to analyze further into the male data by disaggregating the specific gender data by grade level. This data consisted of analyzing male data within Kindergarten, first-grade, second-grade and third-grade.

Of these four groups, three were found to be not statistically significant (see Table 4.13). Of the three, the first-grade males had a p-value closest to statistical significance with a score of .146. However, when looking at the mean scores, it would indicate that the first-grade males within the traditional calendar (M = 6.30) grew more than the first-grade males in the balanced calendar (M=1.43).

Second-grade males also showed a trend where a slightly larger amount of growth happened within the traditional calendar versus the balanced calendar with mean scores of 8.17 and 7.65. Due to how close these mean scores of growth were, it is no surprise that the p-value

is high with a score of .897. For this test, there was no statistical significance within the variables of second-grade males and the rate of reading growth.

The third-grade male scores show that the students within the balanced calendar setting grew more, on average, throughout the school year. With a mean score of 18.22, the third-grade male students had almost a five-point gain over their peers attending the traditional school calendar. Ultimately, the growth rate produced a Significance (p) score of .444 which is not statistically significant.

#### Table 4.13

		School C	Calendar							
	Traditiona	Traditional Calendar		Balanced Calendar						
	n = 142		n = 124		Mean					
	М	SD	М	SD	Difference	t	<b>p*</b>	df		
First-Grade	6.30	29.79	1.43	23.83	-1.71, 11.45	1.46	.146	264		
Second-Grade	8.17	30.47	7.65	35.30	-7.42, 8.46	.130	.897	264		
Third-Grade	13.58	48.35	18.22	50.36	-16.57, 7.29	766	.444	264		
* $p < .05$ to be statistically significant										

Results of t-test: Effects of Growth Data by Calendar Schedule for Males in Grades 1-3

In contrast to all the other analyses conducted within this study, Kindergarten males (see Table 4.14) did show statistically significant results for the rate of growth within a different school calendar. For this analysis, the p-value found when conducting a two-tailed t-test resulted in p = .047 which is less than .05. This determines that the results are that of a statistically significant finding. After further analysis of the mean scores for each grade level, it appears that the Kindergarten males attending the balanced calendar schools had mean growth rate (M = 16.17) 4.73 points higher than the Kindergarten males attending the traditional calendar schools (M = 11.44).

## Table 4.14

0	30 3	~		2		0		
		School C						
	Traditional Calendar		Balanced Calendar		95% CI for			
	n = 142		n = 124		Mean			
	М	SD	Μ	SD	Difference	t	p*	df
Kindergarten	11.44	38.39	16.17	43.15	-26.36,16	-1.99	.047	264
* < 05 + . 1 +	· · · · · · · · 11 · · ·	: C						

Results of t-test: Effects of Growth Data by Calendar Schedule for Males in Kindergarten

\* p < .05 to be statistically significant

Although the two-tailed t-test shows statistical significance within the growth rate of Kindergarten males, the test does not determine the cause for this significance. These results and the researcher's interpretation of why this subgroup is an outlier will be discussed within Chapter 5 along with future recommendations that would enhance this analysis in particular.

# **Summary of Results**

This study was created due to the researcher's interest in trying to understand how to assist students who are struggling within the first couple of years of their academic journey to ensure that the rest of their journey is obtainable. The researcher decided to look at the balanced calendar school to determine if the students had a better chance of not only learning information, but also retaining it. Chapter two indicates several reasons why many have believed that the change in schedule could happen within a balanced calendar setting including, but not limited to reducing the time for a summer learning gap and reducing the burnout rate of both students and teachers. Thus, the research question and hypothesis, both directly correlated to the reading achievement rate of students in both school settings, was created.

Within this chapter, the research presented the data that were collected from the students. Through some analyses of this data, the researcher was able to conduct a Pearson Correlation to determine the strength between the variables used for this study and a two-tailed t-test to determine if the results showed a trend, either positive or negative, that was statistically significant.

In all of the tests that were conducted, the researcher found that all correlations, beginning-of-year, end-of-year and the rate of growth between the two assessments, were weak. In addition, most of the two-tailed t-tests that were conducted, including the cumulative growth rate of all struggling readers in Kindergarten through third-grade, were found not to be statistically significant. One test, however, did show that the balanced calendar had a statistically significant and positive effect on the reading growth of Kindergarten males (p = .047).

Although the hypothesis was found to be not statistically significant, there is some evidence with the Kindergarten males that the balanced calendar could be beneficial. With all of the analyses, whether found to be significant or not, the findings contribute to the existing body of evidence in the areas of alternative school calendars, the Third-Grade Guarantee and closing the achievement gap. Existing studies and articles tend to focus on students who are currently taking standardized assessments which, in most areas of the United States, is the third through twelfth-grade. This study is unique in providing more information in the area of primary students who struggle with the foundational reading skills.

#### CHAPTER 5

### DISCUSSION

The purpose of this study was to analyze the trend of reading growth at like-schools within a low-socioeconomic region to determine if the balanced calendar provided an enhanced opportunity for students to learn and retain new information presented in their primary years of education. This study focused on two elementary schools that have implemented a balanced calendar for three academic years and two elementary schools that implemented the traditional school calendar. Both sets of schools had similar demographics. Upon using a two-tailed t-test to determine the significance of the growth between the beginning-of-year and end-of-year DIBELS Next assessment, the researcher was able to conclude that there was no statistically significant evidence (p = .75). The researcher did discover through a deeper analysis of specific groups of students that there was statistically significant evidence that showed that Kindergarten males who have been identified as reading below or well-below grade level who attended the balanced calendar schools had a greater growth rate than their peers at a traditional calendar setting within one academic year.

### **Discussions and Implications**

Several studies, including many reviewed in the literature review, (Callahan, 2017; Cooper, Valentine, Charlton & Melson, 2003; Duncan et al, 2005; Huffman, 2013; Kneese, 1996; Kneese, 2000; Pfeiffer, 2011), have been conducted to analyze the academic benefits of the balanced calendar within a school setting. Most of these studies, however, have only analyzed the standardized scores of third- through twelfth-graders. While standardized assessments have been used for more than two decades for holding schools accountable, a relevant, empirical study (Annie E. Casey Foundation, 2010) indicated that the key to a

successful academic journey for any student is correlated to the mastery of foundational reading skills within the primary ages, not based on the standardized scores once they have reached fourth-grade.

The Annie E. Casey Foundation (2010) study highlighted the importance of learning and retaining essential reading foundational skills prior to leaving third-grade. Based on the results of the study, 33 states from around the country, as well as the District of Columbia (Education Commission of the States, 2016) have created or adopted some form of the Third-Grade Guarantee law. With this newfound movement, it is important to find out how students are performing prior to being in a grade level where they are given standardized tests, especially since standardized assessments are based around comprehension skills and not foundational reading skills.

Although testing the original hypothesis in this study found that there was no significant relationship between school calendar and reading growth for all primary students reading below grade level, the analyses did show that Kindergarten males had a significantly higher rate of growth at a balanced calendar setting. Both findings are valuable contributions to the existing body of literature as it relates to the balanced calendar, as well as important considerations when designing future research opportunities.

In order to better comprehend the statistically significant finding in this study, it is imperative to explore three factors: the reason that so many students are coming into Kindergarten ill-equipped with pre-literacy skills, the skills on which students in this grade level are being assessed, and how a student's Kindergarten year can affect the rest of their academic journey. Educational leaders and teachers must understand the importance of using data to

examine achievement factors in the area of reading that apply to the community, district, school, classrooms and students.

## **Kindergarteners and Preschool Programs**

After gathering the data of all the students who tested at a below or well-below level on the beginning-of-year assessment, it was initially evident to the researcher that the Kindergarten students that qualified for this study were 41% of the entire Kindergarten student body. One possibility for this lack of reading readiness could be due to the number of students who did not attend a preschool program prior to their Kindergarten year. The U.S. Department of Education (2015) cited this as a concern and claimed:

Children's language skills from age 1 to 2 are predictive of their pre-literacy skills at age five. A robust body of research shows that children who participate in high-quality preschool programs have better health, social-emotional, and cognitive outcomes than those who do not participate. The gains are particularly powerful for children from low-income families and those at risk for academic failure who, on average, start kindergarten 12 to 14 months behind their peers in pre-literacy and language skills. . . Children who attend high-quality preschool programs are less likely to utilize special education services or be retained in their grade, and are more likely to graduate from high school, go on to college, and succeed in their careers than those who have not attended high-quality preschool programs (pp. 1-2).

The U.S. Department of Education (2015) also specified that 59% of four-year old children, nationwide, were not enrolled in publicly funded preschool programs in 2015. While it is not known how many of the Kindergarteners in this study attended preschool, the percentage may be similar to the U.S. statistics considering that 41% of Kindergarteners within the school district qualified as being below or well-below grade level with beginning-of-the-year reading skills.

# **Kindergarten Reading Skills**

When a Kindergarten student is given the beginning-of-year DIBELS Next assessment, they are assessed solely on First Sound Fluency (FSF) which is the ability to understand and recite early phonemic awareness sounds. This is a skill that is typically taught within the preschool years, if attended, as students are acquainted with how letters look and sound. The Kindergarten students who qualified for this study did not pass this skill.

It is important, however, that the teacher find ways to intervene with the students who do not have these skills at the beginning-of-the year as it is an expectation to have these skills mastered by the middle-of-year assessment. Once the middle-of-year assessment happens, Kindergarten students must start exhibiting mastery in Phoneme Segmentation Fluency (PSF) and Nonsense Word Fluency (NWF). For those students who have not mastered these skills, they will more than likely complete their Kindergarten year at below or well-below benchmark, more than likely categorizing them as a student with a Significant Reading Deficiency as mandated by the state of Colorado.

This is crucial to understand because, at this point, not only is a Kindergarten student who has fallen behind still responsible for learning and mastering the skills that they had not mastered by mid-year, typically using small group interventions, but are also expected to simultaneously master other skills that build upon the ones that they still have not yet mastered. Thus, the academic learning gap widens even further. This gap has more than just an educational impact on the Kindergarteners. It can also cause "negative attitudes toward reading, reduced opportunities for vocabulary growth, missed opportunities for development of reading comprehension strategies [and] less actual practice in reading than other children receive" (Torgesen, 1998, p. 1).

# **Balanced Calendar Benefits for Kindergarteners**

Technically, it appeared that the Kindergarten students within this study both had the same time to master the skills within the Kindergarten curriculum. Although the students

attending the traditional calendar were assessed approximately three weeks before the students in the balanced calendar schools took theirs, it was actually equal when looking at the number of days a student attended the regular school year prior to testing. There are, however, two factors that should be noted prior drawing conclusions about why the Kindergarten males within a balanced calendar setting progressed significantly more than their peers at the traditional calendar: the intersession periods and maturity.

For traditional school students, their opportunity for intersession periods of learning fall within the summer break either after school has ended or prior to the next year beginning. Prior to being assessed on the DIBELS Next assessment, these students would not have been afforded the opportunity for this skill-based intervention to ensure they were able to catch up to their peers that were reading at or above grade level. The students at the balanced calendar schools, however, did have the opportunity for extended learning as their intersession periods exist within the school year and not at the end of it. Assuming that the Kindergarten males at the balanced calendar schools had attended all three intersessions prior to their DIBELS Next assessment, this would mean that they had three extra weeks of instruction prior to being assessed.

In addition, at the ages of five and six, students are still maturing. Kindergarten is not only a time for an academic shift in a students' life, but also learning social and developmental skills, as well. Although it is not too large of an extension, the male students within the balanced calendar did have almost an extra month to mature. While this may not be a factor, it should not be ignored without understanding how much a Kindergarten does grow within this timeframe.

#### **Kindergarten Long-Term Impact**

For some students, Kindergarten is the first opportunity for a student to walk into a structured learning environment. For others, it could be their third year within an educational

setting. Factors such as these can not only affect the short-term learning effects of a Kindergarten student, but can affect the students long-term, as well. Chetty et al. (2010) conducted an empirical study that analyzed the academic rate of growth from students who attended Kindergarten in 1980 and their quality of life, including income, college attendance, home ownership and retirement savings, thirty years later. The study followed up with 12,000 adults that had all attended The Student/Teacher Achievement Ratio (STAR) experiment in low-socioeconomic schools throughout Tennessee as primary students. They used the students' rate of growth as an indicator to rank them based on academic success as a six-year-old. The study found that, while some students with a strong Kindergarten experience may not necessarily score high on standardized assessments during their intermediate and/or secondary school years, there is a correlation that links to long-term effects that indicate they will "earn more, are more likely to attend college, save more for retirement, and live in better neighborhoods" (p. 37).

#### **Implications for School Leadership**

As educational leaders, it is important to analyze study results such as the ones found in this research to determine the factors that apply to the community, district, school, teachers and students. Not all school districts encounter the same factors that drive success and failure.

With that in mind, there are results within this study that could develop curiosity for longterm studies to see if there are possibilities of closing the achievement gaps for groups of students analyzed within this one-year study. Although the mean scores did not produce a pvalue that was statistically significant for all students combined, there were several comparisons that would benefit school districts implementing the balanced calendar to look at potential twoto three-year longitudinal growth of students within each calendar. Growth mean scores of five or more points from one academic year were produced by the students at a balanced calendar

school within the following subcategories: all Kindergarteners, all third-graders, all males, kindergarten males and third-grade males.

As studies within this research paper indicated, Kindergarten and third-grade tend to be significant years for primary students. Kindergarteners must master phonemic awareness and move into combining consonants and vowels together in order to form words. Without these skills, they move into first-grade with a large deficit compared to their peers that are performing at or above grade level. Third-grade is a significant year as shown by the Amy E. Casey Foundation (2010) study and was followed up with the Third-Grade Guarantee laws adopted across the nation. In addition, the fact that all males, kindergarten males and third-grade males made more growth within a balanced calendar school in comparison to their peers also can serve as evidence related to certain theories such as the fourth-grade failure syndrome.

For administrators who are looking to close achievement gaps and ensure that students are reading on or above grade level by the end of third-grade, this research study provides some insight into how the type of school calendar may or may not contribute to closing achievement gaps for students reading below or well-below grade level. Structural changes, such as the balanced calendar or block scheduling, are an easy remedy to address achievement gaps. However, there is limited evidence, as this study suggests, that structural change alone will have a significant impact on student learning outcomes. Although the study was able to identify a group of students that made statistically significant growth, there are still limitations for future research that should be considered prior to deciding to change a school calendar.

#### Limitations

The first limitation is indicative of one of the analysis tools, the Pearson Correlation, that was used for this correlational study. The Pearson Correlation is used to determine if there is a

possible linear relationship between two variables. That is the only the information that a Pearson Correlation can provide, though. Unfortunately, the test is not able to determine if other factors contributed to the results, nor can it determine the cause of the results. "Correlation coefficients do not communicate information about whether one variable moves in response to another. . .Thus, relationships identified using correlation coefficients should be interpreted for what they are: associations, not causal relationships" (Mukaka, 2012, p. 71).

Sample size is another limitation worth considering for future research. This research project was intentional on the qualifications so 100% of students who qualified could be used. However, with only having two small schools that utilized the balanced calendar, it only allowed for a small population number (n = 266). While the demographics of the four schools that were used for this research project did encompass the demographics throughout the entire district, larger sample-size would have been more desirable for the researcher.

Another limitation within the district is the administration of the DIBELS Next assessment. The DIBELS Next assessment is the most-used benchmark assessment tool in the state of Colorado (Colorado Department of Education, 2015c) with 74.7% of elementary districts using this. The reason that many educators preferred this assessment was because it was personalized for the students that are taking it based on their academic levels to gauge an accurate score. Unfortunately, with tests that are administered and scored by educators themselves, results can sometimes be inaccurate, inconsistent and subjective. The district that was used for this assessment does provide continuous professional development and coaching to teachers to ensure that all teachers are trained properly and subjectivity of scores are kept at a minimum.

Typically, it is suggested to conduct research on a program once it has been implemented for three consecutive years. The purpose of this timeline is to allow for consistency, as any new program suggests. For this study, the two balanced calendar schools were in their third year of implementation when the data were collected.

Another limitation that is worth considering, especially within an educational leadership mind frame, is the quality of teachers that are employed within a balanced calendar school setting. When the district used for this study began the implementation of the balanced calendar, the teachers had an option of transferring to another building that continued to utilize the traditional calendar. Over 40% of teachers within these schools either transferred to another school in-district or left the district. Many of the candidates that filled the vacancies in this urban district were first-year teachers. While first-year teachers are certified to teach a classroom, there is a learning curve that typically does not produce the most effective results within their first year. For instance, in one study conducted by Rees (2015), the study found that "68% of [first-year] teachers reported successes within the areas of teacher characteristics and classroom management" (p. 64), but the study also concluded that it was a process throughout most of the year. For this study, just two years after implementation, most of the teachers were within their first or second year of their teaching career.

#### **Recommendations for Future Research**

Based on the research conducted and the findings within this study, the researcher acknowledges that there are opportunities for further research within the areas of the balanced school calendar within elementary schools. The suggestions for future research fall into two categories: (1) How a similar study to this could be modified for future research and (2) Other variables that should be considered for future research.

# **Similar Study Recommendations**

The first suggestion for a future research study would be looking a longevity of students attending a balanced calendar school. Within the results of this study, it was observed that the students had a beginning-of-year mean score slightly below those that attended a traditional calendar school. However, when looking at the growth, the overall mean of the students attending the balanced calendar showed a closing of the gap from their peers at the traditional school. This gap was small, approximately three points, which did not lend itself to stating that the results were statistically significant, but a study that tracks students who attend this calendar from Kindergarten through their third-grade year could provide data that could not be seen within this one-year study.

Another recommendation for future research would be to find school settings that have implemented the balanced calendar for more than three years. The balanced calendar schools used in this study had only just concluded their third year of implementation upon retrieval of their end-of-year data. By analyzing a school with more years of implementation, there could be factors that align with successful schools such as a veteran staff, consistent teaching practices and consistency as it pertains to the calendar, itself.

As stated in several sections of the literature review, a student's race and/or socioeconomic status can sometimes predict the potential trend for their academic journey. While the researcher had intentions to run analyses based on race, he did not believe that the population size of each race contained a significant amount of participants to feel comfortable with the results. Especially when considering Black males, students who come from a low socioeconomic background and/or second- and third-generation immigrants, it would benefit the

existing literature within the topic to determine the academic effect of attending a balanced calendar school.

The last recommendation regarding a study similar to the one conducted in this project would be a larger sample size. This study collected scores from 142 students in the traditional calendar setting and 124 students in the balanced calendar setting. While there are pros to using a whole population, a future study could look at more schools that contain a larger student population to produce an even bigger picture of the potential advantages of attending a balanced calendar school within the primary grades.

# **Other Variable Recommendations**

The first recommendation for future research would be researching the effectiveness of other types of alternative school calendars to measure the effectiveness of learning and retaining foundational reading skills in the primary grade levels. This study focused on a schedule similar to a 45-15 balanced calendar which is approximately 45-days in school and a 15-day intersession. Other variations of the balanced calendar are, but not limited to, a 45-10 and 60-20 and 90-30 (Pepper & Ballinger, 2009a). However, there are other variations of alternative calendars that are being utilized in the United States. The four-day school week, for instance, has students who attend school for four school days, typically a little longer than the average school day, and then are given a three-day weekend. Another version would be a year-round school schedule where students attend longer than the state-suggested 180-day program.

Another study, as it pertains to the effectiveness of a balanced calendar school program, would be evaluating the teacher quality at a school with an alternative schedule. Upon implementation of the balanced calendar schools within this study three years ago, teachers were given the option to transfer to a school with the traditional school calendar. While many teachers

remained, there were some that left due to reasons such as wanting their summer break and wanting schedules consistent with their own children who attend schools with the traditional calendar. The researcher is not sure of the effectiveness of the teachers who remained versus who stayed, but further research to determine the type of effectiveness that an alternative school schedule may attract would bring more research into the body of evidence for reasons that schools may or may not want to implement or continue a program such as the one researched in this project.

This study focused solely on primary reading skills. This study did not analyze the growth of achievement in any other content areas. For instance, future research could analyze the growth of math skills within an academic year. Fact fluency, for instance, is a skill that requires rote learning and memorization. Like reading skills, a three-month summer intersession could allow the student to forget the skills that were introduced and memorized within the last school year.

Another major component that was not part of this study, nor any other study found, is to look at the long-term effects of elementary students who attended a balanced calendar school. This could be examined as they shift into a secondary school setting that shifts back into the traditional calendar. The two elementary schools within this study that implement the balanced calendar both feed into separate middle schools. Both middle schools implement the traditional school calendar. It would be informational to analyze the longitudinal trends of their performance as they transition back into a traditional school calendar. This longitudinal study could compare their middle school scores versus the students who did not have to adapt because their elementary schedules were consistent with the middle school's schedule. In addition, future research could even look at the correlation between students who attended a balanced calendar

within their elementary years and graduation rates. Does the statistical significance of attending a balanced calendar school as a kindergarten male have any correlation to the rate of males graduating high school?

Another aspect that attributes to the statistical significance of the growth rate of Kindergarten males would be to look further into their preschool experiences. Are the students entering Kindergarten at or above grade level those who attended a preschool program? Are those who make more growth those who attended a preschool program? Are those who are reading below or well-below grade level at the end of the school year those who did not attend a preschool program. Future research around this could help shape the approach that the country takes when determining the future with preschool programs.

## Conclusion

The original angle of this research paper was to look at third- through fifth-grade standardized assessment scores to determine if the balanced calendar was effective within an urban community. As the researcher began to conduct research from previous studies, there became a clear dissonance between the research of primary students' achievement scores and alternative calendars to try and narrow the achievement gap. Upon learning about the Third-Grade Guarantee, the researcher was confident that he wanted to fill this void where no studies have indicated an interest in looking at data that is produced prior to standardized assessments in regard to the balanced calendar.

Once determining that the focus would be on primary students, the research design became a view of all students at once. The results of that assessment, as related to the research question and hypothesis, were that there were not statistically significant relationships between the school calendar and student reading achievement. This led to a deeper analysis that consisted

of disaggregated data based on gender, grade level and the two together. This did produce results that were statistically significant in the area of growth for Kindergarten males.

Based on the existing research for struggling, primary students within a balanced calendar, or the lack thereof, it is evident that this research topic is at its prime. Many studies have attempted to determine the quality of a program based on the standardized scores that the schools conceive. Ultimately, while this project served to provide some answers, it also served to promote thought-provoking questions. As a nation, we need to ensure that educators and leaders understand that if we want our children to graduate and have successful post-academia lives, then we need to ensure that the moment they walk into an educational establishment, they are afforded every opportunity to succeed. While this study did find one group of students that did significantly benefit from the balanced calendar, there are still several opportunities for future research that would benefit this study, as well as other existing research, in regard to the academic benefits of the students within a balanced calendar school.

#### APPENDIX A

## IRB APPROVAL FORM



UMKC 5319 Rockhill Road Kansas City, MO 64110 TEL: (816) 235-5927 FAX: (816) 235-5602

#### NOT HUMAN SUBJECTS RESEARCH DETERMINATION

Principal Investigator: Mr. Donovan Sawyer 1031 Norwood Avenue Colorado Springs, CO 80905

Protocol Number: 18-141

Protocol Title: Balanced Calendar versus Traditional Calendar: Measuring the Difference in Reading Academic Achievement among Kindergarten through Third-Grade Students Who Have been Identified as Having a Significant Reading Deficiency Type of Review: Not Human Subjects Determination

#### Date of Determination: 05/31/2018

Dear Mr. Sawyer,

The above referenced study, and your participation as a principal investigator, was reviewed and determined to be Not Human Subjects Research (NHSR). As such, your activity falls outside the parameters of IRB review. You may conduct your study, without additional obligation to the IRB, as described in your application.

The NHSR Determination is based upon the following Federally provided definitions:

"Research" is defined by these regulations as "a systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge."

The regulations define a "Human Subject" as "a living individual about whom an investigator (whether professional or student) conducting research obtains: data through intervention or interaction with the individual, or identifiable private information."

#### Attachments include the following:

Sawyer Proposal Defense Acceptance.pdf; Sawyer Proposal 4.22.18.pdf

All Human Subjects Research must be submitted to the IRB. If your study changes in such a way that it becomes Human Subjects Research, please contact the Research Compliance office immediately for the appropriate course of action.

Please contact the Research Compliance Office (email: umkcirb@umkc.edu; phone: (816)235-5927) if you have questions or require further information.

Thank you,

Compon

Cynthia Thompson UMKC IRB Administrative Office

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## VITA

Donovan "Troy" Sawyer, Jr. was born in May 1984 in Kansas City, Missouri. As a student who attended public school, Mr. Sawyer jumped at the opportunity to work at a preschool center right after high school. With this experience, he knew he wanted to become an educator. In Fall 2007, he graduated with a Bachelor of Science degree in the area of Elementary of Education.

Mr. Sawyer had a passion educating students within an urban environment and began his teaching career in a Title 1 school in downtown Kansas City, Missouri. Within two years of teaching, he began to understand the policies and politics of a school system and felt that his potential was beyond the classroom. In May 2010, he graduated with his Master of Science degree in the area of Educational Leadership.

After obtaining his Masters degree, Mr. Sawyer left teaching to become an instructional coach. His passion for mathematics and classroom management set him apart from a lot of his colleagues. He moved to Colorado Springs in 2014 where he became a district coordinator that specialized in classroom management and methods of teaching, specifically in the content area of mathematics. After helping several struggling teachers become effective within a Pay-for-Performance school district, he was promoted to an assistant principal position of an elementary school. Within two years, the school that was once a School of Promise, had obtained the 2017 Colorado Governor's Distinguished Improvement Award specifically for closing the achievement gap and exceeding state growth expectations in the area of mathematics.

Mr. Sawyer began his work toward the Ed.D program for Urban Educational Leadership at the University of Missouri – Kansas City in the Spring of 2012. Upon completion of his

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degree, Mr. Sawyer plans on returning to Kansas City to continue his administrative work within Title 1 schools that are struggling to meet state expectations.